

Training Head Start Teachers to Use Incidental Teaching

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The purpose of this study was to investigate the effects of group inservice training plus written and verbal feedback on four Head Start teachers' use of incidental teaching. Data were collected during daily free-play periods when target teachers supervised children identified as having language delays. A multiple baseline design across subjects (teachers) was used to assess the effects of the inservice training and feedback procedures. Baseline data indicated that teachers used some steps of the incidental teaching procedure but did not use the entire procedure. The inservice training plus written and verbal feedback resulted in frequent use of the entire procedure.

■ The U.S. Department of Health and Human Services' *Tenth Annual Report to the Congress of the United States on Services Provided to Handicapped Children in Project Head Start* (1984) indicates that 11% of the total enrollment in full-year Head Start programs were professionally diagnosed as having handicaps. The majority (50.4%) of these children were diagnosed as having speech and language impairments. Thus, language instruction should be a fundamental aspect of most Head Start programs. Typically, teachers in Head Start use published curricula such as the *Peabody Language Development Kit* (Dunn & Smith, 1965), *Teach Your*

Child to Talk (Pushaw, 1976), *Goal Program* (Karnes, 1972), and *Distar Language Level I* (Englemann & Osborne, 1976). These programs are designed for large- and small-group instruction; however, Head Start personnel often indicate a desire for teaching techniques and activities that allow individualization while being conducted in group situations. Thus, a procedure is needed that facilitates language skills within usual preschool activities such as free play, lunch, large-group activities, and outdoor play.

The incidental teaching technique developed by Hart and Risley (1968, 1974, 1975, 1980) is such a procedure. "Incidental teaching refers to the interaction between an adult and a single child, which arises naturally in an unstructured situation such as free play and which is used by the adult to transmit information or give the child practice in developing a skill" (Hart & Risley, 1975, p. 411). The child-adult interaction begins when a child makes a request or otherwise initiates a conversation; if needed, the adult then verifies the topic of the request and asks for an elaboration or improvement of the child's

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statement. If an elaboration or improvement of the child's request is not forthcoming, the teacher models or otherwise prompts an elaboration and confirms the child's response when it occurs. Access to the requested object, assistance, or information is then granted.

Considerable research has attended to the effectiveness of incidental teaching. Variations on the procedure have been used to teach meal tray requests to institutionalized adolescents with severe retardation (Halle, Marshall, & Spradlin, 1979), receptive object labels to autistic youth, (McGee, Krantz, Mason, & McClannahan, 1983), generative yes/no responses to preschool children with autism and to children with severe developmental disabilities (Neef, Walters, & Egel, 1984), and preposition use to autistic children (McGee, Krantz, & McClannahan, 1985). While the procedure has been used effectively with children whose handicaps are severe, Hart and Risley's original research (1968, 1974, 1975) was conducted with preschoolers who lived in economically disadvantaged environments, children similar to those traditionally enrolled in Head Start programs. Based on their positive results and those of more recent investigations with children whose handicaps are severe, it appears that the incidental teaching procedure would be suitable for Head Start programs.

Before using new procedures, direct service personnel may require systematic training (Madle, 1982). Head Start programs typically incorporate inservice sessions into the yearly schedule. However, traditional didactic inservice workshops are frequently ineffective in producing initial and maintained use of new procedures. The addition of modeling, role-playing and other means of active participation to the traditional format increases the probability of generalization beyond the inservice session (Madle, 1982; Trohanis, 1985). The probability of behavior change is also increased when the use or non-use of new procedures results in systematic consequences. These consequences can take the form of feedback or of feedback plus other stimuli, such as social approval or monetary rewards (Madle, 1982). The form of the feedback is related to its effectiveness; a general order of effectiveness; (least to most) for most staff members is "(1) feedback, (2) feedback plus social approval, (3)

feedback plus non-monetary incentives, and (4) feedback plus monetary incentives" (Madle, 1982, p. 81). However, as Madle indicates, behavior change is less likely to occur with lower-order consequences (e.g., feedback alone) if personnel have experience with more effective procedures (e.g., feedback plus monetary incentives).

