EFFECTIVE
School Practices

FOCUS: COACHING AND SUPERVISION
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ADI

Philosophy of *Effective School Practices*

1. Teachers are responsible for student learning.
2. The curriculum is a critical variable for instructional effectiveness.
3. Effective teaching practices are identified by instructional research that compares the results of a new practice with the results of a viable alternative.
4. Experiments should not be conducted using an entire generation of Americans. The initial experimentation with a new practice should be small in scale and carefully controlled so that negative outcomes are minimized.
5. A powerful technology for teaching exists that is not being utilized in most American schools.

A Remarkable Day:
In Memory of Al Shankar

Note: One day in 1996 a remarkable thing happened. A letter from Al Shankar, late president of the American Federation of Teachers, and a letter from Zig Engelmann appeared together on the same page of Education Week. Not only were they on they same page, but they were responding to the same feature article critiquing "Pre-Crafted Reform." Furthermore, if you start reading without looking ahead to which one of them wrote the letter you would have a hard time identifying the authors. Al sounds like Zig and Zig sounds like Al. The title on the page was...

TEACHER AUTONOMY AND CLASSROOM REALITIES

To the Editor:

I couldn't agree more with Kathe Jervis ("Pre-Crafted Reform, Commentary, June 12, 1996) that teachers must be centrally involved in implementing school reform. But her romantic view of classrooms—"living, breathing entities ... requiring moment-to-moment decisionmaking"—exemplifies why it continues to be such a struggle both to raise academic achievement and to make teaching a true profession, as well as why so many good school reforms don't last.

Ms. Jervis rejects the notion that there is any systematic way to codify and transmit the knowledge and techniques of good teaching. I believe that until we do exactly that, we'll be stalled on student achievement and promising reforms will continue to be doomed. As happens now, good reforms may flourish briefly—even highly successfully—in a few settings, but without a *technology* (University of Arizona professor Stanley Pogrow's useful, but perhaps misleading term) of implementation that can be shared with others over time, the experiment will eventually evaporate. But Mr. Pogrow's notion of technology is far from the educational straitjacket that Ms. Jervis envisions, and it certainly allows—even expects—teachers to bring to bear their experience and knowledge of their students.

In other professions, most of what's considered effective and even outstanding is based on tried-

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and-true, common, routine procedures and a shared body of knowledge. Creativity comes into play when the routine practices don't work, not as a substitute for effective routines that embody the wisdom of previous practice. Teaching is the only field in which the practitioner is expected to be ceaselessly creative. But what's wrong with disseminating outstanding ways to teach "King Lear" or fractions? Are teachers that use the same lesson plan over and over again when it's a terrific plan to be labeled uncreative?

Routines and shared techniques certainly leave room for breakthroughs and improvements. Take chocolate cake, for example. There are standard recipes that allow people to produce a really good chocolate cake, but now and then someone comes along and improves upon the recipe—a superb chocolate cake! But unless they incorporate their changes into a recipe, no one but that creative person will be able to make the better cake. A more serious analogy is medicine. If a surgeon develops a new surgical technique that could help lots of other patients, isn't he or she obliged to spell out the routine in detail so that other surgeons can copy it? Or should all the other surgeons be expected to invent the technique on their own, based on their experience and knowledge of their patients? This is where Ms. Jervis' logic leads.

Teacher knowledge and experience are essential in trying to improve schools. The question really is: How are they best deployed? By having 3 million teachers each trying to figure out how to turn the latest reform idea into a curriculum? This is what happens in the absence of an implementation tech-

nology. Some teachers may do it well; others may do it poorly. Still others may come up with something that doesn't even resemble the original reform idea— so how can we even know if it works, or what exactly is or is not working? This is no criticism of teachers. It is a recognition of the reality in classrooms.

Ms. Jervis worries that reform efforts may be damaged by "too-systematic thinking about what isn't able to be systematized." But I think we have the opposite problem: a prejudice against anything done systematically and an unwillingness to systematize the knowledge and techniques of exemplary practice. Other countries have done this to their benefit, as have some schools here.

At the Barclay Elementary School in Baltimore, teachers use a highly scripted curriculum that sets high standards and demands "error free" work from students. The curriculum is based on the private Calvert School curriculum, which has been around for nearly 100 years and is the kind of implementation technology Stanley Pogrow talks about. Teachers like the curriculum because it lets them expend their energy and creativity where it is most needed, and students have made remarkable achievement gains. Most important, it works, and I think it is unconscionable to ignore what works, particularly with impoverished inner-city students like those at Barclay, while continuing to wait for successful reform to blossom magically classroom by classroom.

Albert Shankar
President
American Federation of Teachers
Washington, D.C.

To the Editor:

Kathe Jervis argues that teachers are creative, that we should honor their creative potential by centering reform around teacher autonomy, and that pre-crafted curricula are stifling and insensitive to the nature of children's growth and development.

The two problems with her argument are that there are no data to support any aspect of her position (and a lot to discredit it) and her centerpiece example does not support the case that the average teacher is a curriculum designer or an incisive diagnostician of children's learning. The example involves a teacher and professional artist who puts her 2nd graders through a great series of preparatory steps (studying the solar system, observing the night sky, viewing a segment of a PBS video, and going through a book on Van Gogh) before feeling that the

moment "seemed ripe" for their assignment, which was to paint "10 responses," for night sky.

Although we don't know how effective the instruction was (because the only outcomes referred to involved the product of one child), the somewhat classical approach—painting 10 responses—suggests that the kids would somehow benefit from doing more than one attempt. If this practice makes sense for the kids, it should also apply to teachers. If Ms. Jervis' teacher taught the same unit say four or five times, and received feedback from an expert in instruction, the program would improve greatly, as measured by the amount of time required to reach the "ripe moment" and by the number of kids who were ripe. By referring to the performance of teacher and kids (particularly to the mistakes kids made, the false starts, and the details that require the most "teaching") the instructional designer would be able

to shape the program by removing inert activities, sharpening the focus, cleaning up the language the teacher uses so the instructions are unambiguous, and honing the examples so they require less time and work better.

The result would be that Ms. Jervis' teacher would be able to go through the final program with less time, with a better yield in terms of student performance, and with more technical knowledge about how everything fits together to bring about a progressive series of ripe moments.

This shaping of an expert model is the first step in developing those programs that Ms. Jervis proscribes, "pre-crafted, highly structured" curricula. The process involves improving the sequences created by expert teachers. The improvement is scrupulously measured by the performance of kids. The sequence is modified until, ideally, all kids who meet the entry criteria (expressed as specific skills) reliably learn the content in a reasonable amount of time.

Once there is an "expert teaching" model in place, step two of the process is to make this model disseminable to other teachers, including rookies, those who do not have a background in art, and those who are quite far from being expert teachers. The pre-crafted model permits them to succeed, and also teaches them what sorts of practice are required for sophisticated applications. Viewed differently, after receiving only a tiny fraction of the training the expert received, the teacher of the pre-crafted program will be able to perform nearly as well as the expert.

This step in shaping the program for various teachers requires more fieldwork with the prototype sequence to assess the performance of different teachers. The step results in more modifications of the material.

If teachers or instructional designers do not take at least the first step of these two steps, their products tend to be quite sophomoric and relatively ineffective. Performance records of various places and formats that support teacher autonomy (such as the British infant-school model) show that teachers do not produce effective products. The most candid evaluation is that although many teachers try hard, the great majority of teachers are not effective instructional designers or diagnosticians of children's learning. Although one might score flattery points by saying otherwise, the truth is revealed by the kids, and their performance does not reflect effective creative input.

If teachers were effective in the instructional-design arena it would be something of a miracle because they never received any training that would prepare them to design and shape instructional programs. However, even if teachers had the training and skills, the probability of their producing effective programs would be low because they have neither the time nor the facilities to do the shaping in a timely manner.

In summary, Kathe Jervis' position seems to be elitist and not very sensitive to either the problems children have learning material or the facts about teachers. But she and her place of employment, the Center for Restructuring Education, Schools, and Teaching can vindicate their stance by augmenting their rhetoric with action.

Let's take a couple of inner-city elementary schools and run a comparison. The center would do its thing with one school; my team would take the other and use only pre-crafted sequences. The same amount of training time will be permitted for each school. We'll agree about the various subjects that are to be taught and the maximum amount of contact time devoted to any particular subject. And, of course, we'll provide some heavy-duty monitoring to assure that everybody is playing fair and not pre-crafting when they are supposed to be creating.

My prediction is that after two years, the pre-crafted school will outperform Ms. Jervis' school in everything—every subject (including art) and every grade. I'll back this prediction with a wager of $50,000 at 5-to-1 odds, which means that if I lose, Ms. Jervis and the Center for Restructuring Education, Schools, and Teaching win $250,000. I'm very serious about this bet, and although I suspect the Center is long on talk but short on action (which means it will reject the bet with a show of righteousness), this type of comparison is very important if our floundering educational system is to gain some realistic appreciation both of the absurdity of the Jervis position, and of the potential teachers have if they are provided with powerful tools that permit them to perform like experts.

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OVERVIEW

With the number of Direct Instruction implementations rapidly increasing, research on how to get teachers to implement DI with fidelity is very timely. This issue on classroom supervision was put together by our guest editor, Nancy Marchand-Martella at Eastern Washington University. Nancy has published perhaps more research studies on the topic of supervision than anyone else in the country who trains in Direct Instruction.

We reprinted the pair of letters from Al Shankar and Zig Engelmann to the editor of *Education Week* (pages 1-3). They are highly relevant to the topic of supervision. Few people realize how similar Al Shankar and Zig Engelmann's views have been regarding the issue of teacher creativity and freedom and the need for specific teaching procedures, such as those provided by Direct Instruction. A common set of tested procedures that is shared across a profession is the science of that profession. Many hold that teaching is an art, not a science, and the two are mutually exclusive. Al and Zig don't see it that way. They both see specific teaching procedures as essential to improving the quality of teaching.

Learning specific teaching procedures is like learning a specific dance. The dancer is not completely free, but must follow the steps and move with the music. A dancer would look silly doing a Western cha-cha when the band is playing a tango. Though dancers follow the same steps or procedures when they dance, there is still a lot of room for personal style and expression. Look at a group of line dancers sometime and notice the variety in dancing styles. The dancer is not limited by the music, but rather seems set free by it. Just think how hard it is to dance without music. It's about as hard to teach with no teaching procedures as it is to dance with no music. And are the line dancers having any fun? Teaching according to established, tested procedures can also be a lot of fun.

Communicating specific teaching procedures to teachers is a tough task. Teaching new teaching procedures to a teacher is much like teaching a new dance. Just as the dance instructor counts out the steps for awkward learners, teacher trainees first need to practice new procedures in a simulation apart from the real classroom. Then the dance instructor turns on the music and provides feedback to the learners as they begin to try to keep the rhythm of the music. Similarly, a teacher supervisor observes teacher trainees applying new teaching procedures with real children and provides feedback to help them carry out the procedures as they match the learning rhythm of the classroom. Dancers follow steps in response to music. Teachers follow steps in response to students. Supervision is crucial to ensuring that teachers do respond to students when they execute the procedures. Without this training many trainees would feel like "robots," doing their steps, but unaware that the music playing is the Western cha-cha while they are stepping out a Viennese waltz.

Bob Morgan's article (pages 4-11) provides an overview of the research on supervision in general and places the articles in this issue in that context. Morgan underscores the need for research to identify methods for training new members of the profession to be effective. The studies reported in this issue make a start in this direction.

Of course, the cheapest method of training is to teach a college course or provide a workshop and send the trainees out into the field. If only they would apply exactly what they have learned. Unfortunately, teachers rarely apply what they learn in a workshop, especially teachers who have been teaching for a while. And new, inexperienced teachers have a hard time making anything work.

The DI implementation model was developed during Project Follow Through, where inservice teachers were the ones to be trained, not college students without any experience. For this reason perhaps, the DI implementation model is an apprenticeship model. Those at the Eugene ADI conference last summer may have heard Zig describe how he first started training new teachers in his highly effective techniques, before he had written any programs. He described an intensive apprenticeship model, where the trainee sat beside him as he taught and then took turns teaching, trying to follow his model, and getting feedback from Zig. This would be, of course, very expensive and very inefficient, if not impossible, to maintain. More importantly, Zig pointed out, it was just plain painful. It worked, but it took usually two years of apprenticeship to get a good teacher. (Imagine two years with Zig sitting beside you, giving you advice.)

So Zig began developing the scripted programs, to help ease the pain and reduce the time involved in the apprenticeship process. At least the trainee had a clearer idea of what was expected. In the early days of the Follow Through implementation, DI was not taught in a university teacher training program. All the training occurred at the Follow Through school sites. One of the reasons the DI team moved to the University of Oregon was to have the opportunity to bring DI into the university teacher training pro-

gram. Today, to learn the specific DI programs at the University of Oregon, students take a special practicum, where an intensive apprenticeship model is still in place. Students attend a few days of workshop training where they learn about the design of the scripted programs and practice using them. The students then teach alongside master DI teachers out in the local schools and receive further supervision from graduate students learning supervision skills.

Developing this model at the University of Oregon required the cooperative effort of a lot of people. Mary Gleason describes the important features of the supervision aspect of the model on pages 12-13. This supervision model is designed to teach teachers how to go beyond reading the program scripts by rote to analyzing their own teaching by close observation and precise response to student behavior. In this model the supervisor identifies a specific student behavior, usually a behavior that presents some kind of problem for learning, and then indicates the teaching behavior that would correct the problem. The supervisor can actually model for the teacher trainee how the new teaching behavior will remove the problem behavior within a team-teaching format.

Over time many other universities have incorporated DI into their teacher training. Sometimes this happens through the efforts of one single individual, without the luxury of a cooperative team of people such as was formed at the University of Oregon. In this context, an apprenticeship model is difficult to develop. Many college-course models of DI training have developed in which a professor tries to accomplish all the training in the framework of a college course, without the luxury of a coordinated practice-teaching experience for the students.

The research presented in this issue deals with the problems involved in getting teachers to implement DI with fidelity. The studies come from a variety of perspectives representing the needs of consultants working directly in schools and of college instructors working with or without the luxury of a DI practicum. In spite of the different contexts from which the ideas for solutions come, the findings have relevance for all these service providers.

Smith and McKinney (pages 14-20) have actually gone into the classrooms of 83 teachers to see how well these teachers applied what they had learned from high quality DI workshops. Those who have been to an ADI conference know the nature of the workshop training these teachers received. The training sessions are not like the usual sit-and-listen sessions commonly found at most conferences. Teachers busily practice teaching formats and learn the sequence of lessons in the specific programs that

they plan to teach. The training sessions are fairly standard from place to place across presenters. Most training sessions follow the model established by Zig years ago.

In their descriptive study, Smith and McKinney identified the specific behaviors that teachers applied well in the classroom and the ones that gave them more trouble. Smith and McKinney's findings have implications for workshop presenters. For example, the way teachers reinforce students in the classroom was mentioned as a major problem, and typically, this is a topic that receives less attention in the program training sessions. The teaching behaviors related to effective reinforcement are generally taught in separate sessions. However, teachers getting the program training may not have an opportunity to get the behavior management training, so, of course, they would not learn these skills. Perhaps by designing the program training to include practice with reinforcement, teachers would use reinforcement better in the classroom.

Coulter and Grossen (pages 21-35) evaluated two models of on-site supervision. They compared the Gleason and Engelmann model (described by Gleason) of in-class feedback with the more traditional supervisory model of after-class feedback, in which the supervisor takes notes while the trainee is teaching and gives feedback after the lesson is over. In-class feedback resulted in faster and better acquisition of new DI teaching behaviors. In this study, the workshop training was purposefully made weak to ensure that the teacher subjects would need supervision. Combining strong workshop training with in-class feedback should result in highly proficient teachers with even fewer coaching sessions than were required in this study.

Peck, Williams, Barretto and Lane (pages 36-45) evaluate the effectiveness of simulation and self-evaluation using videotapes. These strategies could improve a college course training program, especially when no supervised practicum experience is available.

Marchand-Martella and Lignugaris/Kraft (pages 46-57) evaluate the reliability of an observation form. The more that observation skills can be systematized into forms that can be reliably used by a variety of people, the better able other less qualified personnel will be to assist each other in developing proficiency. The increasing number of DI implementations will put a great strain on the limited number of highly qualified supervisors available. The field needs procedures such as these that enable new personnel to effectively coach one another.

Bonnie Grossen, Editor

Delivering Feedback on Teaching Performance to Improve Student Instruction: Looking for Methods in Hopes of Avoiding Madness

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Abstract: Effectively communicating data-based information to strengthen skills of teacher trainees does not command extensive attention in most teacher training programs (Salzberg & Morgan, 1995). Yet, this communication skill can be valuable in establishing a teacher's ability to supervise paraprofessionals and other classroom personnel, and ultimately, in improving classroom instruction. This article examines the need for supervision and guidelines for delivering feedback described in the teacher training literature.

PERSPCETIVES

I recall "Rachel," a staff member who worked at a local residential facility for youth with severe disabilities. Rachel had extraordinary initiative and a drive to teach individuals with disabilities. She displayed a keen sensitivity to their needs. Routinely, Rachel implemented programs with youth to teach functional academic, independent living, and community skills. With minimal observation and feedback from me, Rachel developed into an exceptional trainer. Predictably, she would return to me for the next training program in sequence, describing how learners had mastered skills under her tutelage. I convinced Rachel to enter a teacher education program to pursue a career in special education. Soon, Rachel emerged with her bachelor's degree, hotly pursued by local school districts.

During her first year as a teacher, Rachel returned to me to discuss a significant problem that she had encountered. It seemed that she was supervising several paraprofessionals and university practicum students and was concerned that her supervision skills were sorely lacking. Rachel was well-versed in how to collect data on an instructor's performance, e.g., getting a student's attention, presenting information, praising success, correcting errors, etc. However, when she attempted to apply these skills to improve the instructional performance of paraprofessionals and practicum students, she experienced considerable problems in communicating the information. For whatever reasons, the paraprofessionals and practicum students had difficulty receiving

the information. In some cases, they flatly rejected her feedback. In other cases, they misunderstood what Rachel was trying to communicate. At first, the emergence of this problem surprised me because I considered Rachel an exemplary teacher with impeccable skills.

> In the teacher education program, faculty had delivered feedback to refine Rachel's teaching behavior, but faculty had neglected to teach her how to observe and deliver feedback to others.

It became clear to Rachel and me that while her own skills had been shaped using observation and feedback procedures, Rachel had had little opportunity to observe and provide feedback to others during her preservice training. Now that she was trying to use these procedures with classroom personnel under her supervision, Rachel was discovering, in a clumsy way, a set of new, unfamiliar behaviors. Being on the receiving end of supervisor's feedback had no functional equivalence with being on the "giving end." In the teacher education program, faculty had delivered feedback to refine Rachel's teaching behavior, but faculty had neglected to teach her how to observe and deliver feedback to others.

Clearly, teacher education programs must de-

velop both instructional and feedback skills of their teacher trainees. In many respects, these are mutually exclusive, yet critical, sets of skills. Indeed, both reflect on the quality of instruction delivered to students.

The Importance of Feedback in Field-Based Supervision of Classroom Personnel

The teacher education literature is replete with information on supervision and evaluation of classroom personnel (e.g., Demchak & Browder, 1987; Millman & Darling-Hammond, 1990; Pickett & Gerlach, 1997). The articles that follow in this issue of *Effective School Practices* contribute to the supervision and evaluation literature in a substantial way. Collectively, they represent important empirical investigations on specific target skills related to supervision and evaluation. Gleason (pages 12-13) presents a theory of supervision. Smith and McKinney (pages 14-20) document the extent to which teachers are able to apply new teaching behaviors learned in a workshop setting to the classroom. Coulter and Grossen (pages 21-35) examine the effects of different forms of feedback on teaching performance. Peck, Williams, Barretto, and Lane (pages 36-45) also investigate effects of feedback variations on measures of teaching efficacy, acceptability, and cost efficiency. Marchand-Martella and Lignugaris/Kraft (pages 46-57) analyze the reliability of an observation instrument for assessing preservice trainee performance.

Effective feedback is considered essential in field-based supervision because it relates directly to improvement of student instruction.

Some teachers do not receive adequate training in following established protocols for delivering feedback (Beynon, 1991). Although teachers and teacher trainees can observe the performance of classroom personnel and apply evaluation methodologies, translating the data and communicating it in an effective way involves a set of behaviors that teacher training programs often neglect (Salzberg & Morgan, 1995).

McLaughlin and Pfeifer (1988) define feedback as the process of giving back information for the purpose of bringing about a change in the behavior of the person receiving it. They note that feedback must be directed towards assisting "the receiver" (i.

e., the educator whose performance is being evaluated) in meeting standards for delivery of effective instruction. Characteristics of effective feedback include (a) timeliness, (b) specificity, (c) credibility of the source of feedback, and (d) clarity of purpose (McLaughlin & Pfeifer, 1988). Effective feedback is considered essential in field-based supervision because it relates directly to improvement of student instruction (French, 1997; Pfeiffer & Jones, 1987).

Feedback Skills Identified as Competencies

The Council for Exceptional Children identified "direction of classroom paraprofessionals" as one of several competencies required of beginning special education teachers (Swan & Sirvis, 1992). This competency area includes effective communication, collaboration, and team-building skills (Blalock, 1991; Morsink, Thomas, & Correa, 1991). Essential to these skill areas is the teacher's ability to communicate information to strengthen performance of classroom personnel.

Teachers must communicate the findings of their observations to classroom personnel in a way that establishes their credibility, focuses on quality ideas, provides depth of information, encourages changes in performance, and offers suggestions useful in improving instruction.

Feedback Components

Stiggins and Duke (1988) developed a 55-item assessment called the Teacher Evaluation Profile Questionnaire. This questionnaire was designed to identify most important attributes of quality teacher evaluations. Items were selected for the assessment by teacher evaluators. Based on a survey of teachers, the authors found five questionnaire items that correlated most positively with teachers' ratings of high quality evaluations. These items were (a) the credibility of the evaluator as a source of feedback, (b) the quality of ideas contained in the feedback, (c) the "depth" of feedback information, (d) the persuasiveness of the evaluator's rationale, and (e) the usefulness of the evaluator's suggestions. Credibility and quality, according to the authors, were established based on the supervisor's recognition and knowledge of technical aspects of teaching. Depth was a function of the specificity of information communicated during the evaluation. Persuasiveness

was based on a clear rationale regarding why the information was communicated and how it related to standards or goals. Usefulness pertained to the practicality of implementing the feedback.

Feedback as Communication of Observation Data

The survey findings of Stiggins and Duke (1988) suggested that quality evaluations were related to effective feedback. Their identification of five important questionnaire items will be reexamined below in relation to communicating observational data. In this article, I will assert that teachers must communicate the findings of their observations to classroom personnel in a way that establishes their credibility, focuses on quality ideas, provides depth of information, encourages changes in performance, and offers suggestions useful in improving instruction.

But how do teachers communicate data-based observations to classroom personnel? How do teachers like Rachel translate the data on the observation instrument into improved instructional performance by her classroom staff? Let's examine these questions by describing seven effective feedback guidelines for communicating data-based information.

