DOCUMENT RESUME

ED 231 768 SP 022 435

AUTHOR Zahorik, John A.; Kritek, William J.
TITLE Using Direct Instruction.
PUB DATE [80]
NOTE 15p.
PUB TYPE Reports - Research/Technical (143) -- Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; Administrator Attitudes; Discipline; Elementary Education; *Instructional Development; *Principals; Program Evaluation; Program Implementation; Small Group Instruction; Teacher Administrator Relationship; *Teacher Attitudes; *Teacher Behavior; Teacher Effectiveness; *Teaching Methods; Teaching Styles
IDENTIFIERS *Direct Instruction

ABSTRACT

A study determined how direct instruction is being used and why it is being used the way that it is. Data were collected through observations and interviews from teachers and principals in 12 elementary schools involved in a school improvement project based, in part, on direct instruction. Results show that, in general, the elements of direct instruction were employed, but some elements were used more than others. The most frequently used elements were those associated with teacher control, while those associated with lesson progression were used the least frequently. Deviations in use of the elements of direct instruction were related to teachers' interest in high cognitive level thinking and individualization, and to setting constraints. Overall use of direct instruction was related to teachers' knowledge of and training in direct instruction and principal support for teachers' use of direct instruction. (Author/JD)

Using Direct Instruction

John A. Zahorik and William J. Kritek

University of Wisconsin-Milwaukee

The history of education is in many ways the history of innovations concerning teaching practices. Many teaching innovations have come and gone over the past several decades. A current teaching innovation that teachers are being urged to employ is direct instruction.

Direct instruction differs from most other teaching innovations in that it is research based. It emerged from process-product studies conducted by Soar (1973); Stallings and Kaskowitz (1974); Brophy and Evertson (1974); Fisher, Filby, Marliave, Cahen, Dishaw, Moore, and Berliner (1978); Good and Grouws (1975); and others. Although variations exist in the definition of direct instruction, the definition by Rosenshine (1979) is generally accepted. According to Rosenshine direct instruction refers to:

> academically focused, teacher-directed classrooms using sequenced and structured materials. It refers to teaching activities where goals are clear to students, time allotted for instruction is sufficient and continuous, coverage of content is extensive, the performance of students is monitored, questions are at a low cognitive level so that students can produce many correct responses, and feedback to students is immediate and academically oriented. (p. 38)

This constellation of behaviors has been found to correlate positively, and often significantly, with student achievement gains in reading and mathematics at the elementary school level. More recently, the efficacy of direct instruction has been reinforced by experimental studies (Anderson, Evertson, & Brophy, 1979; Stallings, Cory, Fairweather, & Needels, 1978; Good & Grouws, 1979).

Being faced with achievement problems in basic skills, many urban elementary teachers and school districts have turned to direct instruction as a possible solution. A question that arises, now that this phenomenon has progressed from a research finding to an employed teaching practice, is how is direct instruction being used and why is it being used the way that it is? The purpose of this paper is to present a report on an investigation of the use of direct instruction.

Data Collection

Twelve elementary schools that had implemented direct instruction participated in the study on a volunteer basis. The schools were part of a project designed to increase achievement of students in reading and mathematics. The schools were located in lower SES areas and had experienced low achievement for several years. At the time data were collected the schools had been using direct instruction as well as results from school effects research (Edmonds, 1979; Brookover & Lezotte, 1977) for one year.

Several types of inservice training in the use of direct instruction were provided for teachers during the year preceding implementation and throughout the implementation period. All project schools were given direct instruction and school effects literature and were required to submit a plan detailing how they were going to apply it. Also, all schools participated in project-wide inservice in which direct instruction techniques were explained and demonstrated. Additional inservice training varied among the 12 schools. Some schools made extensive use of resource personnel from the central office staff and from various universities, some schools received training related to

special curriculum programs based on direct instruction such as "ECRI reading" (Reid, 1980) and "Missouri Math" (Good & Grouws, 1979) which were instituted during this time period, and some schools had teachers who completed university courses on direct instruction.

Data collection consisted of observing and interviewing 23 teachers and interviewing 12 principals from the 12 participating schools. In each school the principal was asked to identify the two teachers who were the most proficient users of direct instruction. This process resulted in 23 teachers; one teacher chose not to participate in the study. Of the 23 teachers, 19 were women and 4 were men, 14 taught grades 1-3 and 9 taught grades 4-6, and all had at least 7 years of teaching experience.