The purpose of this study was to evaluate the effects of a group inservice workshop plus verbal and written performance feedback on teachers' use of the incidental teaching procedure. The inservice session was designed to maximize the probability of behavior change in the classroom. It involved lecture, role-playing, group discussion, slide presentations of teacher-child interactions, handouts, and a posttest on the training content. Consequences for use of the procedure in the classroom were also employed. Feedback only was used to duplicate the type of consequences that is probably available in the largest number of early childhood education programs. Written feedback consisted of the total number of child requests and the total percentage of incidental teaching responses performed by the teacher. This feedback was provided after daily observation of free-play sessions. Verbal feedback was delivered intermittently and consisted of the experimenter's reviewing the teacher's implementation of the procedure.

METHOD

Subjects

Teachers. Four female Head Start teachers served as subjects for this study. Teacher A was 31 years old, had 8 years of experience in Head Start, was enrolled in the Child Development Associate (CDA) credential program, and had completed 47 credit hours in elementary education. Teacher B was 36 years old, had 12 years of experience in Head Start and 2 years of elementary teaching experience, and had earned a B.S. in physical education. Teacher C was 34 years old, had 8 years of Head Start experience, had obtained the CDA credential, and had 2 years of coursework in elementary education. Teacher D was 39 years old, had 12 years of experience in Head Start, had completed the CDA program, and had 3 years of

preparation in elementary education. The teachers agreed to participate in an investigation of teacher-child interactions

Children. Twenty children, 7 females and 13 males, participated in the study. Their ages ranged from 48 to 74 months. All the children either met Head Start low-income guidelines or were enrolled because of a handicapping condition. Five of the children were targeted for each classroom teacher. They were selected based on the language section of the *Fluharty Speech and Language Screening Test* (Fluharty, 1978) and the *Learning Accomplishment Profile* (Sanford &

Zelman, 1981). Their scores are presented in Table 1.

Setting

Inservice training setting. The inservice sessions were conducted in the teachers' classrooms, located in four Head Start centers. All classrooms were equipped with child-sized chairs, tables, defined learning areas (e.g., housekeeping, block area), and instructional materials.

Free-play setting. The observations of teacher behavior occurred in the free-play

TABLE 1
Description of Children at the Beginning of the Study

Classroom Student	Age ^a	Gender	Fluharty ^b		Child Performance Learning Accomplishment Profile ^c						
			Articulation	Language	GM	FM	PS	SH	CG	LN	
<i>Classroom A</i>											
BM	56	M	R	R	48	60	48	48	48	48	42
CT	50	M	P	R	72	48	48	48	48	48	36
PT	48	F	R	R	60	48	48	48	48	36	42
MS	52	M	R	R	72	48	48	54	42	42	42
JH	57	M	P	P	72	72	72	48	42	48	48
<i>Classroom B</i>											
CB	61	M	R	R	54	54	60	54	48	48	42
GP	67	M	R	R	60	60	66	60	54	42	42
SA	51	M	P	R	54	48	60	54	42	48	48
PS	60	F	P	R	48	60	66	60	48	42	42
WP	52	M	R	P	48	48	48	54	36	48	48
<i>Classroom C</i>											
BR	63	M	P	R	66	66	66	60	54	54	54
CE	58	M	P	R	48	54	48	48	42	36	36
FT	69	F	P	R	72	72	72	72	36	54	54
WJ	49	M	R	R	48	48	48	48	36	36	36
EW	49	M	P	R	60	48	48	48	30	36	36
<i>Classroom D</i>											
EL	52	F	P	P	54	60	66	60	54	36	36
TT	64	F	P	P	54	54	66	60	36	42	42
RM	58	M	P	R	54	54	60	48	42	36	36
TL	57	F	P	P	54	54	66	60	36	42	42
MH	74	F	R	R	60	48	54	60	42	36	36

^a = Chronological age presented in months.

^b = *Fluharty Speech and Language Screening Test* (Fluharty, 1978).