1) *Ensure that the purpose of the feedback is clear.* McLaughlin and Pfeifer (1988) asserted that an important component of effective feedback was to frame the information in relation to its purpose. For example, let's say a teacher such as Rachel provides feedback to one of her classroom paraprofessionals during a small group reading activity. The paraprofessional fails to use the appropriate error correction procedure with a student (Alicia) who incorrectly identifies the word "note" as "not." Rachel says, "You need to correct all student errors," but the feedback lacks a statement of rationale. Indeed, the feedback may invite defensive responses ("But I do correct all student errors"). Rachel could communicate more effectively by saying, "You need to correct all student errors so that students do not practice saying words the wrong way. In this case, you should immediately correct the error by saying, 'Alicia, this word is *note*. What word?'"

2) *Communicate data-based observations in relation to standards.* Teachers' reasons for communicating information regarding the performance of classroom personnel are usually to compare or contrast data with some standard of performance (Stiggins & Duke, 1988). In the course of managing classrooms, teachers must communicate both performance that matches/exceeds the standard and performance that deviates from it. Consistent with effective teaching practice, teachers would be well advised to provide

frequent positive feedback to classroom personnel when they match or exceed a standard. Positive feedback to classroom personnel should far exceed the frequency of corrective feedback. In the hypothetical situation above, Rachel should make a point to recognize those occasions when the paraprofessional corrects errors in the acceptable way. However, Rachel needs to be prepared to discuss the paraprofessional's instructional activities in relation to preset standards. If the paraprofessional responds to Rachel by saying, "I correct most errors; I just skipped one, that's all," Rachel may want to point out that, "The program requires that we immediately correct all student errors, so I need for you to catch them when they occur."

Positive feedback to classroom personnel should far exceed the frequency of corrective feedback.

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3) *Use "I," not "you" statements.* Literature on assertive communication emphasizes the importance of using "I" statements (Alberti & Emmons, 1970). Using statements that start with "I" and "I need" clearly communicate one's expectations. Using statements replete with "you" instead of "I" point the finger at the other person and invite a defensive, even aggressive, response. In Rachel's situation, she may have evoked a defensive response from the paraprofessional had she said, "You didn't correct Alicia's error when she said 'not' instead of 'note.' You need to remember to correct all errors." The paraprofessional may have retorted, "But I did correct Alicia's errors," or, "I corrected most of them." "You" statements place the focus on the persons involved (in this case, the teacher and the receiver of feedback), instead of placing the focus on the action (in this case, error corrections). Rachel might communicate more effectively by saying, "I need for you to correct all of Alicia's errors. I noticed on one occasion she said 'not' instead of 'note.' I really think this is an important priority."

4) *Because any behavior change is difficult, the teacher should try to understand and empathize with the person's situation.* Any time a teacher provides corrective feedback, it places the receiver in a position of vulnerability. The receiver's performance has, in the evaluation of the teacher, missed the mark. By offering an empathetic statement, the teacher demonstrates that she is sensitive to the receiver's situation and has some experience with similar challenges. At the outset, Rachel might have offered, "I know it's tough to run that reading group. And you've got

three kids who are really struggling with reading right now." Statements such as these allow both the teacher and receiver to explore problems as partners. In the example above, the paraprofessional may confirm Rachel's observation ("Yeah, I'm really having a hard time"), then both can start to explore how to deal with student behavior and instructional methods.

Some teachers seem to have problems communicating data-based information as it relates to student activity, yet it is exactly this specific information that convinces receivers that their performance must change.

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5) *Communicate data-based observations in relation to effects on student instruction.* In a nationwide survey, Morgan, Mattson, & Salzberg (in preparation) found that many inservice teachers consider communication of data-based observations stressful. One teacher respondent commented that she could "tell the paraprofessional that his instructions were vague and unclear," but that she found it intimidating to tell him that, "on three consecutive occasions when you told the student to 'just do it' he quit responding in the group exercise." Some teachers seem to have problems communicating data-based information as it relates to student activity, yet it is exactly this specific information that convinces receivers that their performance must change. Conversely, providing information about positive performance and its relationship to student activity reinforces the skills of classroom personnel. For example, Rachel might have communicated her observations of the paraprofessional's performance this way:

> Tim, I really liked the way you praised students in the reading group. Even though they're struggling with reading, they're really putting forth the effort. I thought your praise focused their attention and gave them confidence. I think you could be even more effective with your praise. Here's what I observed. I counted 16 praise statements to individual students. Next time, I'd like for you to maintain the rate of praise but give the students specific information about what you're praising. For example, you might say, "Nice work, Aaron! You pronounced all the words correctly, and there were some tough ones in this story."

6) *Communicate specific information about performance changes that should occur.* Teachers should describe through verbal statements, demonstrations, or other methods the specific performance standard that classroom personnel must meet. Also, teachers need to specify the performance criterion, and the time frame for meeting it. McLaughlin and Pfeifer (1988) emphasize the importance of specificity in feedback:

> Whereas interpretations may be disputed, data closely tied to the observation or event allow individuals to draw their own conclusions...specificity of evaluative feedback encourages open, constructive confrontation and can defuse the defensiveness that often makes teachers unwilling to hear an evaluator's comments. (p. 48)

If Rachel observes that a paraprofessional consistently arrives late each morning, she could say, "I need you here on time" but she fails to communicate the standard that she expects classroom personnel to meet. The change in performance that Rachel expects and the standard she wants the paraprofessional to meet are both communicated in this statement: "I need you here by 8:30 a.m. or earlier each day for, say, the next 10 school days in a row."

In-class feedback allows receivers to practice recommended alternatives immediately, making in-class feedback more effective and efficient than after-class feedback.

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7) *Whenever possible, teachers must observe and deliver feedback on those occasions when the receiver can practice the recommended alternative.* Unfortunately, in many classroom situations, teachers describe recommended alternatives when receivers have no subsequent practice opportunities. For instance, teachers may communicate recommendations at the conclusion of academic periods when students go to their next classes. Consistent with established teaching methods, practice opportunities should immediately follow delivery of feedback. In this issue, Coulter and Grossen (pages 21-35) investigate differences in teaching performance as a function of in-class versus after-class feedback. In-class feedback allows receivers to practice recommended alternatives immediately, making in-class feedback more effective and efficient than after-class feedback.

Coulter and Grossen's results confirm that all seven teacher trainees acquired specific teaching behaviors more rapidly with in-class feedback than with after-class feedback.

Other Guidelines to Consider When Delivering Feedback

Duke and Stiggins (1986) describe several important guidelines when delivering feedback. All guidelines suggest that teachers must gauge the response of the receiver. First, teachers must assess how much feedback to deliver at any given time. Too much information can be overwhelming. Teachers are advised to establish priority areas as they deliver feedback to receivers and move to lesser priority areas as higher ones are successfully met.

Second, teachers should communicate recommendations in ways that individual receivers will understand. Teachers must consider the age, culture, gender, and individual characteristics of the receiver.

Third, teachers need to examine issues related to the frequency of the feedback. Even if the feedback is overwhelmingly positive, frequent feedback to one receiver or feedback that is disproportionate to the quantity of feedback received by other classroom personnel, may have diminished effects.

Fourth, teachers should gauge the timing and method for delivering feedback. While classroom personnel should not practice incorrect or ineffective instructional procedures, feedback should be delivered when explicit models and descriptions can be provided. Teachers might want to demonstrate or arrange role-play activities when correcting performance of classroom personnel, then observe subsequent performance. Unfortunately, these feedback procedures often cannot be built into ongoing classroom activities. In this issue, Peck, Williams, Barretto, and Lane (pages 36-45) examine the use of videotaped feedback and self-evaluation as teacher trainees conduct Direct Instruction reading sessions in simulation. They investigate the efficacy, acceptability, and cost efficiency of this form of feedback in comparison to a supervisor's on-site classroom training. Their findings indicate that videotaped feedback and self-evaluation were as effective as on-site classroom training. Peck et al. discuss issues related to these findings, including supervision time, travel, arranging media equipment, and participant satisfaction.

French (1997) identifies many of the guidelines described above, and lists additional ones. She notes that feedback should be descriptive rather than judgmental and should be directed toward performance, not toward the personal characteristics of the re-ceiver.

I would add one additional guideline: feedback regarding teaching performance should be consistent across observers. Lack of reliability across observers can be problematic. For example, Browning (1988) reported low correlations between university supervisors' and teacher supervisors' ratings of practicum student performance. That is, observers' ratings lacked reliability. In this issue, Marchand-Martella and Lignugaris/Kraft (pages 46-57) examine the reliability of a Direct Instruction observation instrument, and report results indicating high levels of agreement between university supervisors and trained cooperating teachers. They discuss the findings in relation to recruiting and training cooperating teachers as independent supervisors of practicum students.

Development of Feedback Skills in Preservice Training

Teacher educators have described problems associated with developing feedback skills of preservice teachers (Guyton & McIntyre, 1990; Salzberg & Morgan, 1995; Vasa & Steckelberg, 1993). Preservice trainees are on the receiving end of feedback; they rarely have opportunities to deliver it. According to Salzberg and Morgan's (1995) review of the preservice teacher education literature, few university courses addressed supervision at the preservice level. Preservice trainees need opportunities to develop feedback skills through supervision of paraprofessionals during student teaching, simulations of supervision, and other formats (Lignugaris/Kraft & Marchand-Martella, 1993).

Application of Feedback Skills in Inservice Training

If training opportunities are limited at the preservice level, then feedback should be a priority topic of inservice training (French & Pickett, in press; Pickett, 1997). French (1994) characterized inservice teachers as "reluctant supervisors," in large part because they lacked the communication skills described above. Inservice training has the advantage of focusing on specific, ongoing supervision issues or targeting existing problems. Instead of preservice training in which skills may be applied at some point in a teacher's future career activities, inservice training addresses skills that can be directly applied in the classroom. Morgan et al. (in press) is developing one such supervision training program for inservice teachers. Supervision problems (e. g., disagreements among team members, refusal to carry out assignments) and potential solutions are de-

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scribed in a print manual. Teachers then watch video situations depicting supervision problems, discuss and role play potential solutions, and reflect on their own experience. Field test data indicate that this program is effective in increasing teachers' supervision skills.

Summary

Like Rachel, some teachers discover that effective teaching involves a host of interpersonal behaviors that extend far beyond instructional skills with students. The problems they encounter leave them looking for effective supervision methods. Others attempt to avoid what appears to be "supervision madness." Teachers must communicate their observations in ways that solidify relationships with classroom personnel, not imperil them. Teachers' communications should be data-based, specific, based on standards, and related to student instruction. ◆

References

Alberti, R. E., & Emmons, M. L. (1970). *Your perfect right.* San Luis Obispo, CA: Impact Press.

Beyond, C. (1991). *Understanding the role of the cooperating teacher.* Faculty of Education, University of Western Ontario. Unpublished manuscript.

Black, G. (1991). Paraprofessionals: Critical team members in our special education programs. *Intervention in School and Clinic, 36,* 200-214.

Browning, R. C. (1988). Validity of reference ratings from previous employers. *Personnel Psychology, 21,* 389-393.

Demchak, M., & Browder, D. M. (1987). Data-based teacher supervision: Evaluating task analytic instruction. *Journal of Special Education Technology, 9,* 9-18.

Duke, D. L., & Stiggins, R. J. (1986). *Teacher evaluation: Five keys to growth.* Washington, DC: National Education Association.

Englert, C. S., & Sugai, G. (1983). Teacher training: Improving trainee performance through peer observation and observation system technology. *Teacher Education and Special Education, 6,* 7-17.

French, N. K. (1994). *Teachers who supervise paraeducators: What they know and what they do.* Paper presented at the 17th Annual Conference of the Teacher Education Division, Council for Exceptional Children, San Diego, CA.

French, N. K. (1997). Management of paraeducators. In A. L. Pickett & K. Gerlach (Eds.), *Supervising paraeducators in school settings: A team approach* (pp. 91-169). Austin, TX: Pro-Ed. French, N. K. & Pickett, A. L. (in press). The utilization of paraprofessionals in special education: Issues for teacher educators. Teacher Education and Special Education.

Guyton, E. & McIntyre, D. L. (1990). Student teaching and school experiences. In W. R. Houston (Ed.), *Handbook of research on teacher education.* New York: Macmillan.

Lignugaris/Kraft, B. & Marchand-Martella, N. (1993). Evaluation of preservice teachers' interactive teaching skills in a direct instruction practicum using student teachers as supervisors. *Teacher Education and Special Education, 16,* 309-318.

McLaughlin, M. W., & Pfeifer, R. S. (1988). *Teacher evaluation: Improvement, accountability, and effective learning.* New York: Teachers College Press.

Millman, J., & Darling-Hammond, L. (Eds.). (1990). *The new handbook of teacher evaluation: Assessing elementary and secondary teachers.* Newbury, CA: Sage Publications.

Morgan, R. L., Mattson, K., & Salzberg, C. L. (in preparation). *What skills do special education teachers judge important in supervising classroom paraprofessionals? An analysis of nationwide survey results.*

Morgan, R. L., Merrill, Z., Brenchley, R., Spratt, K., Pickett, A. L., and Salzberg, C. L. (in press). *Colleagues in the classroom: A video-assisted supervision training program.* Logan, UT: Department of Special Education and Rehabilitation, Utah State University.

Morsink, C. V., Thomas, C. C., & Correa, V. I. (1991). *Interactive teaming, consultation, and collaboration in special programs.* New York: Merrill.

Pfeiffer, J. W., & Jones, J. E. (1987). *A handbook of structured experiences for human relations training.* San Diego, CA: University Associates.

Pickett, A. L. (1997). Paraeducators in school settings: Framing the issues. In A. L. Pickett and K. Gerlach (Eds.), *Supervising paraeducators in school settings: A team approach* (pp. 1-24). Austin, TX: Pro-Ed.

Pickett, A. L., & Gerlach, K. (Eds.). (1997). *Supervising paraeducators in school settings: A team approach.* Austin, TX: Pro-Ed.

Salzberg, C. L., & Morgan, J. (1995). Preparing teachers to work with paraeducators. *Teacher Education and Special Education, 18,* 49-55.

Stiggins, R. J., & Duke, D. L. (1988). *The case for commitment to teacher growth: Research on teacher evaluation.* Albany, NY: State University of New York.

Swan, W. W., & Sirvis, B. (1992). The CEC common core of knowledge and skills essential for all beginning special education teachers. *Teaching Exceptional Children, 25,* 16-20.

Vasa, S. F., & Steckelberg, A. L. (1993). *Effectiveness of paraeducators: Research and issues.* Paper presented at the 12th Conference on the Training and Employment of Paraprofessionals, Seattle, WA.

Focus on Student Performance—
The Key to Effective Supervision

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A premise of the Direct Instruction Model is that all children can be taught if they are provided with adequate instruction. The role of the supervisor is to help the teacher provide adequate instruction, so it follows that if the supervisor helps the teacher, the supervisor has helped the children to be taught. The measuring stick of the teacher's success, and of the supervisor's, is the academic success of the children. Supervisors must monitor teacher performance, and their own, by monitoring student performance.

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Many supervisors and administrators feel that they must approach a teacher's classroom armed with data forms. Data forms tend to be written only in terms of teacher behaviors, not in terms of child performance. Some supervisors get sidetracked. The ultimate focus of the supervisor's observation should be student learning. In monitoring student learning as well as teacher performance, data forms are useful tools, but should not be the supervisor's only tool.

In classrooms where Direct Instruction programs are being taught, the supervisor or administrator has two expectations (1) students will cover a lesson a day in each Direct Instruction program, and (2) students will perform at a high success level. These two expectations represent the outcomes the supervisor is looking for. All observations in the classroom are ultimately concerned with whether these two expectations are being met. (These statements do not deny that we also want the children to be having fun and to feel good about learning.)

If the observations yield the information that children are learning and at an acceptable rate, the supervisor has reason to reinforce the teacher. If, on the other hand, the children are not being taught as well as they could be, the supervisor offers practical suggestions for change. Effective teacher change equals improvement in student performance.

What a Supervisor Looks For

Time allocated. First, the supervisor should look at the teaching schedule to make sure that enough time has been allocated to be able to do a lesson a day. Children will not complete DISTAR Reading I in one year if the teacher allows 20 minutes a day for the program. If a particular group of children can t get firm on a lesson in one day, the teacher may have to schedule another period of teaching time for that group.

Lessons covered. After the supervisor has checked the teaching schedule, he/she should help the teacher design a way to keep track of how many lessons are being covered. One way is to keep track of the lesson, gain of each group on a weekly basis. For each group, the teacher would write down the number of the lesson worked on that day. At the end of the week, the teacher would write in the total number of lessons covered that week (see Figure 1).

Figure 1					
Week 1					
Mon	Tues	Wed	Thur	Fri	Gain
53	54	55	55	56	4

Appropriate placement. The supervisor should check for appropriate placement of the group. The children should always be performing at a high enough success level that they can feel good about working hard. When children are "over their heads," they have difficulty staying on task and the teacher spends too much time correcting and firming.

The supervisor can check for a high success level in a number of ways: (1) by looking at the results of a criterion-referenced test for each child in the group to see if each child is performing between 80% and 100%, or (2) by taking data on students' oral responses during instruction, looking for 80% or higher on first time responses (correct responses after a correction don't count) and checking students' independent work performance, looking for 80% or higher on worksheets, and 97% or higher on oral reading. The supervisor can continue to use these procedures to monitor whether students are being moved on to new lessons before they have mastered the material.

When the students are "over their heads," they should be moved back to a lesson where they can be more successful.

Physical arrangement. The supervisor should check for physical arrangements, organization of materials, and use of time that enhance the teacher's ability to teach well. Are all children seated so they can see the teacher and the material used for presentation? Are the lowest performers sitting closest to the teacher? Are the teacher's materials close by and organized so that no time is wasted in transition from task to task?

Frequent responses. The supervisor should look to see if the teacher is getting frequent responses from the children. The supervisor can check response rate (pacing) by doing the following: During a five-minute period, make one tally point each time the students respond orally. Divide the number of tallies by 5. A response rate of 2 to 7 responses per minute means the teacher is talking too much going, too slowly, or is somehow wasting time. Approximately 10 responses per minute indicated an effective response rate.

Student errors. The supervisor should watch the children. He/she should pay attention to student errors and what the teacher does to "firm" the children's skills. It is possible for a Direct Instruction teacher to "look" technically perfect and still have children who are not firm. The teacher's pacing is great; the signals are precise, and, every time an error is made, the teacher does a correction; however, the teacher allows the children to move on to the next lesson while they are working at a 60% success level.

This type of teacher can fool an unsuspecting supervisor who watches the teacher's presentation and forgets to attend to the children's performance. This teacher needs as much help as the teacher who has poor signals. The supervisor should watch for the following: Does the teacher stop at each error and immediately tell the answer? After telling the answer, does the teacher repeat the missed task so the children can try again? Does the teacher go on to something else and then come back to the missed task to see if the students can perform correctly following a delay? Does the teacher repeat the format that students made errors on before going to the next format? Does the teacher check all written work and provide a correction for each item that is missed?

Student errors also occur because of the teacher's presentation skills. When a supervisor sees student errors, the supervisor must try to determine if the errors are caused by poor signals, inappropriate thinking time, or other teacher behaviors.

On-task behavior. The supervisor should check whether all students are working all the time and whether the teacher takes steps to teach students to attend and work hard. When the teacher is asking for unison responses, the supervisor must watch to see if all students are answering and if they are answering together.

For those who are just beginning to use the Direct Instruction model of supervision, perhaps you can get started by using a simple checklist (seeFigure2). And remember, keep your eye on the kids. ◆

Figure 2

What to look for in a Direct Instruction classroom.

1. Time allocation for each group.
2. Amount of content covered.
3. Appropriate placement.
4. Physical arrangement, organization of materials.
5. Smooth, rapid transitions
6. Frequent responses.
7. Student errors
8. On-task behavior.

◆   ◆   ◆

The Impact of DI Workshop Training in the Classrooms

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Abstract: Generalization across settings and time is an important consideration when designing inservice training for teachers. On-site supervised practice or "coaching" is an important consideration shown to enhance the transfer from one-shot training. This study sought to determine which behaviors considered important in the delivery of Direct Instruction programs presented the most challenge to transfer. Findings of this five-year study revealed signaling, pacing, firming, error correction, and reinforcement of correct responding as behaviors most difficult for teachers to acquire from workshop training.

The lack of generalization across settings, specifically from workshop to classroom, should come as no surprise to teacher trainers. Traditional inservice training for teachers typically consists of attending a lecture or demonstration in a setting other than the classroom. Although the "awareness" level of participants increases, application of the new information remains limited at best (Axelrod, Moyer, & Berry, 1990; Showers, Joyce, & Bennett, 1987).

Generalization across time appears to fare no better as attrition of new skills has been observed, in some cases as much as 85% within three weeks of training (Fox, 1989). Indeed, generalization must be programmed directly if transfer and retention are to occur, otherwise training ends only with the hope that new skills will shift to the classroom and endure over time (Axelrod et al., 1990; Showers et al., 1987; Stokes & Bear, 1977).

Generalization may be limited further by the extent and quality of post-training supervision. Principals and/or supervisors generally do not dedicate sufficient time to being instructional leaders, much less to following up on inservice training their staff receive (Southern Regional Education Board, 1986). Besides infrequent visits to classrooms, mostly to conduct required teacher evaluations, the feedback from principals is often considered perfunctory in nature (Axelrod et al., 1990; Sparks & Loucks-Horsley, 1989).

In spite of these problems, investigations addressing the transfer of training have yielded some promising alternatives. A study by Berman and McLaughlin (1978) reported that most staff development programs affecting teacher behavior in a positive manner were spaced over time, a finding corroborated by other studies on effective training (e.g., Miller, Harris,& Watanabe, 1991; Sparks, 1983).

Changing one-shot training may be beyond the control of teachers and principals, since scheduling is often determined by presenters and school calendars. Some researchers, however, have recently shown ways of making inservice training more effective, even if it is not "chunked" or spaced over time (e.g., McLaughlin, 1990; Showers et al., 1987). Two procedures shown to be effective are worthy of note.

First, the way training is designed seems very important. Showers et al. 1987) recommend four components to enhance generalization, specifically, theory, demonstration, practice and feedback. Providing a theoretical backdrop for the information presented appears necessary but not as significant as observing demonstrations and practicing new techniques while receiving feedback from the presenter (Showers et al., 1987).

Second, in addition to appropriately designed training, sustained supervised practice is also necessary. Once training outside the classroom has concluded, practice on trained content needs to be supervised by qualified experts. It appears that maintaining newly acquired skills is a function of supervised practice, especially modeling and in-class training. Joyce and Showers (1982) refer to this procedure as "coaching."

Much training on the use of Direct Instruction (DI) materials is conducted in one-shot workshops. Trainees are typically provided a theoretical frame-

work, demonstrations (models), guided practice and immediate feedback. Trainees are returned to their respective classrooms with the hope that the skills will be applied there. This study sought to discover to what extent Delaware teachers trained in the use of DI programs in one-shot workshops applied the various aspects of their training. This study also sought to determine which factors appeared to be the most challenging in terms of transfer and retention. The study did not attempt to evaluate the coaching that followed these observations.