The teachers were observed teaching a reading lesson and a mathematics lesson. Each teacher was observed for a half-day although some observations were longer. Observations were made by a team of observers. An observation guide consisting of 21 elements of direct instruction was used. During observations the observers made field notes related to the elements and tentatively rated the frequency of use of each element on a five-point scale. Frequency of use of an element was judged according to the maximum use that could reasonably have been expected. Following observations, the team met to discuss and compare observations and to arrive at a final rating for each element for each teacher. This procedure was practiced in a training program using videotaped classrooms and live classrooms. Observer intrajudge and interjudge agreements on tentative ratings were all over 80 percent.

The 21 direct instruction elements that were used for observation purposes were: (a) lively pace, (b) teacher controlled activities,

(c) monitoring, (d) narrow questions, (e) academic feedback, (f) learning organized around teacher questions, (g) lecturing, (h) short directions and transitions, (i) reviewing, (j) small-bit content, (k) small-step tasks, (l) low error-rate content, (m) high content coverage, (n) use of text materials, (o) controlled practice, (p) available materials, (q) student academic engagement, (r) large group organization, (s) goal-directed climate, (t) basic skill focus, and (u) warm climate. These elements are based on process-product research as summarized by Rosenshine (1976), Medley (1977), and others.

The teacher interviews consisted of questions about the major features of direct instruction, the most effective and least effective elements of direct instruction, modifications made in the use of direct instruction, the major benefits of direct instruction, types of help received in implementing direct instruction, and other topics. Each of the teachers was interviewed the same day that observations took place. The interviews lasted approximately one hour.

The principal interviews also lasted about one hour. The interview questions dealt with the important components of direct instruction, the benefits of direct instruction, school programs that incorporate direct instruction, inservice training provided for direct instruction, support for direct instruction, supervision practices, and other matters.

Use of Direct Instruction Elements

The classroom observation results reported in Table 1 reveal that in general the teachers used the elements of direct instruction extensively. Some elements were used more extensively than others, however. The elements that were used the most frequently, if at

arbitrary cutoff point of a mean rating of 4.5 is used, were organizing learning around teacher questions, teacher control of learning activities, having materials available and ready for use, providing a basic skills focus, establishing a goal-directed climate, and providing controlled practice and drill. As a group, these elements seem to establish and maintain strong teacher control of the learning situation. They develop and sustain a singleness of purpose in an efficient, organized way.

// Insert Table 1 about here //

The elements of direct instruction that were used somewhat less frequently, if an arbitrary cutoff of a mean rating of 4.0 is used, were making directions short, asking narrow questions, monitoring practice activities, providing immediate academic feedback, organizing content into small parts, using low error-rate content, organizing learning tasks into small steps, engaging students in academic tasks, utilizing large group instruction, and using texts and workbooks. The teachers occasionally gave long directions, high-level as well as low-level questions were asked, not all seatwork activities were monitored, particularly reading seatwork when the teacher had divided the class into several reading groups, feedback was sometimes personal rather than academic and at other times it was absent, neither the content nor tasks were consistently organized and sequenced, some content was difficult, student engagement in social or personal activities was evident, small group and individual instruction were used, and texts and workbooks were not always employed. Most of these less frequently used behaviors are specific acts related to the practice cycle. This cycle in which

information is conveyed to students, students are given monitored exercises or asked specific questions about the information to develop and determine mastery, and corrective feedback is given, is seen as being an important and effective aspect of direct instruction (Rosenshine, 1976; Brophy & Evertson, 1976). The other less frequently used behaviors seem to be more related to teacher control.

The remaining elements are those that were used the least frequently. They include lively pace, high content coverage, lecturing and explaining, use of reviews and summaries, and warm, convivial climate. The pacing that these teachers used was slow on occasion, content coverage was not as high as it could have been, discovery and problem solving experiences were used in addition to more didactic techniques of lecturing, reviews or summaries were the least used element, and the climate, although not harsh, was often not warm. Many of these least used elements are those that determine lesson progression. They govern the speed and progress of the teaching-learning situation. Others, such as reviews and lectures, are more closely associated with the practice cycle.

In summary, the teachers in this project used direct instruction in general. The elements that received the most extensive usage were those associated with establishing and maintaining teacher control of the classroom. Elements that received less emphasis were those that are mainly related to the practice cycle. Those that received the least use were the elements that determine lesson progression.

Many of the behaviors that teachers used instead of those most closely associated with direct instruction are behaviors that seem to be

related to the development of high cognitive level goals and other goals in addition to basic skills, to the individualization of instruction, and to other demands on teacher time and energy. High-level questions, personal feedback, challenging content rather than small-step content, personal or social activities, and discovery learning all point to nonbasic skill goals. Small group and individual instruction, slow pace, modest content coverage, and lengthy directions indicate sensitivity to individual differences and special needs of students. Deciding not to monitor, use reviews, or establish nurturing climate could be a function of setting constraints.