R = Refer, and P = Pass

^c = *Learning Accomplishment Profile* (Sanford & Zelman, 1981);

GM = Gross Motor, FM = Fine Motor, PS = Personal/Social, SH = Self Help,

CG = Cognitive, and LN = Language

area in each of the teacher's four classrooms. The free-play setting in each classroom was bounded by a carpeted floor space approximately 3 m × 3.5 m and a shelved toy storage area. For the purposes of this study, each free-play setting was defined by an imaginary line not exceeding 1 m from the outside edge of the carpet not otherwise bounded by a wall or storage shelf. The areas were well lit by window and ceiling lights and were subject to sound from surrounding activity areas.

Materials and Instructional Format

Inservice training materials included a series of five overhead transparencies depicting the guidelines, procedures, and decisions necessary to implement incidental teaching. Handouts describing this information were also given to each participant. A slide program was used to illustrate teacher-child interactions, types of child requests, and possible teacher responses. A post-quiz was given to assess subjects' acquisition of information related to incidental teaching. Copies of these materials are available from the first author.

Free play materials were checked for consistency across classrooms. Each area contained blocks, puzzles, cars, and zoo animals. A top shelf in each free play area was designated as a "must ask" shelf (i.e., access to those toys was restricted to requested items). Written feedback was presented on a note card.

Response Definitions and Data Collection

Teacher behaviors. Six categories of teacher behaviors related to the incidental teaching procedure were observed and recorded by trained observers. These were: (1) *Focus*—teacher responded to child's verbal request with eye contact and a smile; (2) *Verification*—teacher posed a direct question or restated the child's initiation to ensure understanding of the topic; (3) *Elaboration*—teacher asked for expressive language improvement based on the child's request; (4) *Confirmation*—Teacher acknowledged a child's response to a requested elaboration; (5) *Model*—teacher provided a model for an elaboration or stated the child's elaboration; (6) *Access*—teacher presented the child with

the requested material, assistance, information, or permission.

Two additional teacher responses were recorded: *Ignore*—teacher did not respond to a child's request; and *Instruct*—teacher gave a command to perform a task that was unrelated to the topic of the child's request or was related to the child's request without asking for language improvement.

Child behaviors. Child requests for materials, permission, information, or assistance were recorded. Each request served as an opportunity for the teacher to initiate incidental teaching. An event-recording system was used to tally each occurrence of targeted behaviors by placing a check mark in the appropriate columns of the data sheet. Each child was assigned a number, and when the child made a request the number was recorded on the data sheet. The topics of children's requests were written on the data sheet. When children made simultaneous requests, the one on which the teacher focused was recorded. Incidental teaching steps were recorded in sequence beginning with focus and ending with access. Observations occurred during daily 20-minute free-play periods.

Training observers. Four paraprofessional observers employed as aides and four parent/volunteer alternate observers were taught behavior definitions and recording procedures at similar but nontargeted classroom sites prior to the study. A total of five 2-hour training sessions were conducted using guidelines described by Halle and Sindelar (1982). Training included didactic methods, written definitions, role-playing, practice data collection, and feedback on data collection. Each observer obtained an interobserver agreement percentage of 90% prior to data collection.

Procedures

General procedures. An inservice training session on incidental teaching was provided four times and was followed by daily written and intermittent verbal feedback on the use of the procedure during 20-min free-play sessions. Daily pre- and post-inservice training observations on teachers' use of incidental teaching were conducted with all subjects throughout the experiment. A multiple base-

line design across subjects was used to evaluate the inservice training and feedback.

Baseline procedures. During baseline observations, teachers were instructed to monitor the free-play sessions and listen for child initiations. They added and removed novel materials to both a restricted toy shelf and free-play shelves. Observation of the free-play sessions occurred during the midmorning. In the free-play settings, the child-teacher ratio was 5:1; children in the group remained constant throughout the investigation. The observers sat to the side of the free-play area and recorded the target behaviors as defined.

Incidental teaching procedures. Each teacher subject attended one of the four 2-hour inservice training sessions; other teachers and teacher aides who were not participating in the study also attended each session. Training procedures included didactic methods, role-play, peer discussion, written handouts, and slides depicting teacher-child interactions to illustrate types of child requests and the incidental teaching procedure. Teachers were not trained to target specific language structures. A postinservice quiz to assess teacher competency in describing incidental teaching procedures and their use was given immediately after the inservice session. Teacher subjects scoring below 85% correct on the quiz were given an individual review and were tested with an alternate form on the next working day. The quiz required less than 20 min to complete.