Method

Participants

Eighty-three teachers representing 11 school districts, 16 elementary schools, 4 middle schools, and 4 special schools, all in the State of Delaware, served as participants. To be included in the sample each teacher must (a) receive training on DI materials during a four-day summer conference—the summer workshop was the first time the teachers received formal training in DI, and, (b) conduct a DI lesson in the classroom with an observer present. Experience ranged from first-year teachers to veterans of 20 or more years. Nine teachers were elementary teachers, the rest (74) were special education teachers.

Procedures

School staff attended a summer DI conference where they were trained in *Reading Mastery, Spelling Mastery, Distar Arithmetic, Distar Language, Reasoning and Writing,* and *Corrective Reading, Corrective Mathematics,* or *Corrective Spelling.* All trainers had been trained and certified by the publisher—Science Research Associates.

Following training, each teacher was observed in the classroom teaching one of these programs. The teacher conducted a lesson for 5 to 10 minutes, during which time two observers recorded strengths and weaknesses on the observation form developed for this purpose. Completed forms provided a permanent record of the observation and the basis for calculating interobserver agreement scores.

Teachers were subsequently coached in the teaching behaviors that were weak; however, the coaching activities were not evaluated in this study.

Instrumentation

The recording form had been developed by the authors for this study and revised after use in various classrooms prior to data collection. Target behaviors and definitions are presented in Table 1. The items selected were based on their relevance to the training conducted and support from the DI

Table 1. Target Behaviors Included on Observation Sheet and Their Definitions

Grouping for Instruction:	Students are grouped on the basis of comparable skills and placement test results.
Seating Arrangements:	Students are seated in semicircle, not at desks.
Follows Scripts:	Teacher follows scripts in Teacher Guide.
Uses Consistent Instructions:	Teacher instructions are consistent with language used in Teacher Guides.
Pacing:	Lesson is delivered quickly.
Signaling:	Signals follow models provided during training and cue responding.
Wait Time:	Teacher provides interval after asking a question before signaling for a response.
Choral Responding:	Students respond on proper cue.
Response Fluency:	Quick and accurate performance of a response by students.
Individual Turns:	Teacher provides an opportunity for students to make responses individually.
Focus:	Attending to concept being taught or pointed to.
Student Success Rates:	Establishing and maintaining high accuracy after acquisition.
Firming of Responses:	Repeating a response until firm following hesitancy.
Error Correction:	Errors are immediately corrected as per Teacher Guide.
Use of Reinforcers:	Reinforcers other than praise are used systematically during instruction.
Teacher Modeling:	Teachers models the correct way of performing a response.
Teacher Prompting:	Teacher prompts correct responding.

literature (e.g., Engelmann, 1982; Gersten, Woodward, & Darch, 1986; Gersten, Carnine, & Woodward, 1987). Items were also included if they were of particular interest to the authors and had empirical support in behavior analytic literature, e.g., use of reinforcers and response fluency (Kazdin, 1988). All items included were targets of workshop training.

Most of the definitions of items used on the recording form are self-explanatory; a few are not and deserve further explanation. *Focus*, for example, refers to pupil attention, specifically, what the pupil is attending to during instruction, and is akin to the behavioral concept of stimulus control. The item was recorded as a weakness whenever one or more pupils attended to something other than the concept taught or that being pointed to by the teacher. For example, if a teacher allowed a pupil to look at her instead of where she was pointing two or more times, the item was recorded as a weakness. If two or more pupils engaged in the behavior one or more times, the item was also recorded.

Grouping for Instruction differs from *Seating Arrangements* in that grouping refers to the homogeneity of the group being taught. The inclusion of one or more pupils who failed to keep up with the rest of the group would result in the item being recorded as a weakness.

Seating Arrangements, on the other hand, referred to the physical location of the pupils being taught. Sometimes students were taught in the prescribed semi-circle away from their desks as indicated during training; sometimes they were not, and simply stayed at their desks..

Firming was defined as repeated practice of the correct response whenever a response was tentative or hesitant. *Firming* was noted as a weakness whenever a teacher accepted tentative responses by a group or by an individual if that individual engaged in the behavior more than once.

Fluency, on the other hand, was originally defined as automatic responding, that is, responding rapidly without hesitation. For example, a sentence that had been read orally and correctly but was choppy and uncertain would be repeated until firm. Further practice or overlearning to enhance automaticity or speed was considered fluency. If an oral response was firm but failed to approximate conversational speed, fluency was indicated as a weakness.

A category where a teacher erred only once generally did not count as a weakness. Only in some cases such as seating or grouping, was a single occurrence recorded as a weakness.

Completed observation forms were analyzed for inter-observer agreement. A random sample of one fourth of the coding sheets was used to determine observer reliability by means of the percent-agreement formula, that is, Agreements/ Agreements + Disagreements (Kazdin, 1988). The mean agreement score for the sample was 89.71%, with a range of 71% to 100%.

Results

The results of this study are shown in Table 2. Summary data for each factor are presented in terms of the number of teachers not meeting the criteria and requiring coaching for that target. Also, the percentages of the sample are indicated for each factor, as well as percentages based on teacher experience. The number of years teaching was categorized in one of three ways:

1) teaching DI for less than one year with no more than 2 years of teaching experience (beginning teachers),

2) teaching DI for one to 2 years with more than 3 years of teaching other programs, and

3) 3 or more years teaching DI in addition to 3 or more years teaching other programs (veterans).

Overall, reinforcement used did not reflect the type that was recommended during training, especially in the case of beginning teachers. Half the veteran teachers also had difficulty with reinforcement.

Approximately two thirds of the teachers observed had no systematic way of reinforcing correct responding other than praise, mostly in the form of "good" or "good job." A few teachers used response-cost systems, whereby students lost points for incorrect responding or misbehavior during the lesson. Students in these classrooms had no way of earning points for positive behavior or any way of earning back the points they had lost. Overall, reinforcement used did not reflect the type that was recommended during training, especially in the case of beginning teachers. Half the veteran teachers also had difficulty with reinforcement.

Discussion

Generalization across settings and time is an important consideration when designing inservice training for teachers and may be enhanced by on-site, supervised practice as a follow-up to workshop training. This study sought to determine which variables considered important in the delivery of

Table 2. Rank Order of Target Behaviors in Terms of Number of Teachers Observed and Percent of Sample.

Observation Elements (Target Behaviors)	Number of Teachers Below Criterion	Level of Experience		
		< 1 (n=15)	1-2 (n=43)	3 + (n=25)
Reinforcement	56 (67%)	100%	62%	56%
Firming & Fluency	47 (56%)	80%	58%	40%
Signaling	40 (48%)	60%	48%	40%
Firming	38 (45%)	67%	47%	32%
Pacing	34 (40%)	60%	46%	20%
Error Correction	29 (34%)	20%	39%	28%
Choral Responding	25 (30%)	46%	23%	32%
Follows Scripts	20 (24%)	40%	23%	16%
Focus	17 (20%)	26%	18%	20%
Seating	16 (19%)	26%	16%	20%
Wait Time	12 (14%)	33%	11%	08%
Prompting	12 (14%)	13%	20%	04%
Modeling	10 (12%)	0%	18%	08%
Fluency	9 (10%)	13%	11%	08%
Individual Turns	8 (9%)	06%	09%	12%
Grouping	7 (8%)	0%	06%	16%
Consistent Instructions	4 (4%)	13%	0%	08%
High Success Rates	3 (3%)	13%	0%	04%

Direct Instruction programs presented the most challenge for teachers applying the training. In other words, in which variables did teachers need further training once they returned to their classrooms.

Overall, veteran teachers demonstrated less variance in terms of the number and frequency of categories targeted for improvement. Beginning teachers needed more feedback across more categories. All teachers, however, appear to need in-class coaching on reinforcement, firming, signaling, pacing,

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A reason to be optimistic, however, is the finding that reinforcement improved with experience.

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and error correction.

Finding reinforcement the most overlooked variable was a surprise, given that the sample was composed primarily of special education teachers and that certification requirements for all these teachers mandate a course in applied behavior analysis. Axelrod et al.(1990) have made similar observations.

It could be argued that this finding was an artifact

of the study because the observers attached a greater importance to motivation than did the teachers observed. Perhaps these teachers really did not need complicated reinforcement systems. Unfortunately, the answer to that question was not addressed by this study and remains an empirical one.

Nevertheless, reinforcement remains a critical issue primarily because many teachers observed relied on aversive control such as response cost. The most egregious case observed was a teacher who provided very young children a cup of edible reinforcers, noncontingently, and then proceeded to take them away whenever the students made an academic error. Regrettably, these students had no way of earning back the reinforcers, even after errors were corrected. (An observation after coaching indicated this teacher had changed her ways.)

Other teachers observed in this study relied heavily on check marks beside a name on the blackboard, another form of aversive control. Typically, the check marks were awarded for social misbehavior and not academic errors. Once again, children had no way of earning points for good behavior. Success in DI programs was praised but at low rates. Many opportunities to praise were missed. A reason to be optimistic, however, is the finding that reinforcement improved with experience.

The same can be said about the firming and fluency of responses—that these improve with experience, but not by much. For firming, beginning teachers seemed to have more trouble with this variable than veterans. Data for firming and fluency were combined in Table 2 to determine if such a procedure would affect the ranking. It did, but was not statistically significant. Even though the firming of hesitant responses was heavily emphasized during training, the fact that it was targeted for

improvement so often suggests that follow up coaching/training is needed if teachers are to master using the programs in a timely fashion.

Fluency, on the other hand, is much more complicated. In fact, *fluency* as described by Johnson and Layng (1992) raises a number of implications beyond the scope of this discussion. Suffice it to say that fluency needs to be redefined and response rates (that is, frequency over time) need to be addressed by teachers seriously wanting their students to master the information presented. According to Johnson & Layng (1992), high fluency rates benefit learners in a number of ways and should become a basic educational datum, along with accuracy and independence.

Signaling and pacing also seemed to be in need of routine in-class coaching. As expected, veteran teachers fared better than beginners. Experience seemed to have a positive impact on pacing, however, though this trend was not consistent across other factors. (For example, beginning teachers seemed to do quite well when it came to grouping by skill level for instruction. Seating was more frequently targeted for beginning teachers and reflected a reluctance to rearrange students for instruction.) Teachers voluntarily admitted that seeing the coach work with their pupils provided them a more effective model than various methods used during the workshops. Moreover, these teachers indicated that guided practice on these techniques was very valuable. How valuable remains an empirical question because repeat visitations, though performed for several individuals, were not a part of this study.

Following scripts and maintaining program integrity were better for veterans, as expected, though choral responding was another surprise. Contrary to expectations, veterans were weak in this area too. It seems as though this aspect of the programs remains a challenge for many teachers.

Error correction was not a frequent problem according to these data. What the ranking does not indicate is the nature of the feedback. The definition did not consider the remediation required after an error is noted. Typically, those teachers attending to errors did so without providing a model of the correct way. They failed to correct many errors, much less rehearse correct responses until firm. The nature of acceptable responses following error correction thus remains a need for further research and teacher training.

Focus was an added complication to error correction. Quite often a student would be corrected without necessarily looking at the stimulus material. Although the error was corrected, stimulus control may not have been established, especially if the student being corrected was looking at the teacher instead of the book. This consideration was often overlooked by teachers who, more often than not, did not understand the term "stimulus control."

Limitations to a study of this nature are the maturation and history effects that accrue over a five-year period. One particular area concerns the method of recording. Target behaviors were noted, though sometimes after the coaching session was over. The demands of naturalistic settings may interfere with prespecified procedures. One way to attenuate this problem is to provide a second but independent observer with no other duties. A second observer may also avoid the potential bias introduced when discussions after coaching sessions addressed areas of disagreement. These discussions and the feedback from coaching one year appeared to have affected the training in subsequent years. This is not necessarily a negative consequence, but it does tend to confuse the interpretation of results.

A second observer, however, would not necessarily do away with observer drift, that is, the idiosyncratic interpretations of definitions over the course of time (Smith, 1986). Some target behaviors appear to have remained the same over the course of the study. Others like firming and fluency evolved from specific problems that surfaced from time to time. Perhaps this was due, in part, to the limitations of definitions made and refined before data were collected.

In this study no attempt was made to assess the teachers' levels of competence during the training session. It would be helpful to know if those trainees who failed to master workshop material are also those who are in greatest need of follow-up training.

In conclusion, the results of this study point to some areas in need of special consideration during one-shot training on DI programs if that training is to generalize effectively. Awareness of needs such as reinforcement, firming, and signaling may go a long way in redesigning staff training so application in the classroom is enhanced. ◆

References

Axelrod, S., Moyer L., & Berry, B. (1990). Why teachers do not use behavior modification procedures. *Journal of Educational and Psychological Consultation, 1,* 309-320.

Berman, P. & McLaughlin, M. (1978). *Federal programs supporting educational change, Volume VIII: Implementing and sustaining innovations.* Santa Monica, CA: The Rand Corporation.

Engelmann, S. (1982). A study of 4th-6th grade basal reading series. *Direct Instruction News, 1,* 1-6.

Fox, N.V. (1989). Providing effective inservice education. *Journal of Reading, 33,* 214-215.

Gersten, R., Woodward, J., & Darch, C. (1986). Direct instruction: A research-based approach to curriculum design and teaching. *Exceptional Children, 53*(1), 17-31.

Gersten, R., Carnine, D. & Woodward, J. (1987). Direct instruction research: The third decade. *Remedial and Special Education, 8*(6), 48-56.

Johnson, K. & Layng, J. (1992). Breaking the structuralist barrier: Literacy and numeracy with fluency. *American Psychologist, 47,* 1475-1490.

Joyce, B. & Showers, B. (1982). The coaching of teaching. *Educational Leadership, 40*(2), 4-10.

Kazdin, A.E. (1988). *Behavior modification in applied settings.* Pacific Grove, CA: Brooks/Cole Publishing Co.

McLaughlin, M.W. (1990). The Rand change agent study revisited: Macro perspectives and micro realities. *Educational Researcher, 19*(9), 11-16.

Miller, S., Harris, C. & Watanabe, A. (1991). Professional coaching: A method for increasing effective and decreasing ineffective teacher behaviors. *Teacher Education and Special Education, 14,* 183-191.

Showers, B. (1985). Teachers coaching teachers. *Educational Leadership, 42*(7), 43-48.

Showers, B., Joyce, B. & Bennett, B. (1987). Synthesis of research on staff development: A framework for future study and a state-of-the-art analysis. *Educational Leadership, 45*(3), 77-87.

Smith, G. A. (1986). Observer drift: A drifting definition. *The Behavior Analyst, 9,* 127-128.

Southern Regional Education Board. (1986). *Effective School Principals.* Atlanta, GA: SREB.

Sparks, G. (1983). Synthesis of research on staff development for effective teaching. *Educational Leadership, 41*(3), 65-72.

Sparks, D. & Loucks-Horsley, S. (1989). Five models of staff development for teachers. *Journal of Staff Development, 10*(4), 40-57.

Stokes, T.F. & Baer, D.M., (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10,* 349-367.

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The Effectiveness of In-Class Instructive Feedback Versus After-Class Instructive Feedback for Teachers Learning Direct Instruction Teaching Behaviors

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Abstract: Coaching/supervision can improve teacher outcome, thus improving student outcomes. Most coaching/supervision models provide feedback about teaching performance after the class session even though there is little empirical evidence validating the practice. The purpose of this study was to determine whether in-class feedback or after-class feedback was more effective for teachers acquiring and maintaining direct instruction teaching behaviors. Seven participants were provided with feedback on two target behaviors and no feedback on a third control behavior. The results showed that the behaviors receiving in-class feedback were acquired faster and acquired at a higher level than those behaviors receiving after-class feedback. In addition, in-class feedback was more effective in maintaining behaviors measured 14 days after the intervention.

Workshops, demonstrations, supervised practice, and specific feedback have been found to be indispensable to teacher skill acquisition and behavior change (Korinek, Schmid, & McAdams, 1985; Showers, 1982). Studies with measures for long-term retention and generalization have found that teachers who received supervision as a component of teacher training were able to generalize new skills to classroom teaching and retain them over time (e.g., Baker, 1983; Koegel, Russo, & Rincover, 1977).

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Even though supervision seems to be the most important component of teacher training, factors within the supervision model that may contribute to

greater efficiency have not been identified. One factor that may increase efficiency is in-class feedback, where the supervisor/coach gives feedback while the teacher is engaged in the teaching process rather than waiting to give feedback in a post conference that would occur without students present.

Research that investigated specific mechanisms of feedback explains the reasons why in-class feedback may be more effective (Bjork & Allen, 1970; Cuddy & Jacoby, 1982; Glenberg, 1979; Glenberg & Lehmann, 1980). First, feedback may act as a guide, giving information to the performer about what was wrong and how to correct it (Bjork & Allen, 1970; Cuddy & Jacoby, 1982; Glenberg, 1979; Glenberg & Lehmann, 1980; Reddy, 1968; Salmoni, Schmidt, & Walter, 1984). Then the performer relies on the feedback to adjust behavior on the next related task. Each successive trial on a task and the subsequent feedback direct the performer toward the end goal.

The guidance property of feedback was suggested by Reddy (1968) as the explanation for the effectiveness of participants who were given immediate information about their performance. Reddy argued that the informational aspect of feedback was the salient component. Participants incorporated the feedback by changing their behavior the next oppor-

tunity to perform the task within the same session, much as Salmoni et al. (1984) suggested. For the guidance properties of in-class feedback to work, tasks must be related to each other. Only this way can feedback from one task be used to improve performance on the next task. Application tasks that have one or two principles in common are related in such a way. In contrast recall or recognition tasks are often unrelated. Reddy (1968) and O'Reilly et al. (1992) required application. Feedback on performance of one task representing a specific skill was directly related to performance on the next task representing the same skill.

The second mechanism that may underlie the effectiveness of in-class feedback is spaced practice. Spaced practice has been well documented to be more effective than massed practice (Bjork & Allen, 1970; Cuddy & Jacoby, 1982; Glenberg, 1979; Glenberg & Lehmann, 1980). For these reasons, in-class feedback may be more effective than after-class feedback.

Engelmann (1988) and Gleason and Hall (1991) claim that in-class feedback is more efficient for training teachers because expectations are more explicit, and teachers have an opportunity to change their behaviors on the next task in the same lesson rather than waiting until the next lesson. If this is true, then the amount of time it takes to train a teacher to criterion should be reduced with in-class feedback. Specific questions that guided this research were (a) whether in-class feedback results in faster acquisition and a higher level of acquisition than after-class feedback, and (b) whether in-class feedback is more effective than after-class feedback in maintaining teaching behaviors.

Method

Participants

Table 1 presents a summary of teacher education and experience. Three criteria were used for selection of participants: (a) they must have been willing to learn to implement Decoding B2 (Engelmann et al., 1988) in small groups, (b) they must have had little or no exposure to DI training procedures, and (c) they must have had no exposure to an in-class model of supervision/coaching. Only Participant 3 had experience teaching Direct Instruction. She was included in the study because she had used the Direct Instruction materials for only a short time and had received no training in how to teach the program. Participants were blind to the research questions and treatment variables throughout the study.

Setting

The school site was a large rural, low-socioeconomic middle school with a total student body of 984. The school served a mixed population: (a) 40% Native American, (b) 16% Hispanic, and (c) 43% Caucasian students. School staff selected those students for the *Corrective Reading* Program (Engelmann et al., 1988) who were in the fifth and sixth grade and who performed below the 30th percentile on norm-referenced standardized test. All selected students read at least two grade levels below their grade placements. The number of students in each group ranged from four to eight, with an average number of six. Each participant was scheduled to teach one *Corrective Reading* group per day using Decoding

Table 1. Summary of Participants' Education and Experience.

Participant	Position	Gender	Years teaching	Credential	Experience with highly technical instruction	Past training in reading	Program used in class
1	Fifth-grade teacher	Female	5 years	Multisubject elementary	None	Whole language Literature-based	Basal series
3	Fifth-grade teacher	Female	2 years	Elementary	Taught scripted lessons as a substitute teacher	Whole language Basal approaches	Whole language
4	Sixth-grade teacher	Female	ND	Elementary	Heard of Direct Instruction programs	Literature-based	Whole language Literature-based
5	Sixth-grade teacher	Male	3 years	Single-subject in history	Heard about Direct Instruction programs	None	Basal
6	Teacher aide	Female	None	None	Heart about Direct Instruction programs	None	Generic phonic approaches
7	Fifth-grade teacher	Female	1 year	Elementary	Heard about Direct Instruction programs	Whole language	Whole language Literature-based
8	Sixth-grade teacher	Female	20 years	Elementary	Heard about Direct Instruction programs	Whole language	Whole language, Literature-based, Basals

Note. ND = no data collected due to lack of subject response.

B2—except Participant 6, who was scheduled to teach three reading groups per day.

Dependent Variables
Error Correction
Error correcting involved three component parts: (a) telling the answer, (b) repeating the task, and (c) part-firming. If any component was not present, then the error-correcting procedure was scored as incorrect for that trial. These components were defined as follows:

1. Tell the answer: The participant told the answer when students responded incorrectly for tasks requiring group responses or individual responses. Correct answer telling was either the exact word or was a sentence that told the correct answer. (e.g., if the answer was *rob*, the participant said "rob" immediately after the students said "robe." The participant may also have said, "The word is *rob*.") Correct telling the answer did not include negative words (e.g., "No, this word is *rob*"). Telling the answer is not dependent upon type of academic errors, but rather, was uniformly applied for all academic errors.

2. Repeating the task: Participants had students repeat the task (e.g., say the sound again, say the word again, or say the sentence again.).

3. Part-firming: The participant went back to the beginning of the part and presented the task again. A part included at least two previous tasks plus the error task.

Additionally, telling the answer, repeating the task, and part-firming were delivered in a standard tone that did not convey disappointment, anger, or sarcasm and were directed toward the group and not the individual student who made the error.

Point Awarding
Awarding academic points involved three component parts: (a) setup, (b) subsequent setups, and (c) individual turns. If any component was not present, then the awarding-point procedure was scored as incorrect for that task. These components were defined as follows:

1. First setup: Before beginning a set of tasks, the participant told students how many points would be awarded if they got the whole set right the first time.

2. Next and subsequent setups, same set of tasks: The participant told students how many points were left after an error was made. (The participant reduced points by increments—e.g., 5 points the first time correct, 3 points if an error was made, 1 point if a second error was made.)

3. Individual turns for a set of tasks: The partici-

pant told students how many points they would earn if they answered the first time correct.

Additionally, points were awarded in a pleasant tone of voice (e.g., no sarcasm, such as "Finally, you got it right.")

In order to be counted correct, points also needed to be set up before each set of tasks and after each error and also needed to be written down after each set of tasks was completed and again after individual turns.