Variables Associated With Direct Instruction Use

Interviews with teachers and principals as well as classroom observations revealed several variables that appear to be related to direct instruction use. The variables investigated were teacher beliefs, grade level and subject area taught, teacher knowledge of direct instruction, teacher training in direct instruction, curriculum programs based on direct instruction, principal leadership, principal knowledge of direct instruction, principal support for direct instruction, and principal supervision practices.

Beliefs about each direct instruction element were not ascertained, but teachers were asked to identify the most effective and least effective direct instruction elements. The frequently identified most effective elements were monitoring, engagement in academic tasks, large group instruction, and teacher control of learning activities. Excluding monitoring, these elements are related to teacher control. With the exception of teacher control of learning activities, however, none of the

behaviors is in the group of elements most frequently used. Monitoring which was the element mentioned most often as being most effective was seen as being effective because it provided teachers with knowledge of students' present states of learning. Many teachers indicated that, as a result of careful monitoring, they had greater knowledge of students' progress or lack of it than at any time before in their teaching careers.

Only one element was mentioned frequently as being ineffective. This element was, paradoxically, large group instruction. Although teachers saw large group instruction as being useful in classroom control and student attention, they also believe that exclusive use of it is harmful. Individual needs preclude total class grouping in all learning situations.

Subject area and grade level both appear to be related to direct instruction usage. The total mean rating for reading instruction was 4.08 while the total mean rating for mathematics was 4.20. Further, comparing each teacher's reading teaching with his or her mathematics teaching reveals that 73 percent of the teachers had higher direct instruction usage in mathematics and 27 percent had higher usage in reading. Greater usage of direct instruction during mathematics may, in part, be a result of teaching mathematics to the whole class rather than to small groups. The total mean rating for primary teachers (grades 1-3) was 4.24 and the total mean rating for intermediate teachers (grades 4-6) was 4.10. This difference in favor of primary teachers is seen more clearly when the 23 teachers are divided into higher users and lower users. Higher users are those who have at least a 4.5 mean rating. Lower users are those who have a mean rating of less than 4.5. This

arbitrary procedure resulted in a group of 10 higher users whose mean rating is 4.65 and a group of 13 lower users whose mean rating is 3.99. Of the 10 higher users, 57 percent are primary teachers and 43 percent intermediate teachers. Of the 13 lower users, 22 percent are primary teachers and 78 percent are intermediate teachers.

The existence of "Missouri Math," "ECRI reading," and other school programs or curricula that are based on direct instruction research might be expected to influence direct instruction usage, but it did not. The data show that the higher users and the lower users of direct instruction had approximately the same quantity of curriculum programs incorporating direct instruction.

Results concerning the remaining variables are contained in Table 2. These results are also analyzed in relation to higher users and lower users of direct instruction. The variable of teacher knowledge of direct instruction, and to a greater extent, the variable of teacher training in direct instruction appear to be related to usage of direct instruction. Sixty percent of the higher users had comprehensive knowledge of direct instruction in comparison to 54 percent for the lower users, and 85 percent of higher users had helpful inservice training in comparison to 54 percent of the lower users.

// Insert Table 2 here //

In terms of variables related to the principal, higher users did not necessarily have principals who exerted strong leadership, who had a comprehensive knowledge of direct instruction, or who provided active supervision. In fact, lower users were more likely to have principals who possessed these attributes. Higher users, to a greater extent than

lower users, did have principals who strongly supported the teachers' use of direct instruction, however. Ninety percent of the higher users had principals who supported the use of direct instruction while 77 percent of the lower users had supportive principals.

In summary, of the variables investigated here, teacher beliefs, subject area and grade level, teacher knowledge, teacher training, and principal support appear to be related to higher usage of direct instruction.

Discussion

The teachers in this study used direct instruction extensively, but they did not use it at every opportunity that they had to use it. This general finding can be explained in at least two ways. One explanation is that the teachers were insufficiently or poorly trained. The other explanation is that the teachers were adequately trained, but they purposely adapted or rejected various aspects of direct instruction.

The first explanation assumes that the concept of direct instruction is faultless and the teachers are faulty. The teacher training program in which the teachers participated helped them to reach their present level of skill, but they did not acquire all of the essential direct instruction techniques. From this perspective this study indicates that two types of training may be especially needed. One type is to help teachers to acquire greater proficiency in the use of elements associated with the practice cycle and with lesson progression. The other type is to help teachers understand that the benefits of large group instruction and emphasis on low cognitive levels outweigh the disadvantages, and that setting constraints related to implementation of direct instruction can be overcome.