Feedback procedures. Postinservice feedback procedures included daily written feedback; immediately following each observation, the observer gave the teacher a note card without verbal comment. The note card contained the number of child requests and the percent of incidental teaching steps completed. Written feedback was initiated four data days after the inservice session and continued until the teacher used all necessary steps of the incidental teaching procedure on 85% of the opportunities for two consecutive days. Verbal feedback was presented during the second week after the inservice. Thereafter, it was presented weekly or more frequently if the teacher was below criterion. The verbal feedback sessions were conducted individually and required less than 10 min. They occurred immediately after the observations of the free play. The teachers'

performance on each incidental teaching step was described, and positive and constructive feedback was provided. The pace of teacher responsiveness to children's requests and materials arrangement were also discussed. When the teachers asked questions, the experimenter answered them as briefly and accurately as possible.

Maintenance. During the maintenance phase of the study (i.e., range of 1-4 weeks), only experimenter verbal feedback was delivered on a variable basis. Observations were reduced to one day per week for Subject A but continued on a daily basis for the remaining subjects.

Experimental Design

A multiple baseline design across subjects (teachers) was used to evaluate the effects of an inservice training plus the feedback package (Tawney & Gast, 1984). Four similar subjects and baseline conditions were chosen for introduction of the intervention package across time. Three replications of intervention effects were obtained. Experimental control was demonstrated when the teacher subjects changed their use of incidental teaching at the point when the package was introduced and their performance was maintained above baseline levels over time.

Reliability

Reliability observations for each teacher subject were obtained at least once per week. These observations were conducted by an independent observer. Reliability estimates were calculated by comparing the data sheets of the observers for agreements and disagreements, totaling the number of agreements, then dividing the total by the number of agreements plus disagreements and multiplying by 100. Interobserver agreement percentages were calculated separately for child requests and for teacher behaviors.

An observer also collected data during each inservice training session. A procedural reliability checklist that contained a content outline for the session was used to assess the consistency with which the experimenter presented the inservice session (Billingsley, White, & Munson, 1980).

RESULTS

Reliability

Procedural reliability data were collected on all four inservice training sessions. The percentages of the experimenter's compliance with the inservice content outline for the four training sessions were 100, 100, 97.2, and 97.2 respectively. Interobserver agreement percentages on the dependent measures were collected 45 times throughout all conditions of the study and are summarized in Table 2.

Postinservice Quiz

Immediately following each inservice training session, a 20-question quiz was administered to each group of trainees. The following scores were obtained by the subjects: Teacher A—77.5%, Teacher B—100%, Teacher C—90%, and Teacher D—92.5%. Information was reviewed with teacher A, and on the next working day she scored 85% on an alternate quiz form.

Use of Incidental Teaching

The percentages of opportunities when the four teachers used all the necessary steps of the incidental teaching procedure are shown in Figure 1. An opportunity was scored for each child request. During baseline (prior to inservice training sessions), Teachers A and B never used all of the necessary steps of the

incidental teaching procedure. Teachers C and D used all of the necessary steps on some occasions but did so infrequently. After inservice training and during the feedback condition, the percentage of times all subjects used the procedure increased to criterion levels (i.e., 85% or more for 3 consecutive days).

Substantial changes in the use of incidental teaching did not occur for Teachers A and B simply as a result of the inservice training workshop, but the inservice workshop in combination with daily written and intermittent verbal feedback did result in criterion-level performance. For Teachers C and D, however, the inservice session alone appeared to produce substantial changes in the use of incidental teaching.