Student Progress Monitoring
Student progress monitoring was a control behavior. Participants were trained to monitor student progress by collecting and charting data about student performance. Opportunities for student progress monitoring included the following: (a) student oral errors in word attack, (b) student oral errors in story reading, (c) student oral errors in individual turns, (d) all oral errors recorded on the weekly summary sheet, (e) individual timed-reading graphs, (f) written errors marked and scores written on student independent work, and (g) recording students' group points on the point chart at the end of the class period. Like error correcting and point awarding, student progress monitoring could be measured by number correct data collection and recording divided by opportunities for correct data collection and recording. In order for student progress monitoring to be correct, the participant was required to take data and record it on the correct form.

Pre-training
The teacher trainer had extensive training in the *Corrective Reading* program and had supervised practicum students and student teachers using the in-class and after-class feedback process for 3 years. In order to achieve uniform training on the dependent variables (i.e., error correcting, point awarding, and progress monitoring), all participants were trained across the word attack, story reading, and independent work parts of the *Corrective Reading* lesson. For example, the teacher trainer explained the rationale for point awarding in word attack. The teacher trainer then modeled the procedure for point awarding. After modeling the procedure, participants practiced point awarding in small groups for approximately 15 minutes. The teacher trainer then explained the procedure for error correcting in word attack and then modeled the procedure for each type of error correcting. After the teacher trainer modeled error correcting, participants practiced the procedure in small groups for approximately 15 minutes. The teacher trainer then explained the rationale for progress monitoring for word attack and

demonstrated progress monitoring using progress-monitoring data sheets, and participants practiced taking data in small groups for approximately 15 minutes. While participants practiced each of the dependent variables, the teacher trainer circulated throughout the groups and answered general questions about the procedures, but did not give participants specific feedback about their performance on any of the dependent variables.

The teacher trainer also demonstrated the use of other forms and graphs to be used for student progress monitoring such as thermometer charts for group instructional points and weekly forms for evaluating type of student reading errors. At the end of the training session, the teacher trainer handed out all necessary forms for progress monitoring and requested that each participant take copies and duplicate them for use in their groups as soon as they began teaching. The teacher trainer also requested that the participants have group point charts ready on the first day of teaching. In addition to the dependent variables, the teacher trainer also modeled other procedures necessary for the implementation of *Corrective Reading* (i.e., pace and signaling) during the training session. Participants practiced pace and signaling while the teacher trainer gave immediate feedback.

Design

An adapted alternating treatment design (AATD) (Sindelar, Rosenberg, & Wilson, 1985) was used. In most single-subject designs, one variable is manipulated to see its effect on a second dependent variable. In an AATD, however, the effects of two treatments on learning are compared within the same participant. Both interventions occur simultaneously. This AATD single subject design compared the effects of two different feedback interventions on two separate, but equally difficult, teaching behaviors within the same subject. Each participant received both treatments, each treatment applied to a different behavior. For example, participant 1 received in-class feedback on error correction and received after-class feedback for point awarding. To control for variations for possible differences in the two behaviors, the two treatment conditions were counterbalanced for the two behaviors across all participants. Four participants (1, 3, 4, and 5) received in-class feedback for error correcting and after-class feedback for awarding points. Three participants (6, 7, and 8) received the alternate—in-class feedback for awarding points and after-class feedback for error correcting. (One participant withdrew voluntarily from the study.)

The AATD requires that behaviors to be learned are (a) of equal degree of difficulty and (b) independent of each other (Sindelar, Rosenberg, & Wilson, 1985). The two behaviors teachers were to learn in this study were error correcting and point awarding. Logical analysis of data from beginning lessons presented by four student teachers was used to determine that these behaviors fulfilled the requirement of separate, but equal. One behavior frequently occurred without the other behavior.

In addition, progress monitoring was selected as a third no-feedback condition, to serve as a control for both treatments. Progress monitoring was selected as a control because it could be unobtrusively observed by examining permanent products such as worksheets. There were seven opportunities for progress monitoring each day. Even though this number of opportunities was fewer than the recommended 10 (Wolery, Bailey, & Sugai, 1988), this behavior had the advantages of (a) stability on a daily basis and (b) ability to be monitored easily without the participants' knowledge.

Baseline

Baseline was initiated the first day of instruction after training and continued for 3 consecutive days. The teacher trainer videotaped each participant while the participant taught a *Corrective Reading* lesson or a portion of the lesson to his or her group of students. The teacher trainer did not give any feedback on error correcting, point awarding, or student progress monitoring. Feedback on other behaviors (e.g., pacing, formats, and signaling) did occur.

Feedback

The treatment condition consisted of in-class feedback on one dependent variable (either error-correcting or point-awarding), after-class feedback on the second dependent variable (either error-correcting or point-awarding), and no feedback on the third dependent variable (progress monitoring). Participants were randomly assigned to receive in-class feedback on either error correcting or point-awarding. They received after-class feedback on the alternate behavior. They all received no feedback on progress-monitoring

Participants were videotaped while they were teaching. Participants were encouraged to complete word attack, story reading, and independent work daily. A description of each type of feedback follows.

In-Class Feedback

The teacher trainer used components of the supervision model developed by Engelmann (1988)

and Gleason and Hall (1991). In-class feedback was (a) modeling the correct teacher behavior, (b) prompting the behavior, or (c) giving brief directives about the behavior.

The teacher trainer modeled when she took over the lesson and demonstrated a portion of it with students while the participant watched. The teacher trainer prompted when she either used a signal or a word that cued the participant to perform the required behaviors. The teacher trainer gave brief directives when she only gave instructions.

Modeling, prompting, and giving directives were used at various times with all participants while the participants were engaged in the process of teaching students. Modeling was used more frequently during the first treatment sessions and was faded as the participants gained proficiency in the skill that was targeted for in-class feedback. Prompting and giving directives were used more frequently in later treatment sessions

If the participant did not perform the target behavior correctly (e.g., error correcting or point awarding), the teacher trainer intervened. The teacher trainer decided which level of intervention to use based upon the skill of the participant and the nature of the problem. For example, if the participant did not perform any of the behavior accurately, the teacher trainer modeled. If the participant performed the behavior correctly in the past, but on occasion forgot to perform the behavior, then the teacher trainer prompted. If the participant performed part of the behavior correctly, but one piece of the behavior was not done correctly, the teacher trainer gave a brief directive statement. The participant then tried the correct behavior with the children when the next opportunity arose. If the participant was successful, then the teacher trainer did not intervene again. The process of teacher trainer intervention continued throughout the lesson. An illustration of in-class feedback follows.

Participant 1 received in-class feedback on error correcting and after-class feedback on point awarding. At the beginning of the intervention condition, when Participant 1 did not use accurate correction procedures at the time a student academic error occurred, the teacher trainer intervened with the students, modeling the correction procedure while the participant observed. For example, Participant 1 corrected by restating the question, "What word?" rather than first telling the answer. The teacher trainer overvoiced the participant with the answer, by saying "That word is _____. What word?" The students responded with the correct word. The teacher trainer then had the participant repeat the correction procedure with the next error. By the third intervention session, Participant 1 had learned the correction procedure and did not require the more intrusive intervention of modeling. The teacher trainer then used prompting and brief directive statements. For example, Participant 1 said, "What word?" The teacher trainer raised her hand from the back of the room. The participant then self-corrected and said, "That word is _____. What word?"

After-Class Feedback

After-class feedback was a 15-min postconference that occurred either immediately after the teaching session while students were present but engaged in alternate activities or the same day without students present. It consisted of the following steps: (a) the teacher trainer reviewed data and notes with the participant about the teaching behaviors; (b) the teacher trainer modeled the correct procedure, explained the necessity for the correct procedure, and/or gave direction about performing the correct procedure; and (c) the participant practiced the correct procedure as many times as the teacher trainer had intervened during the in-class condition with the participant. An illustration of after-class feedback follows.

The participant received after-class feedback on error-correcting. The teacher trainer noted that the participant did supply the answer immediately, but, instead, repeated the question of "What word?). The teacher trainer pointed out to the participant that it was necessary to model the correct answer for the students and then to retest them by asking for a student response. Then the teacher trainer had the participant practice the correct error correcting procedure as often as the teacher trainer intervene for the behavior receiving in-class feedback.

No feedback

All participants received no feedback on progress monitoring. The teacher trainer did not initiate discussion about progress monitoring.

Control for practice

The teacher trainer established a control for ensuring that the same amount of practice was provided for the after-class dependent variable as for the in-class dependent variable. Each time the teacher trainer intervened in class by either modeling, prompting, or giving direct statements, she made a check mark on the observation sheet. The teacher trainer then had the participant practice the after-class behavior the same number of times the teacher trainer had intervened in class. For example, if the teacher trainer intervened in-class three times on error correcting, then the teacher trainer had the participant practice awarding points after class three

Table 2. Number of Experimenter In-Class Interventions and Subject Afer-Class Practice for Each Intervention Session.

Participants	Feedback	Type of Feedback	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
1	In-Class	Error Correcting	16	13	5	2	4	3
	After-Class	Point Awarding	16	13	5	2	4	3
3	In-Class	Error Correcting	6	3	5	3	3	3
	After-Class	Point Awarding	6	3	5	3	3	3
4	In-Class	Error Correcting	9	4	5	0	5	1
	After-Class	Point Awarding	9	4	5	0	5	1
5	In-Class	Error Correcting	11	5	5	6	2	0
	After-Class	Point Awarding	11	5	5	6	2	0
6	In-Class	Point Awarding	15	5	2	6	2	0
	After-Class	Error Correcting	15	5	2	6	2	0
7	In-Class	Point Awarding	12	11	1	6	3	0
	After-Class	Error Correcting	12	11	1	6	3	0
8	In-Class	Point Awarding	5	8	ND	7	5	2
	After-Class	Error Correcting	5	8		7	5	2

Note. ND = no data collected due to absence of subject.

times. The purpose of equalizing the number of occasions for directed practice was to rule out the possibility that amount of practice rather than the occassion of the practice (in-class or after-class) could explain the results (see Table 2).

General Intervention Procedures

Participants were instructed to complete an entire lesson per day and were videotaped for word attack and story reading. The teacher trainer modeled and gave feedback on pace and signals (nonexperimental behaviors) for all participants while the participants were teaching and after the participants had finished teaching. During the after-class feedback session, the teacher trainer praised the participants for all behaviors that were done well, including the behaviors targeted as the dependent variables.

At the end of the after-class feedback session, the teacher trainer wrote recommendations for each teacher. The recommendations praised the teacher for what was done well and made suggestions for improvement for each of the dependent variables and for one other teaching skill, if necessary. Balancing all behaviors in the recommendations, those receiving in-class or after-class feedback and those not in the study, served to prevent one treatment from inadvertently repressing the behaviors of the other treatment and to maintain participant blindness to the treatment variables. Examples of recommendations follow:

1. Remember to set points for the first section of story reading then award after each individual turn.

2. Listen carefully for reading errors. Then correct by first telling the answer, second, by asking the student to repeat the word, and then by going back to the beginning for retest.

3. Before beginning story reading, be sure to state that students are to follow along with their fingers.

Participants were not trained to use a point system for managing student behaviors that were not academic (e.g., sitting up straight, paying attention), but each teacher did receive assistance in managing student behaviors while they were teaching. The supervisor reinforced students by awarding individual points for cooperative group behaviors such as coming to group on time, sitting up straight, following along with their fingers, reading so others could hear, and answering together on signal.

Maintenance

Three maintenance sessions followed the treatment sessions approximately 14 days after the last treatment session. During this 14-day period, participants continued to teach Corrective Reading to their groups. The teacher trainer then videotaped the participants for 3 days while the participants taught Corrective Reading. The teacher trainer did not intervene during maintenance.

Videotaping and Audiotaping of Feedback Intervention

Three methods of data collection were used. Participants were videotaped while they were teaching,

and they were videotaped or audiotaped during the after-class feedback session. Permanent products such as worksheets, graphs, charts, and student data sheets were examined to determine whether the participant had implemented progress monitoring correctly.

A second year University of Oregon doctoral student who was a supervisor for teachers learning Direct Instruction programs coded all videotapes for number of correct error-correcting behaviors and correct point-awarding behaviors. The number of opportunities for a behavior varied across participants and sessions. The number of correct behaviors divided by the number of opportunities for the correct behavior was then computed into a percentage for each session for both point awarding and error correcting.

Interobserver Agreement

The doctoral student and the teacher trainer scored without consulting each other at separate times and in separate locations. Interobserver agreement was then calculated on the 20 independent sessions (30% of total sessions) across baseline, intervention, and maintenance and was established by dividing the number of agreements by the number of agreements plus disagreements multiplied by 100. On the independent sessions, reliability ranged from 76% to 100% and averaged 91%.

Fidelity of Independent Variable

Two undergraduate University of Oregon students were trained on 2 intervention sessions to use a specially designed form that categorized number and types of statements made by the teacher trainer. One student was an education major and the other was undeclared. Each scorer independently coded randomly selected 13 in-class sessions and 13 after-class sessions out of a total of 41 intervention sessions for fidelity of treatment. A total of 114 in-class feedback statements were procedurally appropriate and 5 were procedurally inappropriate (96% ap-

propriate). An example of inappropriate feedback occurred when the teacher trainer prompted awarding points when the target behavior was error correcting. A total of 169 after-class feedback statements were procedurally appropriate and 4 were not procedurally appropriate (97% appropriate). For example, the teacher trainer discussed reducing the number of points when the behavior receiving after-class feedback was error correction.

To guard against the possibility of effects being attributed to extra practice, scorers marked down the number of times the participant practiced the behavior receiving after-class feedback to assure that it equaled the number of actual times the teacher trainer intervened during in-class feedback. The total number of interventions for the in-class feedback condition was 175 and the total number of times the participants practiced the behavior receiving after-class feedback were 175.

Results

Mean Percentages

Figure 1 shows the mean accuracy percentages for all participants. In-class feedback resulted in faster acquisition of target behaviors than after-class feedback or no feedback. In addition, the substantial difference in level for behaviors receiving in-

Figure 1. Mean Percentage Scores for Baseline (B), Treatment (T), and Maintenance (M) Sessions for Participants 1, 3, 4, 5, 6, 7, and 8.
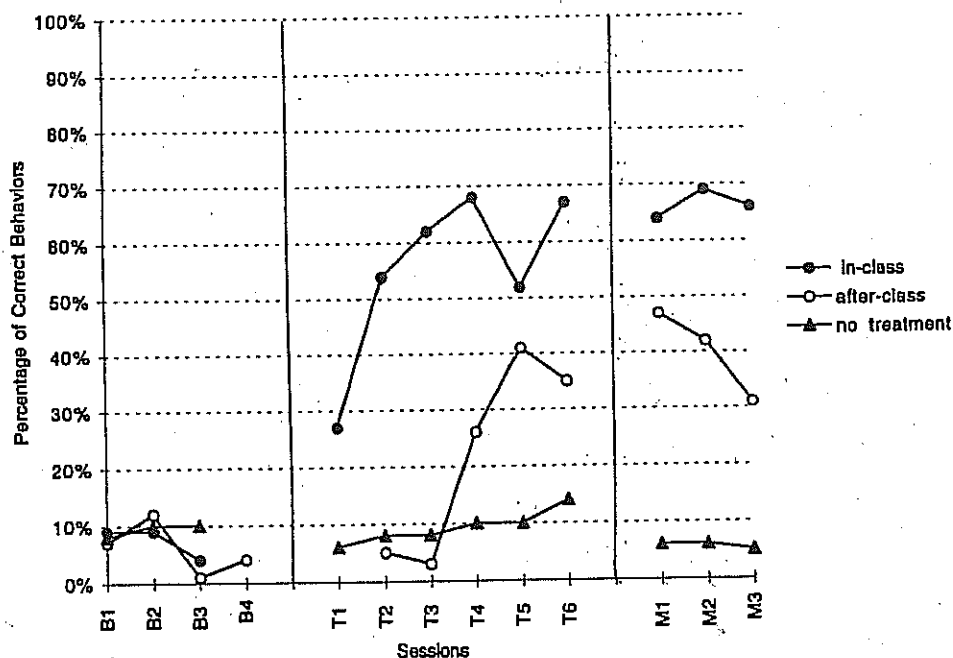
class feedback compared to behaviors receiving after-class feedback supports the conclusion that in-class feedback resulted in a higher level of performance than after-class feedback.

The higher levels of performance for behaviors receiving in-class feedback maintained after 2 weeks. This conclusion is supported by the clear gaps between scores for all behaviors. Only the data for participant 3 produced a pattern of results during the intervention condition different from the over all results displayed in Figure 1 (see Figure 2). Participant 3 had minimal differences in scores for behaviors receiving in-class feedback and after-class feedback during the intervention condition in contrast to other participants.

Participant 6 (see Figure 3) seemed to acquire the skills much faster than the other participants, with smaller differences between treatments.

Furthermore, data for participants 4 and 5 produced results inconsistent with the overall pattern for maintenance displayed in Figure 1 (see Figures 4 and 5).

Social Validity

In-class feedback is not a model of supervision/coaching that is commonly used. Because of its intrusiveness into the classroom, concerns have been raised about the possibility of in-class feedback undermining the authority of the classroom teacher. Because of these concerns, participants were requested to fill out a

Figure 2. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 3.

Figure 3. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 6.

questionnaire at the conclusion of the study about their perception of the training. To preserve confidentiality, participants were given questionnaires and blank envelopes with instructions to fill out the questionnaire, seal it in the envelope, and give it to the school secretary. The participants were also requested not to include their names.

All seven of the participants were asked to compare the *Corrective Reading* training and coaching to other workshop and training experiences. Choices of answers were (a) above average, (b) average, and (c) below average. Three of the seven participants rated the training as above average, and three participants rated it as average. One participant did not answer the question. When asked how they felt before the experiment began about a coach assisting them while they were teaching their groups, 3 participants liked the idea, 2 participants did not like the idea, and 2 participants felt neutral about the idea. When asked how they felt after the study was over about having a coach assist them while teaching their groups, 6 participants liked the idea, and 1 participant was neutral about the idea.

Participants were also asked to indicate how much they valued assistance during teaching and after teaching. Six participants thought that both the coaching during the teaching session and after the teach-

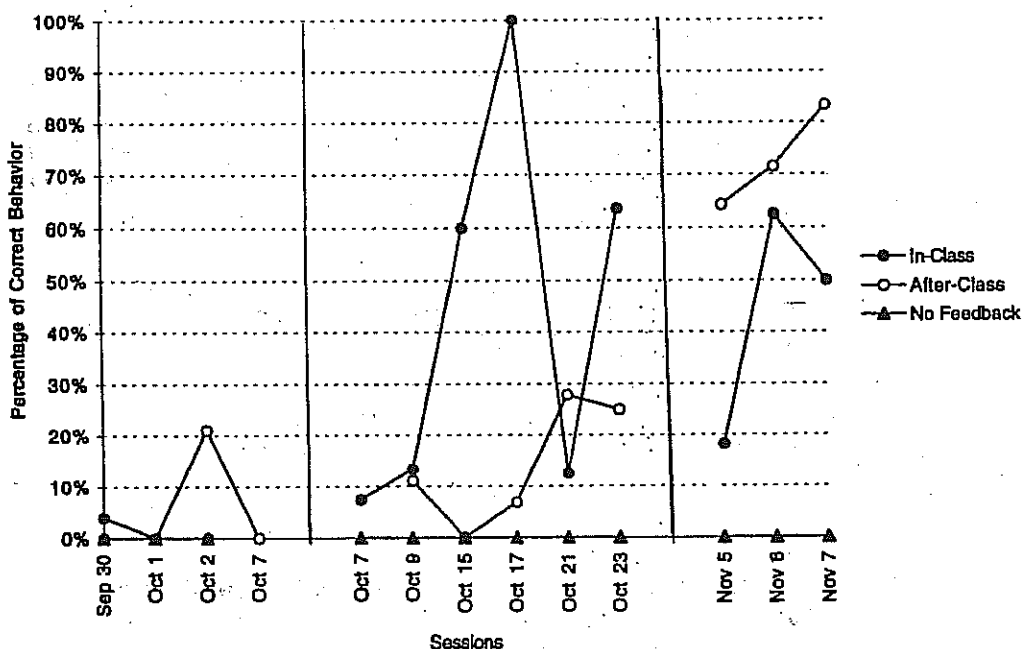**Figure 4. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 4.**

Figure 5. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 5.

Figure 6. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 1.
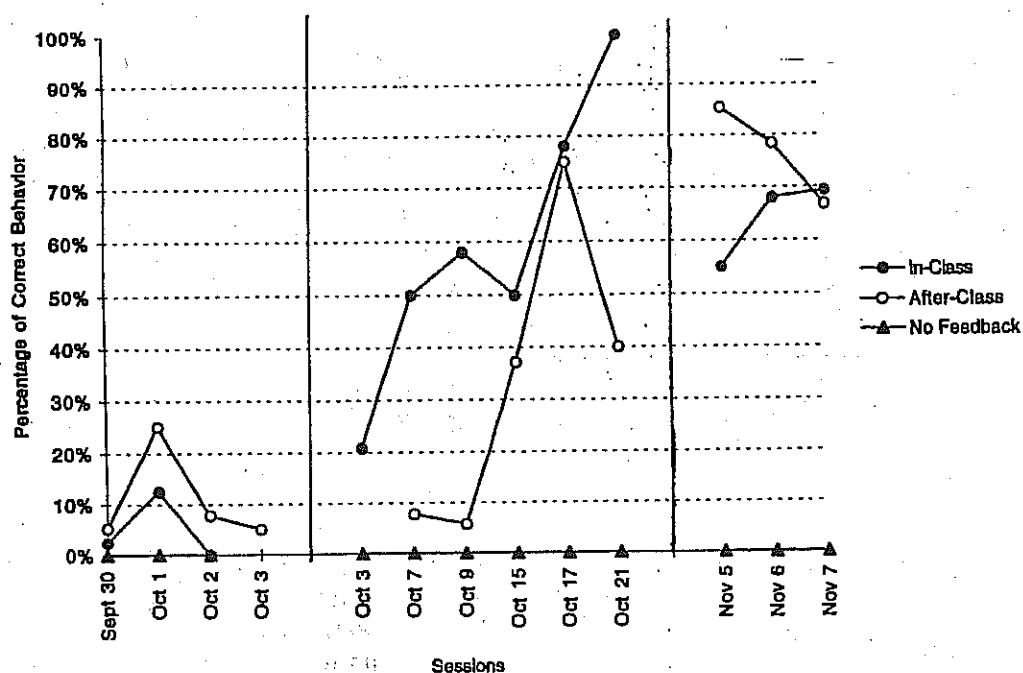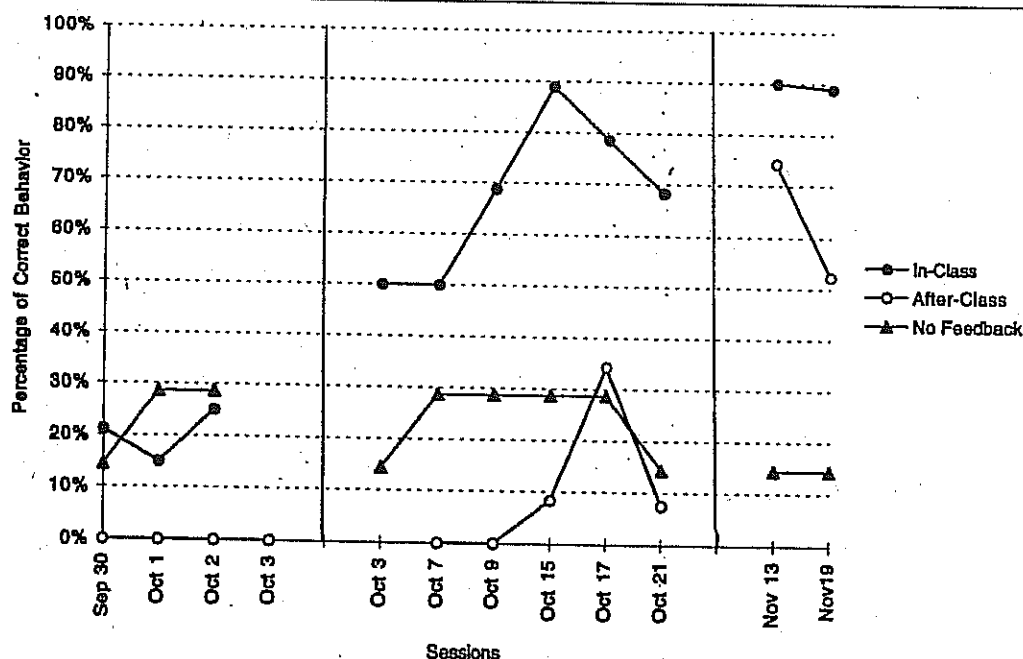

Figure 6. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 1.

ing session were of much value. One participant said they were only of some value. In conjunction with the previous question, participants were asked to tell whether they perceived in-class assistance or after-class assistance to be more efficient in improving their skills. Six subjects reported that assistance while teaching was more efficient. At the end of the study, all participants felt they had made good progress in learning how to teach *Corrective Reading*. In addition, all but one participants felt that their students had made good progress learning to read. Finally, when asked whether they wanted to continue to teach the *Corrective Reading* program or return to their previous methods of instruction, all but one participant indicated they preferred to teach it. One participant had no preference.