The second explanation assumes that the concept of direct instruction is faulty and the teachers are faultless. The concept is faulty because it requires teachers to renounce some of the other beliefs that they have and the resultant goals and teaching practices that they may have found to be beneficial. This study could be interpreted to indicate that direct instruction asks teachers to renounce their beliefs in individualization and high cognitive levels. Teachers may believe that direct instruction is an effective procedure to increase basic skill achievement, but when direct instruction clashes with these other beliefs, accommodation takes place and direct instruction becomes altered. From this perspective, this study indicates that thought should be given tc modifying direct instruction on the basis of teacher beliefs and other setting variables before it is prescribed for practice.

Regardless of which explanation is accepted, or if a combination of the two is accepted, those interested in direct instruction need to attend to individualization, high cognitive levels, and several other areas in an effort to make this innovation as functional as possible.

References

Anderson, L. M., Evertson, C. M., & Brophy, J. E. An experimental study of effective teaching in first-grade reading groups. Elementary School Journal, 1979, 79, 193-223.

Brookover, W. B. & Lezotte, L. W. Changes in school characteristics coincident with changes in student achievement. East Lansing, Michigan: Michigan State University, 1977.

Brophy, J. E. & Evertson, C. M. Process-product correlations in the Texas teacher effectiveness study: Final report. Austin, Texas: University of Texas, 1974.

Edmonds, R. Effective schools for the urban poor. Educational Leadership, 1979, 37, 15-24.

Fisher, C., Filby, N., Marliave, R., Cahen, L., Dishaw, M., Moore, J., & Berliner, D. Beginning teacher evaluation study, technical report series. San Francisco: Far West Laboratory for Research and Development, 1978.

Good, T. & Grouws, D. Process-product relationships in fourth grade mathematics classrooms. Columbia, Missouri: University of Missouri, 1975.

Good, T. & Grouws, D. The Missouri mathematics effectiveness project: An experimental study in fourth grade classrooms. Journal of Educational Psychology, 1979, 71, 355-362.

Medley, D. M. Teacher competence and teacher effectiveness. Washington, D.C.: American Association of Colleges for Teacher Education, 1977.

Reid, E. R. Another approach to mastery learning. Educational Leadership, 1980, 38, 170-172.

Rosenshine, B. Classroom interaction. In N. Gage (Ed.) The psychology of teaching methods. Chicago: University of Chicago Press, 1976.

Rosenshine, B. Content, time, and direct instruction. In P. L. Peterson, and H. J. Walberg (Eds.) Research on Teaching. Berkeley, California: McCutchan, 1979.

Soar, R. S. Follow-through classroom process measurement and pupil growth (1970-71): Final report. Gainesville, Florida: University of Florida, 1973.

Stallings, J. A. & Kaskowitz, D. H. Follow-through classroom observation evaluation, 1971-73. Menlo Park, California: SRA, 1974.

Stallings, J. A., Cory, R., Fairweather, J. & Needels, M. A study of basic reading skills taught in secondary schools. Palo Alto, California: SRI, 1978.

Table 1

Teachers' Use of Direct Instruction
(N=23)

Behavior/Practice	Mean Observation Rating*
Learning organized around teacher questions	4.93
Activities provided and controlled by teacher	4.91
Materials ready for use	4.86
Basic skills focus	4.80
Goal-directed climate	4.65
Controlled practice	4.58
Active monitoring of seatwork	4.39
Tasks organized and sequenced	4.38
Narrow, single answer questions	4.33
Academic task engagement	4.32
Content organized and sequenced	4.29
Large group instruction	4.27
Short directions and transitions	4.23
Use of texts and workbooks	4.21
Immediate, academic feedback	4.14
Low error-rate content	4.02
Brisk pace	3.95
Lecturing, explaining, and demonstrating	3.86
Warm classroom climate	3.86
High content coverage	3.81
Use of reviews and summaries	3.63

*Frequency of use of behaviors or practices was rated by observers on a five-point scale with "5" being the highest rating.

Table 2

Relationship of Selected Variables to Teachers' Use of Direct Instruction

Variable	Higher Users of Direct Instruction (N=10)	Lower Users of Direct Instruction (N=13)
	% of Teachers	% of Teachers
Comprehensive teacher knowledge of direct instruction	60	54
Helpful inservice training	85	54
Strong principal leadership	70	77
Comprehensive principal knowledge of direct instruction	40	54
Presence of curriculum programs incorporating direct instruction	60	61
Active principal supervision	40	46
Strong principal support for teachers' use of direct instruction	90	77

0/1924E