Teacher A did not use all the necessary steps of the incidental teaching procedure during baseline conditions. She was the first teacher to experience the inservice session. The session occurred on a Friday, and over the weekend she became ill and was absent from her class. On the first day after her return she used all necessary steps of the incidental teaching procedure; however, only two child requests occurred during that day. In the following three days, her use of the procedure was similar to the baseline levels. Thus, the inservice session alone was insufficient to establish frequent use of the procedure. This failure may be attributed to the ineffectiveness of the inservice training and/or her extended absence after attending the

TABLE 2
Interobserver Agreement Percentages for Child Requests and Teachers Use of Incidental Teaching Behaviors

Teacher (Subjects)	Child Requests		Incidental Teaching Steps		
	Mean	Range	Mean	Range	Number Below 80% ^a
A	89.14	(66.6-100)	82.17	(70.0-100)	3 of 9
B	92.34	(66.6-100)	89.57	(70.0-100)	4 of 11
C	90.88	(83.3-100)	97.23	(86.7-100)	0 of 15
D	90.08	(71.4-100)	86.44	(55.5-100)	2 of 10

^aThe percent of agreement for Subject A was below 80% during sessions 24, 26, and 49 for both requests and incidental teaching steps. The percent of agreement for Subject B was below 80% during sessions 2 and 12 (incidental teaching) and sessions 7 and 17 (requests and incidental teaching). The percent of agreement for Subject C was above 80% on all assessments. The percent of agreement for Subject D was below 80% during session 44 (incidental teaching) and session 48 (requests and incidental teaching).