At the end of the study—which maintains all participants' anonymity—one participant wrote a comment on the questionnaire:

> This is the most [instruction in] teaching I've ever had that I feel will totally impact all the rest of my teaching in a positive way. This should be taught to people before they become teachers, much more valuable than theories of teaching.

The teachers' evaluations indicate that in-class supervision does not threaten or undermine teach-

ers' feeling of credibility with their students. It is interesting also that, on the whole, teachers saw both in-class and after-class feedback as important.

Continued use of the program and practices confirmed the social validity of the treatment. Teachers who received supervision continued to teach the *Corrective Reading* program 4 months after the end of the study. Personnel from the school site indicated that the program will be continued in the next school year. Trained personnel who have observed the participants teaching confirmed that participants are continuing to perform teaching behaviors accurately.

The teachers' evaluations indicate that in-class supervision does not threaten or undermine teachers' feeling of credibility with their students. It is interesting also that, on the whole, teachers saw both in-class and after-class feedback as important.

Students taught by the participants made gains in reading. To monitor student progress, the participants selected and tested two medium-performing students for each group. Scores on a measure of word-attack reading skills showed that students were performing on the average between the 10th and 12th-grade level. One teacher who taught the same program but did not participate in the study was the only one whose students showed no growth.

Discussion

This study provided evidence confirming the value of in-class feedback in a comprehensive model of teacher training. Five of the seven participants acquired specific teaching behaviors faster and at a

clearly higher level with in-class feedback than they did with after-class feedback. Differences between treatments were not as clear for the two remaining participants. Several uncontrolled confounds may have eroded possible treatment differences.

This study provided evidence confirming the value of in-class feedback in a comprehensive model of teacher training.

Figure 2 shows that Participant 3 improved only slightly during the intervention condition and did not maintain the behaviors. There are three possible explanations for the low percentage scores: (a) lack of motivation to perform the behavior, (b) inattention during feedback, and (c) a lower number of coaching interventions. Regarding lack of motivation, the participant communicated during an after-class feedback session that even though she knew the philosophy behind the point system, she did not agree with how the points were awarded. Regarding inattention, it appeared participant 3 was distracted by other activities in the class. Regarding the number of coaching sessions, Participant 3 received the lowest number of coaching sessions of all the participants (see Tables 3 and 4). Since there were fewer in-class interventions, there were also fewer after-class practice opportunities on behaviors receiving after-class feedback. This lack of intervention likely influenced the acquisition of skills for both behaviors.

Participant 6 (see Figure 3) had only minimal differences favoring in-class and after-class feedback. Both the behaviors that were targeted for in-class feedback and after-class feedback increased rapidly in percentage points over time. Two possible confounds may explain this variation from the pattern of results found in other subjects. First, Participant 6 was the only participant who taught *Corrective Reading* to two additional groups of students each day. This additional teaching occurred immediately after receiving after-class feedback for the first session. The other participants taught just one group with at least 24 hours elapsing between after-class feedback to the next teaching session. Participant 6, therefore, had an opportunity to incorporate after-class feedback into the next teaching session, which came immediately after the postconference. Thus after-class feedback, in essence, became in-class feedback because the after-class feedback guided the behaviors in the subsequent daily sessions. The minimal difference between treatment conditions would support this explanation.

Second, Participant 6 had three times the opportunities to practice. The multiple opportunities for practice could have increased performance for both behaviors. The superior growth rate of Participant 6 over the other participants' rate of progress would support this explanation. Given the confounds surrounding these two subjects, it seems that in-class feedback resulted in acquisition of new teaching behaviors at a faster rate and at a higher level.

Table 3. Raw Scores for Subjects Receiving In-Class Feedback for Error Correction, After-Class Feedback for Awarding Points, and No Feedback for Student Progress Monitoring.

Participants	Type of feedback	Sessions											
		Baseline			Treatment						Maintenance		
		B1	B2	B3	T1	T2	T3	T4	T5	T6	M1	M2	M3
1	In-class	11/52*	4/27	5/20	18/36	19/38	11/16	8/9	13/38	15/22	9/10	8/9	ND
	After-class	0/17	0/16	0/30	0/37	0/40	0/37	2/24	11/14	3/40	26/35	22/42	
	No feedback	1/7	2/7	2/7	1/7	2/7	1/7	2/7	1/7	1/7	1/7	1/7	
3	In-class	0/31	0/17	0/22	0/12	4/13	1/11	2/10	3/8	1/6	0/19	0/4	0/14
	After-class	0/35	0/22	1/13	1/55	2/38	7/49	3/36	5/39	9/34	1/45	0/33	0/46
	No treatment	1/7	1/7	1/7	0/7	0/7	0/7	1/7	1/7	1/7	1/7	1/7	1/7
4	In-class	1/25	0/15	0/6	2/27	3/15	13/20	6/6	1/8	7/11	2/11	5/8	3/6
	After-class	0/7	0/19	4/19	0/21	2/18	0/54	3/44	10/36	8/32	27/42	35/49	40/48
	No treatment	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7
5	In-class	1/41	2/16	0/5	5/24	3/6	18/31	6/12	12/21	7/7	5/9	17/25	9/13
	After-class	2/38	1/4	2/26	2/40	1/13	2/35	13/39	28/44	16/40	41/48	29/37	20/30
	No treatment	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7	0/7

Note. ND = no data collected due to absence of subject.

*All numbers are in the following order: e.g., 11 = number of correct behaviors; 52 = number of opportunities for correct behaviors.

A conclusion that in-class feedback maintains behaviors at a higher level than after-class feedback is more tentative. Two participants (5 and 6) performed behaviors receiving after-class feedback with greater accuracy than behaviors receiving in-class feedback during maintenance.

Overall two patterns of results were evident for the maintenance phase, but these two patterns varied by behavior assigned to treatment, more so than by treatment alone. Participants 1, 4, and 5, receiving after-class feedback for awarding points, showed a jump in level for after-class feedback during the maintenance condition. This pattern was dramatically different for participants 6, 7, 8 who received after-class feedback for error correcting. For these participants, the mean maintenance scores were either the same level or slightly lower than the intervention level.

A confound that varied consistently across the two behaviors was the number of opportunities for practice. For point awarding, opportunities for practice remained about the same while the opportunities for error correcting declined dramatically as students in the group learned to read more fluently and made fewer errors (see Table 4). The differential number of opportunities may have provided more practice for awarding points during the 2 weeks between the intervention condition and the maintenance condition, allowing teachers to improve their performance for point awarding through the added practice.

Figure 7. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 7.
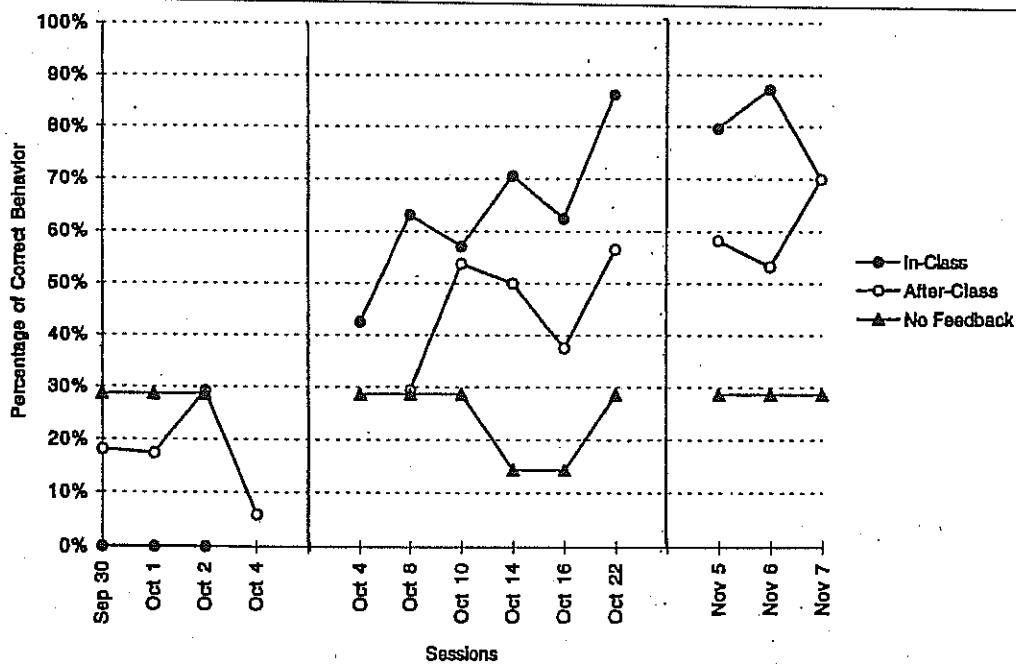
Figure 8. Percentage Scores for Baseline, Treatment, and Maintainence Sessions for Participant 8.

Table 4. Raw Scores for Participants Receiving In-Class Feedback for Awarding Points, After-Class Feedback for Error Correction, and No Feedback for Student Progress Monitoring.

Participants	Type of feedback	Sessions											
		Baseline			Treatment						Maintenance		
		B1	B2	B3	T1	T2	T3	T4	T5	T6	M1	M2	M3
6	In-class	0/17a	0/40	0/40	1/25	28/48	31/39	22/32	33/37	48/60	31/45	34/49	36/46
	After-class	0/23	0/19	0/14	0/6	0/7	3/4	7/11	5/9	8/12	5/11	11/22	3/10
	No feedback	0/7	0/7	0/7	0/7	0/7	1/7	1/7	2/7	2/7	0/7	0/7	0/7
7	In-class	0/10	0/51	0/30	17/49	24/38	20/35	24/34	30/48	31/36	39/49	34/39	28/40
	After-class	4/22	4/23	7/24	1/17	5/17	14/26	9/18	9/24	13/23	7/12	8/15	14/20
	No treatment	2/7	2/7	2/7	2/7	2/7	1/7	1/7	1/7	2/7	1/7	1/7	1/7
8	In-class	0/18	0/29	0/25	11/35	22/34	ND	30/45	28/39	24/38	27/40	21/41	20/42
	After-class	1/20	6/19	1/27	1/10	2/8		3/12	13/19	3/13	2/15	7/28	1/19
	No treatment	0/7	0/7	0/7	0/7	0/7		0/7	0/7	0/7	0/7	0/7	0/7

Note. ND = no data collected due to absence of subject.

aAll numbers are in the following order: e.g., 0 = number of correct behaviors; 17 = number of opportunities for correct behaviors.

The differing amounts of practice seem a more plausible explanation than another possible explanation we considered: Could the supervisor's focus upon one behavior (the behavior receiving in-class feedback) suppress the participant's attention to the other behavior (the behavior receiving after-class feedback), resulting in a jump in level for the behavior receiving after-class feedback when supervision stopped? Certain evidence is not consistent with this explanation. First, the jump in level was only evident for participants who received after-class feedback for point awarding. Data for participants who received after-class feedback for error correcting did not jump in level. In fact, data for Participant 6 showed a drop in level for the behavior receiving after-class feedback. Participant 7 showed about the same level, and Participant 8 also showed a drop in level.

The conjecture of differential attention would be more convincing if even the data for one participant who had received after-class feedback for error correcting showed the same pattern in the maintenance condition as those who had received after-class feedback for point awarding. The pattern of data for only one dependent variable jumping in level would suggest that mechanisms or confounding variables other than differential attention were responsible for the maintenance results.

Second, differential attending would also be more plausible if the participants were aware of the target behaviors for each condition. On the contrary, during in-class feedback, the teacher trainer kept the participants blind to the dependent variables by supervising other behaviors—e.g., pacing, signaling, formats, and organization—as well as the target be-

havior. In order to keep conditions equal in strength, the teacher trainer also included discussion and practice on other behaviors such as pacing, signaling, formats, and organization during the after-class feedback session and included these behaviors frequently in the written recommendations at the end of each session.

> These studies quite strongly support the proposition that immediate feedback with an immediate opportunity to improve or correct the behavior is more effective than a delayed opportunity to practice after corrective feedback.

Data from this study are consistent with findings from other studies (Bjork & Allen, 1970; Cuddy & Jacoby, 1982; Glenberg, 1979; Reddy, 1968; Koegel, Russo, & Rincover, 1977, Salmoni, Schmidt, & Water, 1984). Taken together, these studies quite strongly support the proposition that immediate feedback with an immediate opportunity to improve or correct the behavior is more effective than a delayed opportunity to practice after corrective feedback. This study generalizes these findings specifically to a conclusion that in-class feedback results in faster and better acquisition of teaching behaviors by giving teachers an opportunity to change their behaviors on the next task in the same lesson.

This is not to say that after-class feedback is not important in a teacher training model. Each type of

feedback seems to have a unique purpose. In-class feedback allows for demonstrations, prompts, and brief directive statements while children are present, providing an opportunity for the teacher to link the correct teaching behavior to student behavior. Whereas, after-class feedback allows the opportunity for explanations, teacher self-analysis of the lesson, extra opportunities for practice, and/or discussion about application of theory that may also be necessary for teacher development. After-class feedback session is the only opportunity for these kinds of learning experiences. Including in-class feedback in addition to the more common after-class feedback found in teacher-training programs may be beneficial in improving a teacher's effectiveness in a more time efficient manner.

In-class feedback results in faster and better acquisition of teaching behaviors by giving teachers an opportunity to change their behaviors on the next task in the same lesson.

The small number of participants may limit the ability to generalize the findings of the study to a larger population. The results, however, were consistent across participants with a wide range of educational backgrounds and experiences teaching children (see Table 1). For example, 2 participants had no background or training in the teaching of reading; whereas 2 participants had training in 2 different approaches, and 3 participants had training in 1 approach. Likewise, 1 participant was not credentialed, 1 participant was credentialed in history, and 5 participants held elementary credentials. In addition, the number of years teaching for the participants ranged from 1 to 20 years.

One caveat to consider with in-class feedback is that supervisors need to be highly competent and well-trained. These highly trained individuals may be in short supply, limiting the use of in-class feedback in teacher training.

This study did not use a group design and occasional confounds were almost impossible to control. A group design requires more resources, but would allow better experimental control of confounds. The findings of this study seem to warrant a further study with a group design to validate more conclusively the implications of this study for teacher-training. ◆

References

Baker, R. G. (1983). *The contribution of coaching to transfer of training: An extension study.* Unpublished doctoral dissertation, University of Oregon, Eugene.

Bjork, R. A., & Allen, T. W. (1970). The spacing effect: Consolidation or differential encoding? *Journal of Verbal Learning and Verbal Behavior 9,* 567-572.

Cuddy, L. J., & Jacoby, L. L. (1982). When forgetting helps memory: An analysis of repetition effects. *Journal of Verbal Learning and Verbal Behavior 21,* 451-467.

Engelmann, S. (1988). The logic and facts of effective supervision. *Education and Treatment of Children, 11*(4), 328-340.

Engelmann, S., Meyers, L., Carnine, L., Becker, W., Eisele, J., & Johnson, G. (1988). *Corrective Reading: Decoding strategies.* Chicago: Science Research Associates.

Gleason, M. M., & Hall, T. E. (1991). Focusing on instructional design to implement a performance-based teacher training program: The University of Oregon model. *Education and Treatment of Children, 14*(4), 316-332.

Glenberg, A. M. (1979). *Component-levels theory of the effects of spacing of repetitions on recall and recognition, 7*(2), 95-112.

Glenberg, A. M., & Lehmann, T. S. (1980). Spacing repetitions over 1 week. *Memory and Cognition, 8*(6), 528-538.

Koegel, R. L., Russo, D. C., & Rincover, A. (1977). Assessing and training teachers in the generalized use of behavior modification with autistic children. *Journal of Applied Behavior Analysis, 10,* 197-205.

Korinek, L., Schmid, R., & McAdams, M. (1985). Inservice types and best practices. *Journal of Research and Development in Education, 18*(2), 33-38.

O'Reilly, M. G., Renzaglia, A., Hutchins, M., Koterba-Buss, L., Clayton, M., Halle, J. W., & Izen, C. (1992). Teaching systematic instruction competencies to special education student teachers: An applied behavioral supervision model. *Journal of the Association for the Severely Handicapped, 17*(2), 104-111.

Reddy, B. W. (1968). Effects of immediate and delayed feedback on the learning of empathy. *Journal of Counseling Psychology, 16*(1), 59-62.

Salmoni, A. W., Schmidt, R. A., & Walter, C. B. (1984). Knowledge of results and motor learning: A review and critical reappraisal. *Psychological Bulletin, 95*(3), 355-386.

Showers, B. (1982). *Transfer of training: The contribution of coaching.* Eugene, OR: Center for Educational Policy and Management.

Sindelar, P. T., Rosenberg, M. S., & Wilson, R. J. (1985). An adapted alternating treatments design for instructional research. *Education and Treatment of Children, 8*(1), 67-76.

White, O. R., & Haring, N. R. (1980). *Exceptional teaching* (2nd ed.). Columbus, OH: Merrill.

Wolery, M., Bailey, D. B., & Sugai, G. M. (1988). *Effective teaching principles and procedures of applied behavior analysis with exceptional students.* Boston: Allyn & Bacon.

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The Effects of Simulation and Feedback on Preservice Teachers and Their Acquisition of Specific Direct Instruction Teaching Skills

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Abstract: The use of video-taped teaching simulation sessions within a course on Direct Instruction was examined. Students prepared scripted lessons, taught them in small groups, watched video tapes and evaluated their own and peers' teaching performance, and shared general or detailed feedback. Student performance on specific Direct Instruction teaching skills was evaluated. Results indicated that students demonstrated proficiency in the presentation of appropriate cue, pause, and signal sequences and in using a four-step correction procedure. Increases in total praise were also noted. Students found it easier to use the general feedback form and felt they used it better, but preferred the detailed feedback they received from the observation feedback form.

Special education teacher training programs greatly rely on supervised practicum experiences to insure that trainees master specific teaching skills (Buck, Morsink, Griffin, Hines, & Lenk, 1992). Practicum supervision usually involves university faculty traveling to classroom training sites to carry out observations, deliver feedback, and set goals for improving teaching behaviors (Englert & Sugai, 1983). The ability of training programs to use such supervision is sometimes reduced because there are large numbers of trainees, faculty have competing responsibilities, scheduling around a teaching load is difficult, and trainees may be placed in widely dispersed school locations (Englert & Sugai, 1983). Extensive practicum training usually occurs only at the final stage of students' preparation and is seldom concurrent with coursework, where the skills are actually being introduced. For some students, this on-site training amounts to too little, too late, and they may complete their formal university training without actually mastering the skills they need for teaching.

Opportunities to provide observation and feedback within the context of a course in which skills are being introduced are possible through the use of role-playing and the use of on-campus laboratory sites. Role-playing allows for feedback not only from the instructor but also from peers. Peer coaches may be valuable resources who can relieve a university supervisor's load (Joyce & Showers, 1980). Peer coaching has been found to be effective in improving teaching performance in both professional teachers (Peterson-Miller, Harris, & Watanabe, 1991) and preservice trainees (Morgan, Gustafson, Hudson, & Salzberg, 1992; Morgan, Menlove, Salzberg, & Hudson, 1994). However, it is still difficult for the course instructor who has other teaching assignments, advising responsibilities and committee tasks to make repeated observations of large numbers of students, particularly when the instructor must also prepare and deliver content at the same time.

This study examined the viability of using videotaped teaching simulation sessions within a course in which specific Direct Instruction teaching skills were introduced.

One way to augment such supervision is to record role-plays or teaching sessions on either audiotape or videotape. These tapes can be reviewed, repeatedly if necessary, and at convenient times. They also provide permanent products of the students' performance and progress over time. Perhaps most importantly, tapes allow students to self-evaluate their own performance (Simon-Brynildson & Vreeland, 1991). A study of teachers who recorded their Direct Instruction reading sessions, scored their own performances and calculated their skill levels

in relation to specific criteria, found that the teachers improved their use of signals, correction of pupil errors, response rates of pupils, and rates of praise statements (Simon-Brynildson & Vreeland, 1991). Self-evaluation is an effective procedure for improving teaching skills and may be an option for conveniently doing so within the context of a college course.

This study examined the viability of using videotaped teaching simulation sessions within a course in which specific Direct Instruction teaching skills were introduced. The study examined the value of self-observation and specific peer- and self-evaluation of videotaped teaching simulations, the students' acceptance of peer and selfevaluation as a course activity and training method, and the cost of these procedures in terms of time and resources for the instructor.

Method

Participants and Setting

Videotaped teaching simulations took place as part of the course requirements in a senior and graduate-level special education course in Direct Instruction Reading. This course was completed in a compressed 7-week session before most of the same students left campus to intern in elementary or secondary special education classrooms. Forty-one undergraduate and three graduate students completed the course, which was taught by one instructor in two sections, one in the morning and one in the afternoon. Each class section met twice a week for 3 hours each time. All course activities took place on the university campus in the School of Education building.