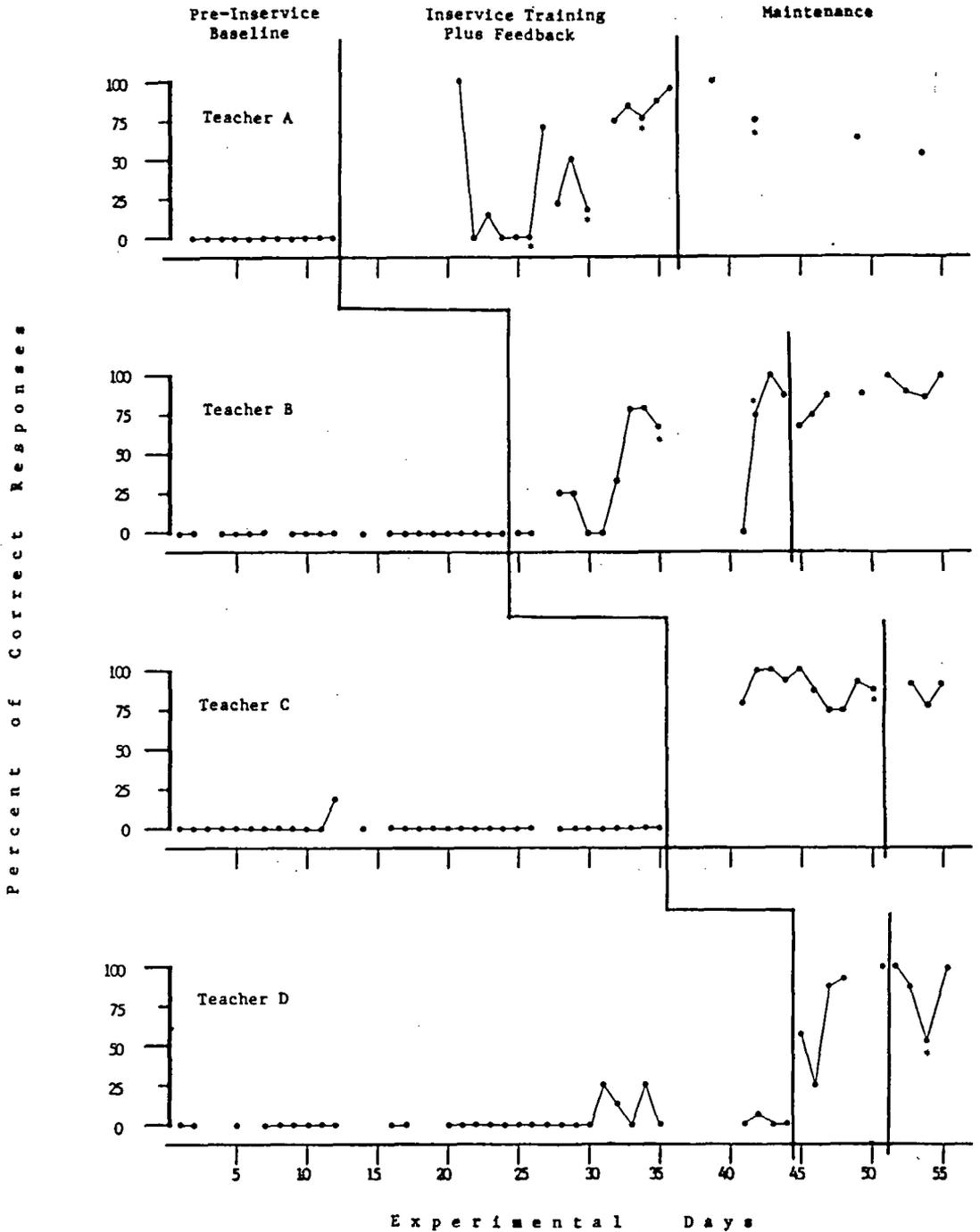


FIGURE 1. The percent of opportunities that each teacher used all the necessary steps of the incidental teaching procedure prior to inservice training, after inservice training plus written and verbal feedback, and during maintenance (i.e., no written feedback). Data points are not connected when subjects were absent, or when school was closed due to inclement weather. Days when verbal feedback was provided to teachers are denoted by an asterisk.

workshop. Verbal feedback was provided after data collection on the 6th, 10th, 13th, and 17th postinservice data days. Verbal feedback appeared to be related to level changes after the 6th and 10th data days. She reached criterion 13 data days after attending the inservice training session. Although she did not maintain the use of incidental teaching at criterion levels when written feedback was withdrawn, her use of the procedure was substantially more frequent than during baseline or during initial days after the inservice training.

Teacher B did not use all the necessary steps of the incidental teaching procedure during baseline, and inservice alone produced only slight changes. Written feedback was initiated after the 5th postinservice data day, and verbal feedback was provided after the 10th and 12th data days. She reached criterion on the 13th and 14th data days. Thus, the combination of inservice training and written and verbal feedback produced criterion-level use of incidental teaching by Teacher B.

Teachers C and D both reached criterion during the days immediately following inservice training. The data for Teacher C indicate an abrupt level change that was main-

tained until the termination of the study. The data for Teacher D indicated both level and trend changes. Although written feedback was given to these subjects on the 5th and subsequent data days after inservice training, it was not needed to establish initial criterion-level use of the incidental teaching procedure. Verbal feedback was provided once for each of these subjects; it was given on the 10th postinservice training data day for Teacher C and on the 8th postinservice data day for Teacher D.

The data in Figure 1 indicate that all four teachers reached criterion-level use of incidental teaching during 20-min free-play sessions in their classrooms. The inservice training and feedback procedures resulted in clear changes in their use of the technique. The data indicate the percentage of opportunities in which the teachers used *all* the necessary steps of the incidental teaching procedure.

As measured in this study, the incidental teaching procedure had six steps: Focus, verify, request elaboration, model, confirm, and provide access. Thus, it was possible for teachers to use some but not all of the six steps. The teachers's use of each step is described in Table 3. From an analysis of this

TABLE 3
Teachers Mean Percentage of Use of Individual Incidental Teaching Behaviors

Teacher (Subjects) Condition	Incidental Teaching Behavior					
	Focus	Verify	Elaborate	Model	Confirm	Access
Teacher A						
Prior to Inservice Training	96.96	85.65	7.36	0.00	3.54	82.09
After Inservice Training	100.00	99.00	68.63	56.66	53.27	92.54
Teacher B						
Prior to Inservice Training	100.00	97.89	8.94	0.00	2.18	84.63
After Inservice Training	100.00	100.00	66.54	57.45	63.65	90.33
Teacher C						
Prior to Inservice Training	100.00	100.00	19.47	0.51	3.22	93.09
After Inservice Training	100.00	100.00	98.46	88.42	96.59	99.23
Teacher D						
Prior to Inservice Training	99.34	69.73	14.57	1.83	8.55	81.06
After Inservice Training	97.77	99.77	81.78	78.95	78.34	93.41

"After Inservice Training" is used to note *when* the data presented in this table were collected rather than to identify the variable that produced the changes in the data.

table it is clear that during baseline conditions the teachers focused on children when requests were made, usually verified the content or topic of the request, and frequently provided access to the requested object, action, or assistance. However, they rarely asked for elaborations of the request, used models, or provided confirmation. Thus, during baseline they apparently were attending to children's requests and were responding to the content of those requests but were not using them as teaching opportunities. Following inservice training and implementation of feedback procedures, teachers used the six steps more consistently. In all cases, the percent of opportunities in which teachers requested elaborations, used models, and provided confirmation increased considerably. Thus, during baseline, teachers used some of the steps of the incidental teaching procedure but not all of them; following training and feedback, they were more likely to use all steps of the technique.