Simulated Teaching Sessions

Three simulated teaching groups were established in each of the two course sections (six groups total). Students were assigned to groups on the basis of alphabetical order; the first student on the alphabetical role sheet for that session was assigned to Group 1, the second to Group 2, the third to Group 3, and so on. One graduate student was assigned to each group. Typically, seven or eight students were assigned to each simulated teaching group, and each student delivered a scripted reading lesson to the others. The scripts differed for each student in a group, and the type of script changed for each session. Two sessions used scripts, one on letter sound-correspondence and one on sounding out and saying it fast, from Distar Reading (Engelmann & Bruner, 1974); one session used scripts involving sounding

out of passage reading from Teach Your Child to Read in 100 Easy Lessons (Engelmann, Haddox, & Bruner, 1983); and the last session used comprehension scripts from Corrective Reading (Engelmann, Hanner, & Haddox, 1980).

Each group met in a room which housed only that group. Six to eight students were assigned to each group and sat in a semi-circle in front of the student who was presenting the script. All student presentations were videotaped, and students within each group watched the tape after everyone in the group had taught a lesson. Each student reviewed his or her own taped lesson and also that of all the other students in that group. Grouping remained consistent across the duration of the course. Each simulated teaching session and tape viewing lasted approximately 1 hour. Four simulated teaching sessions were held for each group, with each session approximately 1 week apart.

Self- and Peer Evaluations

Students used one of two observation systems to record feedback as they viewed the tapes. The detailed feedback form was designed specifically for recording and evaluating the quality of specific Direct Instruction teaching behaviors (Marchand-Martella & Lignugaris/Kraft, 1992). These behaviors included effective cues, pauses, signals, signal corrections, response corrections, specific praise statements, and general praise statements. Table 1 defines each of these teaching behaviors in greater detail. The detailed feedback recording form is shown on page 54 (Marchand-Martella & Lignugaris-Kraft).

A general comments form was designed by the authors for comparison purposes as a part of this study. The form identified three areas in which students should comment on the teacher's Direct Instruction teaching behaviors: cues, corrections, and praise. Figure 1 shows the general comments form and directions for its use.

Training in Direct Instruction Teaching and Observation

Students viewed two video series that demonstrated specific Direct Instruction teaching behaviors in some detail: three tapes from the Science Research Associates Direct Instruction Training Series (SRA/McGraw-Hill, P.O. Box 543, Blacklick, OH 43004-0543) and three tapes from the Association for Direct Instruction Basic Skills in Teaching Series (Association for Direct Instruction, P.O. Box 10252, Eugene, OR 97440). Students also received approximately 1 hour of training in using the de-

Table 1. Definitions of Specific Teaching Behaviors.

Effective cues: A focus word, phrase, or question

Effective pauses: Latency of 1 or 2 seconds between cue and signal

Effective signals: Hand, touch, or auditory activity that initiates pupil response

Effective signal corrections—addressing error: When pupils do not response together, the trainee tells pupils within 3 seconds to answer together in a positive tone

Effective signal corrections—repeat: The trainee repeats the presentation in a positive tone

Effective response corrections—model: The trainee corrects the pupil response error within 3 seconds by modeling the correct response in a positive tone

Effective response corrections—lead: The trainee says the correct response with the students also responding

Effective response corrections—test and retest: The trainee requests group/individual response, uses positive tone, then repeats presentation at a later time

Specific praise statements: Comment after appropriate behavior that includes descriptive information.

General praise statements: Comment after appropriate behavior that is broad and nonspecific

tailed feedback form prior to observing tapes of their first simulated teaching session. Training included provision of a brief instructional packet (Lignugaris/Kraft & Marchand-Martella, 1993) on how to use the observation system, demonstration of the recording system, and guided practice in using the system to record data from a videotape of a similar simulated teaching performance.

Figure 1. General feedback form.

Feedback form Observer _____   **Teacher** _____

As you watch the tape, make notes on the quality of each of the following items and any suggestions you would make. Share with the person teaching the lesson.

Teacher presentation: Cueing, pausing, and signaling:

_____

_____

_____

_____

_____

Teacher Corrections: Model, lead, test, and retest.

_____

_____

_____

_____

_____

Teacher Praise: use of general or specific praise.

_____

_____

_____

_____

Experimental Design

The effects of instructor, peer and selfevaluation using either the detailed or general feedback form were evaluated in a multiple baseline design across groups of students. Group 1 used the detailed evaluation system for all four simulated teaching sessions across the duration of the course. Group 2 used the general comments form after their first simulated teaching session and then used the detailed feedback form for the remaining three simulated teaching sessions. Group 3 used the general comments form for their first two simulated teaching sessions and the detailed feedback form for the remaining two simulated teaching sessions. The instructor provided general or detailed feedback, depending on what form had been assigned to a group for a particular session, and graded the performance of every student for the last three simulated teaching sessions.

Because feedback was provided only after a student's teaching had been videotaped, the first teaching session for all the groups was essentially baseline performance. Group 1 performance should have demonstrated any effect of the detailed feedback for the remaining three sessions. Group 2 performance should have reflected any effect of the general teaching feedback for the second session, while the third and fourth sessions should have reflected the effect of the detailed feedback. Group 3 performance should have reflected the effect of the general teaching feedback in the second and third teaching sessions, and reflected the effect of the detailed feedback only in the last session.

Dependent Variables

The specific teaching skills defined in Table 1 (effective cues, pauses, signals, signal corrections, response corrections, specific praise statements, and general praise) were the dependent variables. In addition, students were asked to rate their satisfaction with the recording instruments; the helpfulness of self, peer, and instructor evaluation, and their ease in using the feedback instruments. Figure 3 is the questionnaire given to the students at the end of the course.

Students were asked to use a Likert-like scale to rate the ease of using the two forms, how well they felt they used the forms, and how much the feedback affected their teaching. They were also asked to indicate which parts of the forms most accurately evaluated their performance, which form they preferred, and whose feedback they found most helpful — their self evaluation, their peers' evaluation, or their instructor's evaluation.

The instructor's time and amount of class time used for observation training, role-playing, recording, and feedback were also monitored.

Dependent Measures

Dependent measures included the mean percent accuracy of verbal cues, 1-second pauses, and signals for student responding. Response corrections were measured by the mean percent of correct steps included in attempted corrections. The average number per lesson of general and specific praise statements was recorded and total praise was measured by the average number of both specific and general praise statements made in each lesson.

Measures for responses to the Likert-like scale (see Figure 2) were reported as the mean rating for each item. When students were asked to choose a preference of two or three items, the percent selected for each item was reported.

Interobserver Agreement

Two trained observers independently recorded data on 100% of the videotaped teaching performances using the detailed feedback form. The frequency of accurate and inaccurate presentation cues, pauses, and signals; of correction models, leads, tests, and retests; and of specific and general praise statements were recorded. The smaller frequency recorded in each category by one observer was divided by the larger frequency recorded in that category by the second observer and then multiplied by 100 (Kazdin, 1982). These scores were averaged across all the categories for a total agreement score for each student lesson. Total agreement averaged 91% across all students for all sessions with a range of 61% to 100%. Overall agreement was similar to that obtained by university supervisors in the Utah State University study by Marchand-Martella and Lignugaris/Kraft (1992). Low rates of agreement were usually due to poor agreement on correction steps (models, leads, tests, and retests) which occurred with low frequency. This was also similar to results found by Lignugaris/Kraft and Marchand-Martella (1993).

Results

Forty-four students completed the Direct Instruction Reading course and videotaped sessions. However, data for eight students were not used because the students were absent from one or more scheduled videotaped simulation sessions. Data for two graduate students were eliminated because they also acted as agreement observers and may have been aware of the study's purpose, procedures, de-

Figure 2. Research questionnaire regarding video feedback forms.

Student Name _____   Group Number _____   Morning or Afternoon? _____

Research Questionnaire Regarding Video Feedback Forms

1. How would you rate the ease of using the detailed data form? (Was it user friendly?)

2. How well did you feel you were able to use the detailed form by the end of class? (Did you get better with additional use?)

3. How did using the detailed form affect your teaching performance?

   _____

4. Please list any changes you would like to see if this form was revised:

   _____
   _____

5. Of the following, which item did you feel was most accurately evaluated on the detailed data form?
   Circle one: a. cue, pause, signal   b. student responses   c. corrections   d. praise

6. Which feedback on the detailed data form did you find most helpful?
   Circle one: a. My own self-evaluation   b. My peers' evaluations   c. My instructor's evaluation

7. Did you have the opportunity to write general comments instead of using the detailed data form?
   Yes - No (circle one)

   If yes, please answer the questions on the back of this evaluation. If no, you are finished with this evaluation.

8. How would you rate the ease of general comments form? (Was it user friendly?)

9. How well did you feel you were able to use the general comments form by the end of class? (Did you get better with additional use?)

   _____

10. How did using the general comments form affect your teaching performance?

    _____

11. Which feedback on the general comments form did you find most helpful? Circle one:
    a. My own self-evaluation b. My peers' evaluationsc. My instructor's evaluation

12. Of the following, which item did you feel was most accurately evaluated on the general comments form?
    Circle one: a. cue, pause, signal   b. student responses   c. corrections   d. praise

13. If this was the only teacher evaluation tool, what if any, changes would you implement?

    _____
    _____

14. Which did you prefer? Circle one: a. detailed data form   b. general comments form

Thank you so much for being a part of our research!

sign and results. Thus, data for a total of 34 students were analyzed.

Presentation behaviors that were recorded included the use of a verbal cue, a one-second pause, and a signal appropriate to a particular script to indicate when a child should respond. The accuracy of students in Groups 1, 2, and 3 virtually averaged 99% across every teaching session. Almost every student made 20 or more presentations within a lesson and almost every one of these cues for responding was accurately performed.

Signal error corrections (e.g. not responding in unison) were so rare they are not reported here. However, every student was required to correct response errors. Every time a student taught a lesson, one of the people role-playing a child in the group was instructed to make at least one mistake. Therefore every student had the opportunity to identify and provide a four-step correction procedure (model, lead, test, and retest) at least once in each of the first three simulated lessons and often more than once. The exception was during the last simulated session, which used comprehension scripts from *Corrective Reading* (Engelmann, Hanner, & Haddox, 1980) that did not call for the four-step correction procedure.

The accuracy of response corrections was determined by whether all four steps (model, lead, test, and retest) were present when a correction was attempted. Figure 3 shows the mean accuracy of response corrections for all three groups across the first three simulated teaching sessions. The average percentage of accurate corrections across the three groups was 81% in Session 1, 93% in Session 2, and 89% in Session 3.

Figure 4 shows the number of total praise statements, which increased for all three groups across the four sessions: averaging 7 statements in Session 1, 9 in Session 2, 8 in Session 3, and 11 in Session 4. Figure 5 shows the proportion of specific praise compared to total praise, which decreased from Session 1, for all three groups, but decreased the most for Group 3, falling from a high of 68% to a low of 29%.

The three groups rated the ease of using the detailed and general feedback forms. Group 1, who used only the detailed feedback form, rated it higher than the other two groups, saying it was "somewhat easy to use." Groups 2 and 3, who used both the general and detailed feedback forms, both rated the general form much higher, saying it was "very easy to use," in contrast to their rating of the detailed form, which they felt was "somewhat difficult to use."
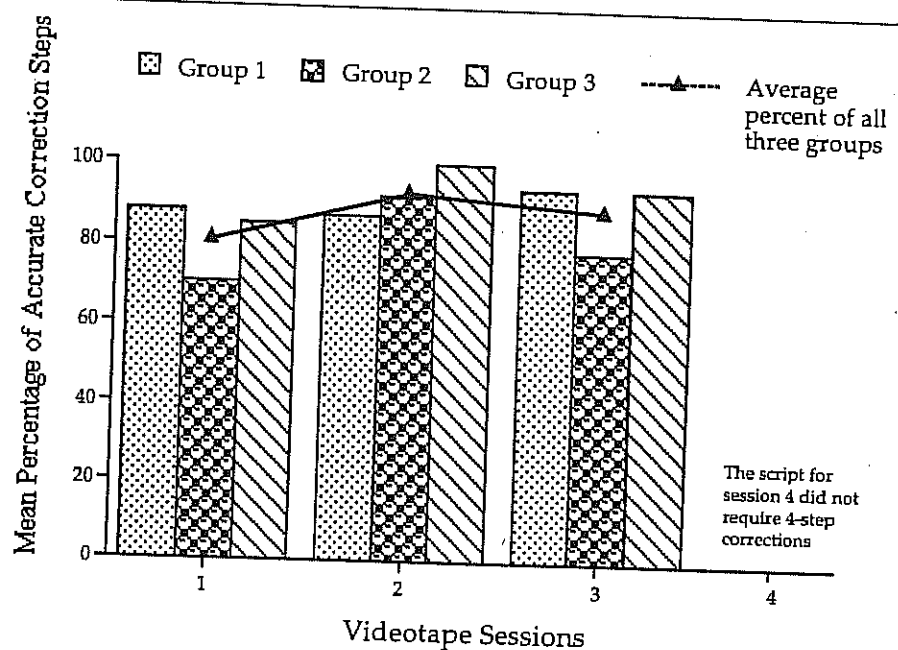
In response to the question, "How well did you feel you were able to use the detailed form by the end of the class?" all three groups felt they could use the detailed form "somewhat well." Groups 2 and 3 who used both forms felt they could use the general form better, rating their use as "very well."

In response to the question, "How did using the detailed form affect your teaching performance?" Group 1, who used only the detailed form, felt it "made my teaching somewhat better." Groups 2 and 3 who had used both forms, felt the detailed form "neither helped nor hurt," but they rated the general form higher, saying it "made my teaching somewhat better."

When asked which teaching behaviors the detailed and general feedback forms evaluated most accurately, most of the students indicated that the presentation behaviors of cue, pause and signal, and the use of praise were most accurately evaluated on both forms. Fewer students in the three groups indicated that student responses and corrections were most accurately evaluated on either the general or detailed forms.

Despite lower ratings for the detailed feedback form, Groups 2 and 3, who used both the general and detailed feedback forms indicated a much higher preference for the detailed feedback form. Seventy-

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Figure 3. Accuracy of response corrections.

Group 1   Group 2   Group 3   ----▲---- Average percent of all three groups

Mean Percentage of Accurate Correction Steps

The script for session 4 did not require 4-step corrections

Videotape Sessions

one percent of Group 2 students and 90% of Group 3 students reported they preferred the detailed feedback form over the general feedback form.

The Groups diverged most when asked whose feedback they found most helpful: their own self-evaluation, their peers' evaluation, or their instructor's evaluation. Group 1, who used only the detailed feedback form, and Group 2, who used both forms, preferred their instructor's feedback. However, Group 3, who had the least exposure to the detailed feedback form, preferred their peers' evaluation on both the detailed and general feedback forms.

The resources available for training in Direct Instruction procedures supported effective preservice preparation of teachers.

Class time used for simulated teaching sessions amounted to approximately 4 hrs out of a total of 42 hrs. Time spent by the instructor evaluating each videotape session for 44 students was about 6 hrs, totaling 24 hrs across the four sessions. This meant that the instructor provided about half an hour of observation and feedback to each student during the course.

Discussion

The resources available for training in Direct Instruction procedures supported effective preservice preparation of teachers. They contained many of the components Semmel (1978) suggested were necessary for the efficient attainment of teaching skills. The training videotape series available from Association for Direct Instruction and from Science Research Associates provided the specification of target behaviors. Marchand-Martella and Lignugaris/Kraft's (1992) detailed feedback instrument provided for reliable, valid performance feedback and access to data from previous training trials.

Several limitations of this study should be considered as the results are discussed. First, there was a relatively high rate of attrition (almost 25%). Student data were eliminated if students were absent for any scheduled

Figure 4. Number of total praise statements.

Figure 5. Proportion of specific praise statements.

videotape sessions or were involved in reliability observations. This high attrition may have affected the results if the missing students were different in some ways from the overall students who completed the study. Secondly, there was no group who received only the general feedback so additional findings on how their performance might differ with no exposure to the detailed feedback form is not available. Finally, there was a lack of point-by-point reliability on teaching behaviors, so conclusions drawn from the data may be imprecise. Given these limitations, the following conclusions may be considered.

Students seemed to exhibit mastery of the presentation skills simply from viewing the two series of training tapes as evidenced by their almost perfect performances for cues, pauses, and signals across all the videotaped sessions.

Students seemed to exhibit mastery of the presentation skills simply from viewing the two series of training tapes as evidenced by their almost perfect performances for cues, pauses, and signals across all the videotaped sessions. The presentation behaviors of using a verbal cue, a brief pause, and a specific visual or auditory signal are esoteric to Direct Instruction; it is extremely unlikely the students would have demonstrated even low levels of these behaviors if baseline videotaping had occurred prior to viewing the training tapes. Not only did the students demonstrate these behaviors, all three groups consistently performed at almost 100% accuracy across all four sessions. These high rates are similar to those demonstrated by classroom practicum students after several formal observations (Lignugaris/Kraft & Marchand-Martella, 1993; Marchand-Martella & Lignugaris/Kraft, 1992).

The training tapes provided clear definitions and examples of each of the presentation behaviors. There were also opportunities for students to practice with each other in class using a variety of teaching scripts. Students were also given their scripts several days prior to videotaping sessions and typically studied and practiced their presentations repeatedly before the videotaped simulations. Students may also have been more focused on or concerned about their presentation skills which were prompted by the scripts themselves than the other teaching behaviors which could only be practiced when there was

another person to respond. The scripts the students used were explicit in terms of when and how cues, pauses, and signals were to be made. These particular skills also involved less on-the-spot decision making than the use of corrections or praise. Finally, because these simulation sessions were with adults rather than children, fewer unanticipated behaviors occurred, allowing the students to present the scripts as practiced.

The average number of total praise and the proportion of specific praise exhibited the greatest change across teaching behaviors.

The training tapes also defined and gave examples of the four-step correction procedures. Students' percentage of accuracy for corrections was high, averaging from 81% to 93%, across the three groups for three of the sessions. Again, these percentages of accuracy were similar to those obtained by classroom practicum students (Lignugaris/Kraft & Marchand-Martella, 1993; Marchand-Martella & Lignugaris/Kraft, 1992) trained on-site. However, it was more difficult to practice corrections prior to videotaped simulations, because such practice required the presence of a second person who could make mistakes. The number of errors made in any lesson was small. A different student was assigned to make an error for each teacher, so that at least one error per lesson occurred. Sometimes role-playing students made unintentional errors, but typically a lesson contained about two errors. There were few opportunities for practice or feedback on corrections and the accuracy of corrections remained fairly steady for all three groups.

The average number of total praise and the proportion of specific praise exhibited the greatest change across teaching behaviors. Lignugaris/Kraft and Marchand-Martella's training packet (1993) recommended that the proportion of specific praise reach at least 50%. All three groups exceeded this criterion during the first videotaping session, but their averages fell below 50% for the three later sessions. Group 3, which received the least amount of detailed feedback, scored the highest average number of specific praise statements in the first session (68%), but fell to levels lower than the other two groups (29% at lowest) and remained there for the last three sessions. Groups 1 and 2 remained stable at about 43%. Though the proportion of specific praise did not stabilize at 50% or above, the

average number of total praise statements increased by almost 60% across all three groups. Students were providing much more praise overall.

The average number of praise statements might have been particularly high during the first videotaping session because of the novelty for students of teaching in front of their peers and the camera. It was also the case that students had most recently completed both series of training tapes and did not view these tapes again during the remainder of the course. As the course progressed, students may have been more concerned about their presentation behaviors than about the consequences they provided students, who were, after all, peers rather than real children. Since the peers already responded at high levels of accuracy, there may not have been a need to provide numerous praise statements nor any natural contingencies to the teachers for failing to do so.

Though students showed high levels of accuracy in using Direct Instruction teaching skill in their first videotaping sessions, the viewing of the tapes and detailed feedback seemed to encourage the maintenance of these high levels across several sessions.

Finally, students' teaching performances may have been of high quality because they were senior and graduate level students in the last course of their program. These students had completed coursework in behavior analysis, classroom management, and precision teaching, for example, which emphasized attention to consistent antecedents and consequences. Most of the students had also already successfully completed student teaching in general education classrooms and were experienced in presenting lessons.

When asked how students felt about the detailed feedback compared to the general feedback, students who had used both forms felt the general form was easier to use, that they were able to use the general form better, and that the general form helped their teaching more. However, when asked which form they preferred, students overwhelmingly chose the detailed feedback. One explanation for this could be that students engaged in this training program learn to appreciate data; perhaps they felt the complexity and depth of the detailed feedback was more diagnostic and therefore more valuable in

reinforcing their teaching skills. Students who used only the detailed feedback form rated its effect on their teaching performance as highly as others rated the general form.

When asked whose feedback (self, peers', or instructor's) was most helpful, students varied in their responses. Students in Group 1, who received only the detailed feedback, rated their instructor's evaluation as most helpful. This finding was similar for students in Group 2, who received feedback on the detailed form for 3 of their 4 sessions. However, students in Group 3, who received mostly general feedback, found their peers' evaluation most helpful. Since Group 3 students received mostly general feedback, their instructor's evaluations were limited to a few written comments. On the other hand, peer evaluations were given orally during the simulation sessions as well as in writing. It could be that the conversations a student could engage in with peers actually provided more timely and specific information because peers could elaborate on their written comments. Since Group 3 students were not usually getting the detailed feedback form, they might value the oral detail these conversations could provide.

Lignugaris/Kraft and Marchand-Martella (1993) suggested, "It is likely that student teachers who participate in peer supervision improve communication skills that might be useful in training and managing instructional aides or providing feedback to colleagues on their teaching" (316). Perhaps students in Group 3 were successful in developing these communication skills and that might account for the value those students placed on the feedback their peers shared. It remains to be seen whether long-term benefits will occur for all the students, but the possibility encourages the continuation of the use of these peer-feedback procedures.

A persistent problem in preservice instructional programs is the failure of student teachers to transfer skills taught in their college classrooms to the teaching arena (Peterson & Hudson, 1989). This study does not reveal how well the Direct Instruction skills taught on a university campus may have generalized to the real classroom because the students were not followed up in their practicum placements. It was actually the case that few of the students were placed in student teaching sites where Direct Instruction curricular materials were being used because few were available in the local area. The lack of such modeling and mentoring in practicum classrooms may make it even more important that the Direct Instruction skills be applied in the university setting to ensure overlearning that might later generalize to the classroom.

Though students showed high levels of accuracy in using Direct Instruction teaching skill in their first videotaping sessions, the viewing of the tapes and detailed feedback seemed to encourage the maintenance of these high levels across several sessions (as evidenced in the use of specific praise). However, further research would be necessary to determine if the viewing of videotapes alone would support such maintenance.

The within-course simulations allowed every student multiple opportunities for self and peer evaluation as well as instructor feedback; every student had the experience of being a supervisor as well as a trainee.

The inclusion of videotaped teaching simulation sessions required extra work from the instructor in terms of arranging for media equipment, copying forms and training materials, and providing class time for these activities. However, relatively high mastery of specific Direct Instruction skills were reached. The within-course training resulted in teaching performance comparable to that reported by other researchers who carried out on-site classroom training (Lignugaris/Kraft & Marchand-Martella, 1993; Marchand-Martella & Lignugaris/Kraft, 1992) which probably required considerably more supervision, travel time and expense. The within-course simulations allowed every student multiple opportunities for self and peer evaluation as well as instructor feedback; every student had the experience of being a supervisor as well as a trainee. ◆

References

Buck, G., Morsink, C., Griffin, C., Hines, T., & Link, L. (1992). Preservice training: The role of field-based experiences in the preparation of effective educators. *Teacher Education and Special Education, 15,* 108-124.

Engelmann, S., & Bruner, E. C. (1974). *Distar reading.* Chicago, IL: Science Research Associates, Inc.

Engelmann, S., Haddox, P., & Bruner, E. C. (1988). *Teach your child to read in 100 easy lessons.* NY, NY: Simon & Schuster.

Engelmann, S., Hanner, S., & Haddox, P. (1980). *Corrective reading.* Chicago, IL: Science Research Associates, Inc.

Englert, C. S., & Sugai, G. (1983). Teacher training: Improving trainee performance through peer observation and observation system technology. *Teacher Education and Special Education, 6,* 7-17.

Joyce, B. R., & Showers, B. (1980). Improving inservice training: The messages of research. *Educational Leadership, 37,* 370-385.

Kazdin, A. (1982). *Single-case research designs: Methods for clinical and applied settings.* NY: Oxford Inc. Press.

Lignugaris/Kraft, B. & Marchand-Martella, N. (1993). Evaluation of preservice teachers' interactive teaching skills in a Direct Instruction practicum using student teachers as supervisors. *Teacher Education and Special Education, 16* (4), 309-318.

Marchand-Martella, N., Lignugaris/Kraft, B. (1992). Preservice teacher performance in a Direct Instruction practicum using student teachers and university personnel as supervisors. *Association for Direct Instruction News, 11,* (3), 2-8.

Morgan, R. I., Gustafson, K. J., Hudson, P. J., & Salzberg, C. L. (1992). Peer coaching in a preservice special education program. *Teacher Education and Special Education, 15,* 249-258.

Morgan, R. L., Menlove, R., Salzberg, C. L., & Hudson, P. (1994). Effects of peer coaching on the acquisition of Direct Instruction skills by low-performing preservice teachers. *The Journal of Special Education, 28* (1), 59-76.

Peterson, S. K., & Hudson, P. J. (1989). Coaching: A strategy to enhance preservice teacher behaviors. *Teacher Education and Special Education, 12* (1-2), 56-60.

Peterson-Miller, S., Harris, C., & Watanabe, A. (1991). Professional coaching: A method for increasing effective and decreasing ineffective teacher behaviors. *Teacher Education and Special Education, 14,* 183-191.

Semmel, M. 1. (1978). Systematic observation. *Journal of Teacher Education, 29* (2), 25-27.

Simon-Brynildson, K. D., & Vreeland, M. (1991). Effects of audiotape self-monitoring on DI teacher presentation techniques. *Association for Direct Instruction News, 10* (3), 3-10.

Reliability of Observations Done by Cooperating Teacher Supervisors in a Direct Instruction Practicum

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Abstract: We reported the use of a Direct Instruction observation instrument for use with preservice teachers in previous investigations (Lignugaris/Kraft & Marchand-Martella, 1993; Marchand-Martella & Lignugaris/Kraft, 1992) and sought to evaluate its use in this research using cooperating teachers as supervisors across three quarters. Interobserver agreement data on the supervisors' use of the instrument were assessed in three ways from least to most sensitive including numerical score agreement, agreement across rating categories, and frequency of teaching behaviors agreement. Results indicated that when total scores were analyzed, mean agreement with a university coordinator was above 90% for each of the three quarters. When ratings across categories were analyzed, cooperating teachers exhibited agreement on 8 (67%) of the rating categories during quarters 1 and 3. Finally, for mean frequency agreement, the cooperating teachers exhibited agreement of 77% or above on 20 of the 21 teaching behavior categories during quarter 3 (11 of the 21 categories had a mean frequency agreement this high or higher during quarter 1). The results are discussed in relation to recruiting cooperating teachers as independent supervisors responsible for teaching preservice trainees Direct Instruction techniques.

Field-based supervision of preservice teacher trainees involves observation of trainee performance, evaluation of trainee's teaching (Showers, 1985), and feedback to improve targeted teaching behaviors (Englert & Sugai, 1983; Walker, 1978). Frequently, cooperating teachers are called upon to assist with this supervision. Cooperating teachers are an excellent resource for university faculty who oftentimes have large supervision loads. Cooperating teachers usually have years of classroom experience from which to draw and are readily available to the preservice teachers who are placed in their classrooms. However, cooperating teaches often have limited time available to learn how to use the observation systems that are employed to evaluate and provide feedback to preservice teachers.

When cooperating teachers are employed as supervisors, agreement among observers is critical to maintaining the integrity of the field-based program (Demchak & Browder, 1987; Gassman, Lignugaris/Kraft, & Marchand-Martella, 1991). There is little information, however, on the interobserver agreement among supervisors on teacher evaluation measures and the level of agreement acceptable for mak-

ing various decisions (Agran, 1983; Rosenshine & Furst, 1973). For example, in one study, Agran found that the mean interobserver agreement across observers in each of three behavior categories was higher than the total mean percent agreement on a teacher evaluation measure. Agran concluded that this was acceptable since the primary purpose of his observations was feedback to teachers on their performance in each of the defined categories of teaching behavior. In other situations, however, a global measure of teacher skill might be useful. For instance, the student's grade on a practicum observation might be based on the student's overall performance of selected teaching behaviors. In this situation, it would be important to have high overall agreement among supervisors so student evaluations are consistent regardless of the supervisor. It is likely that agreement among supervisors on global measures of teaching skill might be achievable with limited training. In contrast, agreement among observers on the details of a teacher's performance would require more extensive training.

The purpose of this research was to examine the interobserver agreement of minimally trained coop-

erating teacher supervisors with a university supervisor on a Direct Instruction observation instrument (Marchand-Martella, Lignugaris/Kraft, & Pettigrew, 1991). There are three kinds of data that might be examined within this preservice teacher evaluation system. First, frequency data are collected on selected Direct Instruction teaching behaviors. Percentages of correct performance on each behavior are then calculated. These data provide preservice trainees with precise information about their teaching. Second, for each teaching behavior performance intervals are predetermined and the student is assigned a weighted value or rating of 0, 2, 3, or 4 based on the observed percentage score. The weighted value provides a more global picture of each teaching behavior as compared to the percentage of correct performance calculated from the frequency data. Third, a mean weighted value is calculated to determine the student's observation grade. This provides students with an overall evaluation of their teaching.

ogy. The university coordinator completed one course and practicum in Direct Instruction and received extensive training (approximately 25 hr) from the first author in Direct Instruction supervision and in the use of the Direct Instruction observation system (Marchand-Martella et al., 1991).

The preservice teacher trainees were undergraduate students enrolled in a Direct Instruction course and practicum which is required of all students in the mild/moderate disabilities training program in special education at Utah State University.

The Direct Instruction programs used in this investigation included Reading Mastery I (Engelmann & Bruner, 1988a), II (Engelmann & Bruner, 1988b), III (Engelmann & Hanner, 1988), and V (Engelmann, Osborn, Osborn, & Zoref, 1984), Decoding B (Engelmann et al., 1978) and C (Engelmann, Meyers,

Method

Participants and Settings

Five cooperating teachers supervised 14 preservice trainees in a Direct Instruction practicum across 3 academic quarters. Four cooperating teachers supervised one trainee each quarter; one cooperating teacher supervised two trainees for one quarter. They had an average of 7.4 years of teaching experience (range = 2 to 17 years), had worked with practicum students for an average of 5.8 years (range = 2 to 10), and had used Direct Instruction programs in their classrooms for an average of 6 years (range = 2 to 10). Three cooperating teachers had their masters degree, and two teachers had their bachelors degree. All cooperating teachers served in elementary school resource rooms.

A university coordinator served as the reliability observer in this investigation. She was completing course work for a masters degree in special education, having completed her undergraduate degree in psychol-

Table 1. Targeted Teaching Behaviors and Definitions

Teaching Behavior	Abbreviated Definition
Presentation:	
Cue	Focus word, phrase, or question (e.g., "and," "together," "what word?," "next word," "get ready," "What did the woman buy?") provided as indicated by program format or as specified by classroom teacher.
Pause	At least 1-2 s waiting time after cue and before signal.
Signal	Hand, touch, or auditory response presented by teacher which indicates a pupil response.
Responses:	
Group	Group responds simultaneously and correctly.
Individual	Pupil responds after the cue and correct answer is given.
Signal Error Correction:	
Address	Tell group what they have to do (e.g., "I've got to hear everyone," "You have to wait until I signal").
Repeat	Present original presentation (cue, pause, signal) to group.
Response Error Correction:	
Model	State correct response to pupil(s).
Test	Present original presentation to group (via cue, pause, signal) or to individual (via cue).
Praise Statements:	
Specific	Precise statement(s) that reflect a positive response to a desired behavior (e.g., "Good job saying 'mother'").
General	Global or broad statement(s) that reflect a positive response to a desired behavior (e.g., "Good").
Response Rate Per Minute:	
	Number of group and individual responses and repeats and tests divided by the total number of minutes of observation.

Johnson, & Carnine, 1978), and Corrective Mathematics/Subtraction (Engelmann & Carnine, 1981).

Targeted Teaching Behaviors

In this practicum, trainees were taught a number of small group instructional procedures. The targeted teaching behaviors and definitions for each behavior are listed in Table 1. (A complete list of the operational definitions can be obtained by writing to the authors).

Data Collection and Feedback Forms

Cooperating teacher supervisors used three forms to record trainee performance and to provide written feedback to their trainees. The first form (see Appendix 1) was used to record the frequency of correct and incorrect teaching behaviors by trainees. On the second form (grade form, see Appendix 2), supervisors calculated an observation grade based on the percentage of correct teaching behaviors. Grades were assigned using a two-step process. First, supervisors assigned a weighted value from 0 to 4 based on the percentage of correct teaching behaviors. Second, a mean rating was calculated by summing the ratings across the various categories and dividing by the total number of categories. The mean rating was then converted to a letter grade. The conversion table is shown in Table 2.

On the third form (see Appendix 3), supervisors provided written feedback to trainees about their teaching performance. Each observation category was listed on the written feedback form (e.g., presentation, error corrections). A space was provided below each category to indicate what the trainee did well and to describe techniques the trainee needed to improve. The grade form and written feedback form were copied on carbonized paper so that the supervisor could give one copy to the student and one copy to the cooperating teacher.

Data Collection and Recording Procedures

Supervisors conducted graded (formal) observations for each trainee four times during the 10-week quarter. The formal observations included at least 6 minutes of data collection, completion of a grade form, and completion of a written feedback form (see Appendix 4). Additionally, participants conducted nongraded (informal) observations during the weeks when formal observations were not conducted. Informal observations included watching the trainees and collecting data (if desired) as well as completing a written feedback form. At the beginning of the quarter, all supervisors were given a calendar with highlighted informal and formal observation time periods.

Supervisor Training

Training of supervisors was conducted by the university coordinator who assisted in the development of the data collection and

Table 2 Targeted Teaching Behavior Ratings and Grade Conversions

Teaching Behaviors	Percentages for the following ratings:			
	4.0	3.0	2.0	0.0
Presentation Correct Cue, Pause, and Signal	90-100%	80-89.9%	79-79.9%	0-69.9%
Pupil Responses: Group	65-85.9%	55-64.9% or 86-91.9%	44-54.9% or 92-99.9%	0-43.9% or 100%
Signal and Response Error Corrections: Correct Address, Repeat, Model, & Test- (≤ 5 errors)	80-100%	————	50-79.9%	0-49.9%
(≥6 errors)	90-100%	80-89.9%	70-79.9%	0-69.9%
Praise Statements: Total Specific	50-100%	45-49.9%	0-44.9%	0-39.9%
Correct Specific and General	90-100%	80-89.9%	70-79.9%	0-69.9%
Response Rate:	≥9	7-8.9	5-6.9	0-4.9

Total Score	Grade Conversion	Total Score	Grade Conversion
3.85-4.00	A	2.33-2.66	C+
3.67-3.84	A-	2.00-2.32	C
3.33-3.66	B+	1.67-1.99	C-
3.00-3.32	B	1.22-1.66	D+
2.67-2.99	B-	1.00-1.32	D

feedback forms. The cooperating teachers learned to use the data collection/feedback system during a 2-hr workshop provided by the university coordinator. During this workshop, the university coordinator gave the cooperating teachers a packet that included the Direct Instruction definitions and scoring procedures, the data collection instrument, grade form, and written feedback form. The purpose of each of these forms was explained to the teachers; examples of data were provided, tallied, and transferred to the grade form to ensure that the teachers could complete the forms on their own. Following these demonstrations, teachers watched a videotape that included various teaching interactions, scored these interactions on the data collection instrument, and discussed how each interaction was scored.

Following this, the teachers were given one practicum student for one quarter. The university coordinator conducted one observation with cooperating teachers and provided feedback to them on their implementation of the observation system. After this quarter of supervision, the teachers were asked to attend a 1-hr review session. During this session, all procedures were reviewed before beginning this evaluation. Four of the cooperating teachers supervised trainees in two subsequent academic quarters. Prior to beginning supervision each quarter, the cooperating teachers attended an additional 1-hr review session.

Interobserver Agreement

The Direct Instruction observation system developed by Marchand-Martella et al. (1991) was constructed to provide detailed information on the frequency of certain teaching behaviors which, in turn, would be converted into ratings, followed by a total observation score. Thus, the preservice teacher trainees would receive an observation score based on data, rather than the impressions of the supervisor. Given the three-part construction of this system, we wanted to determine how reliable supervisors would be with the university coordinator across levels of analysis.

Three levels of interobserver agreement were examined with cooperating teacher supervisors. First, total score agreement was calculated using the overall ratings from the grade form. This calculation involved adding the overall ratings calculated by the university coordinator. Then, the smaller number was divided by the larger number and multiplied by 100 for the percentage of total score agreement.

Second, agreement on individual ratings was calculated. Agreements were scored when the cooperating teacher and university supervisor recorded

the same rating. Ratings that differed were scored as disagreements. For each teaching behavior, the total number of agreements across supervisors were divided by the total number of agreements plus disagreements.

Finally, frequency agreement was calculated for each teaching behavior on the data collection instrument. The percentage of agreement for each teaching behavior (e.g., correct cues) was calculated by counting the number of responses recorded by the cooperating teacher and the number of responses recorded by the university coordinator. The smaller frequency was then divided by the larger frequency and multiplied by 100 for percentage of agreement.

Results and Discussion

Total Score Agreement

The most global measure of interobserver agreement involved the comparison of numerical scores which converted to letter grades and were used as a means of assessing trainees' overall performance. Mean total score agreement between the university coordinator and cooperating teachers was 94% (range 91% to 100%). This level of reliability was maintained in subsequent academic quarters with minimal additional training (quarter 2 = 95%; quarter 3 = 91%). The high reliability figures obtained in the global measure of agreement suggest that cooperating teachers are in general agreement with the university coordinator in terms of the grades assigned to preservice trainees. Thus, even though cooperating teachers received minimal training, that training was sufficient for determining grades that were consistent with a university coordinator's grades; however, it is not sufficient for providing feedback to students. That is, one observer's data might indicate that the student is deficient in presentation skills and provides excellent corrections. The second observer might record data that suggests the opposite. In either situation, the student would receive similar total scores and letter grades from the two observers.

Rating Agreement

The second measure of interobserver agreement involved agreement with the university supervisor on the weighted values on the rating form. This measure is more sensitive than comparing total score agreement and is the minimal level of reliability required to determine if the two observers are generally agreeing on the quality of the teaching skill addressed in each category. Table 3 shows the number of rating agreements between the university coordinator and cooperating teachers for each

the other supervisor
may record 3 out of 5
(60%) correct tests on
response errors. Both
supervisors would
provide a weighted
rating of 1, however,
one supervisor re-
corded nine times
more response errors
than the other ob-
server. Feedback pro-
vided to the trainees
based on the rating
form will probably
indicate remediation
on the same behav-

Table 3. Number of Rating Agreements for Cooperating Teacher Supervisors.

Instructional Component	Quarter 1	Quarter 2	Quarter 3
Cue	5/5	4/4	4/4
Pause	5/5	4/4	4/4
Signal	5/5	3/4	4/4
Group Responses	3/5	3/4	4/4
Address	1/5	2/4	2/4
Repeat	4/5	1/4	1/4
Model	3/5	2/4	0/4
Test	4/5	2/4	4/4
Specific Praise	5/5	1/4	1/4
Correct Specific Praise	5/5	4/4	4/4
Correct General Praise	3/5	4/4	4/4
Pacing	5/5	4/4	4/4

teaching behavior.

In quarter 1, at least 4 of the 5 cooperating teach-ers' ratings were the same as the university coordinator's rating in 8 of the rating categories. In general, these rating agreements were repeated in subsequent academic quarters. In quarter 1, low agreement (less than 4 cooperating teachers agreed with the university coordinator) was obtained on group responses, initiating signal and response er-ror corrections (addresses, models), and correct gen-eral praise. Further analysis of the low agreement ratings was conducted to determine whether rating discrepancies were small (i.e., differed by one rat-ing—0 to 2 [recall there is no "1" rating], 2 to 3, or 3 to 4) or large (i.e., differed by more than one rating—0 to 3, 2 to 4, or 0 to 4). Cooperating teachers had 14 rating discrepancies out of 60 ratings recorded (23.3%). Of these discrepancies, the cooperating teachers had 11 (78.6%) small discrepancies with the university coordinator and 3 (21.4%) large discrep-ancies (2 ratings) with the university coordinator. Two large discrepancies occurred in rating addresses on signal errors and one large discrepancy occurred in rating trainee's correct general praise. The same general pattern of rating agreements was observed for cues, pauses, signals, correct specific praise, and pacing in academic quarter 2 and 3. In these quar-ters, the number of agreements across supervisors on group responses and correct general praise im-proved steadily. In contrast, rating agreements on the implementation of error correction procedures and correct specific praise decreased.

While weighted ratings provide general informa-tion on areas of strength and weakness of a preservice trainee, they provide no information on the fre-quency that a targeted skill is performed correctly or incorrectly. For example, one supervisor may record 27 out of 45 (60%) correct tests on response errors;

iors. The intensity of the problem, however, may not be reflected in the supervisor's feedback. One su-pervisor may see error corrections as less of a prob-lem as compared to another supervisor.

Frequency Agreement on Data Collection Instrument

The most sensitive measure of interobserver agree-ment in this data collection system was frequency agreement across teaching behaviors. Table 4 shows these frequencies across cooperating teacher super-visors.

For presentation (cue, pause, signal) and group and individual responses, mean frequency agree-ments across supervisors and across quarters were above 85%. For signal error corrections, mean agree-ments on correct and total addresses and repeats ranged from 49% to 65% in quarter 1. Agreement on the frequency of correct and total addresses and repeats improved in subsequent quarters. Agree-ment on the frequency of correct repeats, however, did not show steady improvement over time. For response error corrections, mean percentages of agreement ranged from 69% to 75% in quarter 1. Agreement between cooperating teachers and the university coordinator on correct models and tests showed steady improvement, while agreement on the total number of models and tests showed less improvement. When correct and total specific praise statements were assessed in quarter 1, mean agree-ments were approximately 77%. This agreement level remained stable in subsequent quarters. Ini-tially, mean agreements were much lower on gen-eral praise statements (39%). Substantial improve-ment was made in this agreement to indices to 85% in quarter 3. Finally, mean agreement on response rate ranged between 89% and 96% in all quarters.

In quarter 1 the university coordinator recorded

Table 4. Mean Frequency Agreements for Cooperating Teacher Supervisors.

Instructional Component	Quarter 1	Quarter 2	Quarter 3
Correct Cue	88%	89%	94%
(range)	76-95%	82-95%	90-99%
Total Cue	87%	89%	94%
(range)	76-95%	82-95%	90-99%
Correct Pause	86-%	87%	92%
(range)	72-95%	68-97%	87-99%
Total Pause	86%	87%	92%
(range)	72-95%	68-97%	87-99%
Correct Signal	88%	87%	92%
(range)	73-99%	68-99%	87-99%
Total Signal	86%	87%	92%
(range)	78-95%	68-99%	87-99%
Total Group	89%	87%	92%
(range)	82-95%	68-99%	87-99%
Total Individual	92%	85%	95%
(range)	75-100%	76-100%	85-100%
Correct Address	55%	65%	77%
(range)	38-73%	50-92%	60-92%
Total Address	65%	57%	85%
(range)	47-94%	33-93%	60-100%
Correct Repeat	49%	62%	58%
(range)	44-83%	33-86%	50-90%
Total Repeat	63%	55%	83%
(range)	46-85%	30-86%	60-100%
Correct Model	75%	94%	90%
(range)	22-100%	82-100%	78-100%
Total Model	71%	83%	78%
(range)	25-91%	47-100%	55-90%
Correct Test	69%	64%	77%
(range)	18-91%	25-79%	55-90%
Total Test	71%	73%	78%
(range)	18-91%	32-95%	55-90%
Correct Specific Praise	78%	76%	80%
(range)	58-100%	45-100%	71-100%
Total Specific Praise	77%	75%	80%
(range)	48-100%	45-95%	71-100%
Correct General Praise	39%	71%	87%
(range)	25-75%	58-80%	71-94%
Total General Praise	39%	67%	85%
(range)	22-80%	54-80%	65-94%
Response Rate	93%	89%	96%
(range)	88-99%	85-96%	95-100%

an average of 2.9 more addresses, models, and trial repetitions (tests and repeats) than the cooperating teachers; the frequency discrepancy on total general praise was an average of 6.4 occurrences. By quarter 3 the frequency discrepancy on addresses, models, and trial repetitions between cooperating teachers and the university coordinator was reduced to an average of 1.19 occurrences, and the frequency discrepancy on total general praise was reduced to 2.75 occurrences.

Given the limited training on the observation system, there was generally high agreement between the cooperating teacher supervisors and the university coordinator. This may be due to the structured nature of the Direct Instruction system. Interestingly, interobserver agreement in areas such as correct models and general praise improved across quarters with additional supervision practice. During quarter 1, supervisors who had fewer years experience with Direct Instruction program (n = 2) had the highest reliability indices on correct models (90%; 100%) and general praise (53%; 75%). In quarter 2, the cooperating teachers with more Direct Instruction experience (n = 3) improved their reliability on correct models by approximately 25% and their reliability on correct general praise by 36%. This improvement continued into the third quarter of supervision. While the

more experienced cooperating teachers were excellent instructors, it is possible that they needed to learn more than the less experienced teachers to become reliable observers. Both of the experienced Direct Instruction teachers had to adjust to new terminology (e.g., cue, pause and signal for focus, prepare and touch; signal errors) and to discriminate the components of an instructional system that, for them, was second nature. In contrast, the less experienced cooperating teachers had completed their training program within the last 4 years and were familiar with current Direct Instruction terminology and the instructional components of the system. Problem areas that persisted included signal error addresses, trail repetitions, and tests. More practice with examples and nonexamples of these teaching behaviors and feedback on recording reliability may be warranted.