Although the focus of this study was on changing teacher behavior, the number of child requests was monitored. For all four classrooms, the mean number of daily requests increased slightly following inservice training and during feedback conditions. However, in all cases this change was slight. Fourteen of the 19 children who were present during both phases of the experiment increased their mean number of requests per day after their teachers received inservice training. Five children made less than one request per day during baseline conditions; all these children increased their mean number of requests per day as their teachers began to use incidental teaching. Four of these five children more than doubled their mean number of daily requests, and the remaining child nearly doubled his rate of requesting.

DISCUSSION

The purpose of this investigation was to determine whether a 2-hour inservice training session, daily written feedback, and intermittent verbal feedback would increase Head Start teachers' use of the incidental teaching procedure. As indicated above, these procedures were effective with all four teachers. Two of the teachers (C and D) appeared to

need only the inservice training session, but Teachers A and B showed no immediate effects of the training and appeared to use the procedure only after feedback was provided. Interestingly, teachers who displayed some instances of incidental teaching during baseline (C and D) were also those who did not require feedback to reach criterion levels. Further, it is clear that the teachers demonstrated some steps of the incidental procedure but did not appear to use the parts (requesting elaborations, using models, and providing confirmation) that may be most effective in teaching more complex language skills. With training and feedback, however, all teachers used all of the steps consistently.

This study raises several issues that require additional research and consideration. First, although incidental teaching is a natural teaching strategy (Halle, Alpert, & Anderson, 1984), its use is not easily measured. The experimenter experienced considerable difficulty in training observers to the pre-study criterion, and as indicated in Table 2, some reliability problems existed. Difficulties in measuring incidental teaching include the following: It occurs in natural settings where a number of distractors are present, it involves a number of steps that can be exhibited by a number of different behaviors, the duration of these behaviors is minimal, and the behaviors may occur in a rapid sequence. Thus, investigators interested in studying teachers' use of the procedure should consider using multiple observers and recording the interactions with video equipment.

Second, the investigation showed that typical Head Start teachers could acquire and use the incidental teaching procedure with minimal inservice training and feedback. As in previous research with staff development, it is clear that the feedback was needed by some teachers for successful behavior change (Madle, 1982). Two of the subjects may not have used the procedure if they had not been given feedback on their lack of use. This finding suggests that developing and implementing staff development activities should include some type of feedback on staff behavior change. The type of feedback used in the current investigation was fairly cost-effective in that it simply required observation of teaching activities and giving written and intermittent verbal feedback.

Third, on the basis of data from this investigation, inservice programs for training teachers to use incidental teaching should emphasize procedures for requesting elaborations of child language, use of models, and use of confirmation. If these subjects are typical of other teachers, they appeared to focus on children when requests are made, to verify the content or topic of children's requests, and to allow access to requested objects, activities, or assistance. Without training, they did not use the steps of incidental teaching that may control its effectiveness as a language instruction procedure.

Finally, future research should address the effects of incidental teaching on children's rate of requesting as well as on the content of their requests. As noted above, all children who rarely initiated requests during baseline conditions increased their rate of requesting; four of the five children more than doubled their previous rate. The use of incidental teaching with socially withdrawn children should be investigated. Likewise, peer use of the procedure with such children should be considered and investigated.

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The Division for Early Childhood (DEC) of the Council for Exceptional Children will hold its third Annual National Conference on Young Children with Special Needs and Their Families, November 1-3, 1987, at the Denver Marriott, Denver, CO.

For further information, contact: Early Childhood Conference, % Early Childhood Research Institute, 3811 O'Hara Street, Pittsburgh, PA 15213, or call (412) 431-3371.