Information was also provided to cooperating teachers on how to provide feedback to trainees on the written feedback form. However, the university coordinator did not complete a written feedback form during reliability observations; therefore, reliability could not be obtained on the similarity of feedback across cooperating teacher supervisors. Future research should include the analysis of performance feedback across cooperating teachers since it is possible to be highly reliable with a university coordinator, but unable to pinpoint and summarize positive and corrective feedback for the trainee. Interestingly, Osnes, Stokes, and Schwartz (1988) found that supervisors who received minimal training provided effective feedback to staff, despite lower interobserver agreement scores, which was comparable to staff who had received extensive training. Although interobserver agreement was lower for these supervisors, Osnes et al. indicated that it was acceptable in terms of providing a basis for giving feedback and changing behavior.

Cooperating teachers can be a valuable addition to a university practicum and can serve effectively as supervisors using observation systems that address relatively broad performance intervals for trainees. However, more intensive training would be needed to fine-tune the cooperating teachers' skills, especially in regard to error corrections and praise statements (i.e., taking data on the frequency of the targeted skills). Cooperating teachers bring a wealth of experience to the practicum, and it may be that these skills bridge the gap when minimal training on an observation system is provided.

Future teacher educators should consider using cooperating teachers as independent supervisors in highly structured practica. Overall, they alleviate the pressure of one university faculty member observing 20 to 25 students and can provide more one-on-one instruction for students needing extra assistance. (Appendicies follow on pages 54-57.) ◆

References

Agran, M. (1983). Toward a technology of teacher observation in special education personnel preparation. *Journal of Special Education Technology, 6(2)*, 27-38.

Demchak, M., Browder, D. M. (1987). Data-based teacher supervision: Evaluating task analytic instruction. *Journal of Special Education Technology, 9(1)*, 9-18.

Engelmann, S., & Bruner, E. C. (1988a). *Reading mastery I.* Chicago, IL: Science Research Associates.

Engelmann, S., & Bruner, E. C. (1988b). *Reading mastery II.* Chicago, IL: Science Research Associates.

Engelmann, S., & Carnine, D. (1981). *Corrective mathematics-subtraction.* Chicago, IL: Science Research Associates.

Engelmann, S., & Hanner, S. (1988). *Reading mastery III.* Chicago, IL: Science Research Associates.

Engelmann, S., & Hanner, S. (1983). *Reading mastery V.* Chicago, IL: Science Research Associates.

Engelmann, S., Johnson, G., Becker, W., Meyers, L., Carnine, D., & Becker, J. (1978). *Corrective reading-decoding B.* Chicago, IL: Science Research Associates.

Engelmann, S., Meyers, L., Johnson, G., & Carnine, D. (1978). *Corrective reading-decoding C.* Chicago, IL: Science Research Associates.

Engelmann, S., Osborn, J., Osborn, S., & Zoref, L. (1984). *Reading mastery IV.* Chicago, IL: Science Research Associates.

Englert, C. S., & Sugai, G. (1983). Teacher training: Improving trainee performance through peer observation and observation system technology. *Teacher Education and Special Education, 6(1)*, 7-17.

Gassman, G., Lignugaris/Kraft, B., & Marchand-Martella, N. (1991). Field-based supervision: A model for integrating university cooperating teachers and peer supervisors. *The Teacher Educator, 27(2)*, 32-39.

Lignugaris/Kraft, B., & Marchand-Martella, N. (1993). Evaluation of preservice teachers' interactive teaching skills in a Direct Instruction practicum using student teachers as supervisors. *Teacher Education and Special Education, 16*, 309-319.

Marchand-Martella, N. E., & Lignugaris/Kraft, B. (1992). A descriptive analysis of preservice teacher performance in a Direct Instruction practicum using student teachers and university personnel as supervisors. *ADI News, 11(3)*, 2-8.

Marchand-Martella, N. E., Lignugaris/Kraft, B., & Pettigrew, T. (1991). *Direct Instruction observation instrument.* Unpublished manuscript.

Osnes, P. G., Stokes, T. F., & Schwartz, L. S. (1988). *External validation of nonreliably trained supervisors' feedback on staff performance in day treatment classrooms.* Paper presented at the 15th Annual Association for Behavior Analysis Convention, Milwaukee, WI.

Rosenshine, B., & Furst, N. (1973). The use of direct observation to study teaching. In R. M. W. Travers (Ed.). *Second handbook of research on teaching.* Chicago: Rand McNally.

Showers, B. (1985). Teachers coaching teachers. *Educational Leadership, 42*(7), 43-48.

Walker, J. (1978). The practicum supervisor inches toward competence. *Teacher Education and Special Education, 1*(2), 14-27.

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1998 Summer Direct Instruction Training Opportunities

Direct Instruction Observation Form

Rev. 6/25/91

Teacher _____ Date _____ Observer _____ Program _____

Formal/Informal 1 2 3 4

Category	Rows
Cue	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Pause	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Signal	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Individual	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Group	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
[Signal Error]	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Address	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Repeat	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
[Response Error]	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Model	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Lead	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Test	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Retest	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Specific	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
General	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Groupings:
- **Teacher Presentation:** Cue, Pause, Signal
- **Pupils' Response** (Signal): Individual, Group
- **Teacher Corrections** — Signal: Address, Repeat; Response: Model, Lead, Test, Retest
- **Teacher Praise:** Specific, General

Comments

Marking Legend
Mark through = (/) [1,2,3,...] = Correct Occurrence
Mark through = (≠) [1,2,3,...] = Incorrect Occurrence
For behaviors, record (/) for occurrence

Group Size _____
Group Arr Yes ____ No ____
# of Responses _____

Stop Time _____
Start Time _____
Minutes _____
Response Rate _____

Comments	x̄	Total 2	Total 1

Appendix 2.

Direct Instruction Observation Form

Rev. 6/25/91

Teacher _____ Date _____ Observer _____ Program _____

Formal/Informal 1 2 3 4

Category	Sub	Scale
Teacher Presentation	Cue	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
	Pause	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
	Signal	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Pupils' Response	Group	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
	Individual	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Teacher Corrections — Signal	Address (Signal Error)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
	Repeat	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Teacher Corrections — Response	Model (Response Error)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
	Lead	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
	Test	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
	Retest	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Teacher Praise	Specific (Specific)	
	General (General)	
Comments		

Marking Legend
Mark through ✓ (✓) [1,2,3....] = Correct Occurrence
Mark through ✗ (✗) [1,2,3....] = Incorrect Occurrence
For behaviors, record (/) for occurrence

Group Size _____
Group Arr Yes __ No __
# of Responses _____
(= # of group and individual responses plus repeats & tests w/o Cr)

Stop Time _____
Start Time _____
Minutes _____
Response Rate _____

	Total 1	Total 2	%

Markland-Marella,
Ligugnani/Kraft &
Peligrow, 1990

Formal/Informal
1 2 3 4
GENERAL COMMENTS
Rev. 7/1/91

TEACHER_____ DATE _____
OBSERVER_____ PROGRAM _____ ATTENDANCE Yes No

Presentation - Did well - .
_____

Work on -
_____
_____
_____

Responses - Did well -
_____

Work on -
_____
_____

Correction - Did well -
_____

Work on -   **Retests:** Yes   No   NA
_____
_____
_____

Praise - Did well -
_____

Work on -
_____
_____

Did the teacher get 100% correct responding from pupils prior to moving to the next section? yes   no
_____

Comments based on checklist -
_____
_____
_____
_____
_____
_____

Marchand-Martella, Lignugaris/Kraft & Pettigrew. 1991

Formal/Informal
1   2   3   4

DIRECT INSTRUCTION RATING FORM

Rev. 6/25/91

Teacher _____ D.I. Program _____

Observer _____ Date _____

Objectives	Rating			Comments
	x / y = %	Score	Scale	
1. Teacher Presentation • Cues • Pause • Signal	/ = / = / =		90-100% = (4.0) 80-89.9% = (3.0) 70-79.9% = (2.0) Below 69.9% = (0)	
2. Pupil Responses • Group responses	/ =		65-85.9% = (4.0) 55-64.9 or 86-91.9% = (3.0) 44-54.9 or 92-99.9% = (2.0) Below 43.9 or 100% = (0)	
3. Teacher Corrections • Signal Errors • (a) Address • (b) Repeat • Response Errors • (a) Model/Lead (Corrective Math) • (b) Test	/ = / = / = / =		If 5 or fewer errors: 80-100% = (4.0) 50- 79.9% = (2.0) Below 49.9% = (0) If 6 or more errors: 90-100% = (4.0) 80-89.9% = (3.0) 70-79.9% = (2.0) Below 69.9% = (0)	
4. Teacher Praise • Specific praise statements • Correct specific praise statements • Correct general praise statements	/ = / = / =		50% and above = (4.0) 45-49.9% = (3.0) 40-44.9% = (2.0) Below 39.9% = (0) 90-100% = (4.0) 80-89.9% = (3.0) 70-79.9% = (2.0) Below 69.9% = (0)	
5. Pacing • One word/number response • Multi responses	/ = / =		9 + above = (4.0) 7-8.9 = (3.0) 5-6.9 = (2.0) 0-4.9 = (0) 5 and above = (4.0) 4 - 4.9 = (3.0) 3 - 3.9 = (2.0) Below 2.9 = (0)	

Rating/Grade Conversions
3.85-4.00 = A   2.33-2.66 = C+
3.67-3.84 = A-   2.00-2.32 = C
3.33-3.66 = B+   1.67-1.99 = C-
3.00-3.32 = B   1.33-1.66 = D+
2.67-2.99 = B-   1.00-1.32 = D

[ ] + [ ] = [ ] = [ ]

Total Rating   Observation Rating   Observation Grade

Marchand-Martella, Lignugaris/Kraft & Pettigrew, 1991

CONTRIBUTOR'S GUIDELINES

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One More Time—20 minutes. Closing from 1997 National DI Conference One of Engelmann's best motivational talks. Good for those already using DI, this is sure to make them know what they are doing is the right choice, for teachers, students and our future. Price: $15.00

Direct Instruction In Action—45 minutes. This tape is a series of student, parent, teacher and administrator testimonials about the use of DI, and many examples of Direct Instruction being used across the country with a wide range of learners. A good tape for anyone who needs to know what DI looks like and why it works. Price: $45.00

Keynotes from 22nd National DI Conference—2 hours. Ed Schaefer speaks on "DI—What it is and Why It Works," an excellent introductory talk on the efficiency of DI and the sensibility of research based programs. Doug Carnine's talk "Get it Straight, Do it Right, and Keep it Straight" is a call for people to do what they already know works, and not to abandon sensible approaches in favor of "innovations" that are recycled fads. Siegfried Engelmann delivers the closing "Words vs. Deeds" in his usual inspirational manner, with a plea to teachers not to get worn down by the weight of a system that at times does not reward excellence as it should. Price: $25.00

Keynotes from the 1995 Conference—2 hours. Titles and speakers include: Anita Archer, Professor Emeritus, San Diego State University, speaking on "The Time Is Now" (An overview of key features of DI); Rob Horner, Professor, University of Oregon, speaking on "Effective Instruction for All Learners;" Zig Engelmann, Professor, University of Oregon, speaking on "Truth or Consequences." Price: $25.00

Keynote Presentations from the 1994 20th Anniversary Conference—2 hours. Titles and speakers include: Jean Osborn, Associate Director for the Center for the Study of Reading, University of Illinois, speaking on "Direct Instruction: Past, Present & Future;" Sara Tarver, professor, University of Wisconsin-Madison, speaking on "I have a Dream That Someday We Will Teach All Children;" Zig Engelmann, Professor, University of Oregon, speaking on "So Who Needs Standards?" Price: $25.00

An Evening of Tribute to Siegfried Engelmann—2.5 hours. On July 26, 1995, 400 of Zig Engelmann's friends, admirers, colleagues, and protégés assembled to pay tribute to the "Father of Direct Instruction." The Tribute tape features Carl Bereiter, Wes Becker, Barbara Bateman, Cookie Bruner, Doug Carnine, and Jean Osborn—the pioneers of Direct Instruction—and many other program authors, paying tribute to Zig. Price: $25.00

Challenge of the 90's: Higher-Order thinking—45 minutes, 1990. Overview and rationale for Direct Instruction strategies. Includes home-video footage and Follow Through. Price: $10.00 (includes copying costs only).

Follow Through: A Bridge to the Future—22 minutes, video, 1992. Direct Instruction Dissemination Center, Wesley Elementary School in Houston, Texas, demonstrates approach. Principal, Thaddeus Lott, and teachers are interviewed and classroom footage is shown. Created by Houston Independent School District in collaborative partnership with Project Follow Through. Price: $10.00 (includes copying costs only).

Where It All Started—45 minutes. Zig teaching kindergarten children for the Engelmann-Bereiter pre-school in the 60's. These minority children demonstrate mathematical understanding far beyond normal developmental expectations. This acceleration came through expert teaching from the man who is now regarded as the "Father of Direct Instruction," Zig Engelmann. Price: $10.00 (includes copying costs only).

Direct Instruction—black and white, 1 hour, 1978. Overview and rationale for Direct Instruction compiled by Haddox for University of Oregon College of Education from footage of Project Follow Through and Eugene Classrooms. Price: $10.00 (includes copying costs only).

Corrective Reading: Decoding B1, B2, C—4 hours, 38 minutes + practice time. Pilot video training tape that includes an overview of the Corrective Series, placement procedures, training and practice on each part of a decoding lesson, information on classroom management / reinforcement and demonstrations of lessons (off-camera responses). Price: $25.00 per tape (includes copying costs only).

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What Was That Project Follow Through?
Effective School Practices, Winter, 1996, Volume 15, No. 1

ABSTRACT: Find out about the largest, most expensive educational experiment in history. What were the results? Why weren't they publicized? In the history of education, no educational model has ever been doucmented to acheive such positive results with such consistency across so many variable sites as Direct Instruction.

Planning for a Direct Instruction Implementation
Effective School Practices, Summer, 1995, Volume 14, No. 3

ABSTRACT: A workbook and guidelines provide a framework for planning a Direct Instruction implementation. The planning stages include: 1. Feasibility planning (Does the school have the support and resources to begin a DI implementation?), 2. Setting specific school policies (What policy changes regarding grouping and scheduling, report cards and discipline, inclusion and evaluation, substitutes and so on, need to be made?), 3. Deciding on the scope of the first year's implementation (Given the support and limitations, what level of implementation should the school schedule for the first year?), 4. Budget planning (What will the DI implementation cost?). A full set of placement tests for *Reading Mastery, Reasoning and Writing, Spelling Mastery,* and *Connecting Math Concepts* are included. The planning guide is particularly appropriate for the school administrator or leader.

Handbook for Grassroots Reform
Effective School Practices, Winter 1995, Volume 14, No. 1

ABSTRACT: An article by Russell Worrall and Doug Carnine describes the problem to solve: the irrationality of top-down educational decision-making. Individual school communities that wish to use a more rational process are provided with reference materials and guides for establishing bottom-up reform, particularly in the selection of the teaching practices and tools (textbooks, technology, media, software, and so on). A Handbook for Site Councils to use to improve schools guides local site councils in obtaining reliable information about what works, that is, site councils should select validated practices and tools or cautiously monitor the implementation of unvalidated practices. Reliable information is usually available in the form of research studies. Because research is often misused and abused, a guide for using research to identify superior teaching practices and tools is also provided.

Twenty Years of Effective Teaching
Effective School Practices, Fall 1994, Volume 13, No. 4

ABSTRACT: Two keynote addresses by Sara Tarver and Jean Osborn at the summer conference provide an overview of the history of Direct Instruction. Headline news articles featuring Direct Instruction and/or disappointing results from trendy approaches are reprinted. An exchange of letters between a Montana parent and the National Council of Teachers of Mathematics highlights issues regarding school adoption of unproven, faddish methods, textbooks, and philosophies. The NCTM is unable to provide evidence that the teaching methods they promote improve learning. NCTM claims there are no measures that assess the kinds of outcomes they wish to achieve. They expect to have a guide for assessment published in 1995, 4 years after the guide for teaching practice was published. The Montana parent argues that the assessment should be used to evaluate the practices before they are promoted nationwide.

OBE and World Class Standards
Effective School Practices, Summer 1994, Volume 13, No. 3

ABSTRACT: This issue is a critique of outcome-based education. Criticisms from educational researchers and from the American Federation of Teachers are featured. Positive suggestions for education reform legislation are offered, as well as some guidelines for evaluating standards. The standards of most states are criticized for their lack of rigor, for their non-academic focus, and for their evaluation systems that do not provide information regarding the effectiveness of the school programs, but rather only evaluate individual students.

Achieving Higher Standards in Mathematics
Effective School Practices, Spring 1994, Volume 13, No. 2

ABSTRACT: The standards from the National Council of Teachers of Mathematics prescribe teaching practice more than they set standards for student performance. Several research articles provide evidence that the NCTM teaching practices are probably not the best practices for achieving the student performance standards implied in the standards.

Beginning Reading Instruction
Effective School Practices, Winter 1994, Volume 13, No. 1

ABSTRACT: Research still shows that systematic phonics instruction with a code-based reader are important components of effective initial reading instruction and are not incompatible with most whole language activities. Read Keith Stanovich's analysis of reading instruction issues in *Romance and reality* and Patrick Groff's review of *Reading Recovery* research. Read how a highly successful school teaches reading to Spanish-speaking children. Edward Fry also provides a set of tools for solving common reading problems.

Discriminatory Educational Practices
Effective School Practices, Spring, 1993, Volume 12, No. 2

ABSTRACT: Research has documented discriminatory effects for two popular school reforms: whole language and "developmentally appropriate practice" as it has been defined by the National Association for the Education of Young Children. This edition summarizes the research evaluating effects of these reforms on the upward mobility and learning of economically disadvantaged children, minority children, and special education children. These diverse learners in programs incorporating the popular "child-centered" pedagogies are less likely to acquire the tools they will need for economic success and have lower self-esteem than children in traditional programs.

Heterogeneous Grouping and Curriculum Design
Effective School Practices, Winter, 1993, Volume 12, No. 1

ABSTRACT: Heterogeneous grouping is a superficial and ineffective solution to the problem of discrimination in education. Equal access to education involves much more than having equal access to a seat in the classroom. This edition presents research summaries and perspectives surrounding grouping decisions. Research finds subject-specific homogeneous grouping most effective in subjects that are skills-based, such as reading and mathematics. The reprinted education survey by the *Economist* compares educational systems around the world and finds America's attempt to provide equal education for all a failed experiment. The *Economist* praises Germany's ability to turn out the most highly skilled workers in the world. Both *Forbes* and the *Economist* criticize many of the currently popular American reforms, such as whole language and heterogeneous grouping, for the mediocrity they seem to encourage.

Listing of Effective Programs
Effective School Practices, monograph, 1993, also *ADI News*, Volume 11, No. 5.

ABSTRACT: This issue features a complete annotated listing of Direct Instruction, programs authored by Zig Engelmann and his colleagues. Also included are procedures for obtaining funding, addresses of funding sources, and a model proposal.

Wholistic Approaches
ADI News, Summer, 1992, Volume 11, No. 4

ABSTRACT: Effective instruction (e.g., Direct Instruction,) provides wholistic integration of skills that have been specifically taught. Wholistic programs that do not teach important component skills are inferior. A study is reported that shows that students learning from Direct Instruction programs in mathematics achieve higher scores than students learning from the new teaching standards promoted by National Council of Teachers of Mathematics. A synthesis of studies in reading shows that using Direct Instruction reading programs result in higher reading scores than whole language programs that provide no instruction in component skills, such as decoding.

ADI News, Volume 11, No. 2

ABSTRACT: This edition includes a study comparing the effects of four procedures for parents to use in teaching reading to their children. Parents using *Teach Your Child to Read in 100 Easy Lessons* (see ADI materials list for ordering information) obtained the highest reading improvement scores with their children. This edition also reports a comparison of the achievement scores of Wesley Elementary, a Direct Instruction school, with ten other schools, the results of a comparison of meaning-based versus code-based programs in California, and other reports of the effectiveness of Direct Instruction programs with special populations.

Historical Issue III
ADI News, Volume 8, No. 4

ABSTRACT: The historical series reprint highlight articles and contributions from earlier editions. The featured articles in this edition are divided into the following sections: (1) Implementation strategies and issues, (2) Direct Instruction research studies, and (3) Research related to DI's goals. Russell Gersten's response to a study that is widely discussed among promoters of the current child-directed instruction reform is reprinted in this edition. That study by Schweinhart, Weikart, and Larner is highly critical of DI preschool programs. Gersten criticizes that study primarily for using self-report data to evaluate delinquency and for interpreting nonsignificant differences as if they were significant.

Historical Issue I
ADI News, Volume 7, No. 4.

ABSTRACT: The featured articles in this issue are divided into the following sections: (1) Introduction, (2) Research studies, and (3) Management strategies. These include a classic essay by Zig Engelmann "On Observing Learning," a high school follow-up study on Follow Through children in Uvalde TX, a meta-analysis of the effects of DI in special education by W.A.T. White, and other studies reporting the effects of DI in teaching English as a Second Language, poverty level preschoolers, secondary students, and moderately retarded children. Also included are classroom management tips from Randy Sprick and Geoff Colvin, along with a school-wide discipline plan.

ADI Materials Price List

The Association for Direct Instruction distributes the following Direct Instruction materials. Members of ADI receive a 20% discount on these materials. To join ADI and take advantage of this discount, simply fill out the form on the back of this sheet and include your annual dues with your order.

Title & Author	Member Price	List Price	Quantity	Total
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Theory of Instruction (1991) Siegfried Engelmann & Douglas Carnine	$32.00	$40.00		
The Surefire Way to Better Spelling (1993) Robert C. Dixon	$8.75	$12.00		
Teach Your Child to Read in 100 Easy Lessons (1983) Siegfried Engelmann, Phyllis Haddox, & Elaine Bruner	$14.95	$17.95		
Turning Our Schools Around: Seven Commonsense Steps to School Improvement (1995) Phyllis Anderson Wilken	$15.95	$19.95		
Structuring Classrooms for Academic Success (1983) S. Paine, J. Radicchi, L. Rosellini, L. Deutchman, & C. Darch	$11.00	$14.00		
War Against the Schools' Academic Child Abuse (1992) Siegfried Engelmann	$14.95	$17.95		
New Book **Research on Direct Instruction** (1996) Gary Adams & Siegfried Engelmann	$19.95	$24.95		

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The Association for Direct Instruction is a nonprofit organization dedicated to the dissemination of information on effective, research-proven practices for schools. ADI publishes a quarterly magazine, *Effective School Practices*, featuring research from the field, implementation descriptions from schools around the world, and expert, easy-to-understand answers to questions about the problems school personnel face in teaching, supervising or administering every day. ADI also publishes books, sponsors workshops and regional conferences, and markets other products that are available to members at a discount.

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