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EXAMINING THE EFFECTS OF A SELF-STUDY PACKAGE ON TEACHERS'  
USE OF COINCIDENTAL TEACHING  
IN PRESCHOOL CLASSROOMS

by

Laurie A. Dinnebeil

A dissertation submitted in partial fulfillment  
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Special Education

Approved:

UTAH STATE UNIVERSITY  
Logan, Utah

1994

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Laurie A. Dinnebeil

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## ABSTRACT

Examining the Effects of a Self-Study Package  
on Teachers' Use of Coincidental Teaching  
in Preschool Classrooms

by

Laurie A. Dinnebeil, Doctor of Philosophy

Utah State University, 1994

Major Professor: Dr. Sarah Rule  
Department: Special Education

This investigation examined the effects of a self-study package on three early childhood special education teachers' use of coincidental teaching with preschool children with, or at risk for, disabilities. The results of this investigation showed that all teachers performed better on a posttest than a pretest measure for knowledge of coincidental teaching. Teachers were also able to complete a series of written assignments pertaining to coincidental teaching. Increases in coincidental teaching knowledge, however, were not accompanied by changes in coincidental teaching behavior for two of the three teachers. Participating teachers reported satisfaction with the self-study package as an instructional format and with coincidental teaching as an instructional strategy to use with young children.

(261 pages)



## CHAPTER I

### INTRODUCTION

As a result of the federal mandates of P.L. 99-457, states must provide educational services to children, aged 3 to 5, with disabilities. Bailey (1989) stated: "The passage of Public Law 99-457, The Education of the Handicapped Act Amendments of 1986, exemplifies an external force that undoubtedly will increase the need for qualified professionals from several disciplines and influence the way those professionals are prepared at both the preservice and inservice levels" (p. 98). States must now employ early childhood special education (ECSE) teachers who are "appropriately and adequately prepared and trained" (p. 98). As a result, many experts have documented a critical shortage of service providers qualified to meet the needs of young children with or at risk for disabilities (Bailey, 1989; Campbell, 1990; McCollum, 1987; McCollum, McLean, McCartan, & Kaiser, 1989).

#### Training Needs of ECSE Teachers

In examining the training needs of ECSE teachers, experts have argued that the ages and special needs of young children with disabilities necessitate specialized training for teachers of these young children (McCollum et al., 1989). McCollum et al. stated:

There is a growing recognition that ECSE is not simply an extension of either [early childhood education or special education], but also does not represent an additive combination of the two. It integrates these two fields within a strong child development framework in a manner that is interactional rather than additive: Programs for young children with special needs and the knowledge and skills of early childhood special educators must reflect an understanding of the interrelationships between the characteristics of the developing young

child, any disabilities or special needs manifested by that child, and elements of the child's environment that may support or impede the child's development and learning. (p. 199)

Furthermore, given the movement towards inclusion of children with disabilities into regular education, training efforts should focus on preparing service providers to teach all children, regardless of ability in the same classroom (Stayton & Miller, 1993).

### Recommended Curriculum and Instruction Practices in ECSE

Teachers' training should address currently recommended practices in the field. These recommended practices differ in many ways from best practices in general special education (McDonnell & Hardman, 1988; Wolery & Sainato, 1993). For ECSE, this means instructional strategies should be age appropriate for young children and should focus on functional skills taught in natural environments (i.e., routine preschool activities such as free play time). To the extent possible, intervention with young children with disabilities should be normalized; intervention strategies should be minimally intrusive and the intervention should be conducted in environments that closely resemble normal environments for young children (Bailey & McWilliam, 1990; Wolery & Sainato, 1993).

Naturalistic teaching strategies. One group of strategies that reflects recommended practices are those that are called "naturalistic" or "milieu" teaching. (For the purposes of this investigation, the terms "naturalistic" and "milieu" will be used interchangeably because they are used as such in the literature.) One of the

most appealing features of naturalistic procedures is that they can be used in children's everyday environments, thereby minimizing the need for specific programming to generalize skills learned to other settings. Teaching skills in such settings may also promote the use of functional skills and lessen the need for reinforcement not intrinsic to the activity (Noonan & McCormick, 1993). While a number of strategies are included under the umbrella of "naturalistic" teaching (e.g., incidental teaching, naturalistic time delay, mand-model), this investigation will focus on coincidental teaching, a modified incidental teaching approach that incorporates the use of teacher mands (requests to verbalize or directions for nonverbal responses) and response prompting strategies for children who do not initiate interactions with adults.

What is coincidental teaching? Coincidental teaching is a planned naturalistic teaching strategy that capitalizes on both child and teacher initiations. Teachers use coincidental teaching with specific skills that have been targeted for intervention. A coincidental teaching episode has four main components: (a) a child initiation or teacher initiation that is embedded within the context of the activity, (b) a teacher prompt for an elaborated response, (c) the provision of a consequence indigenous to the context of the activity, and (d) the monitoring of the child's response (i.e., data collection). In addition, a teacher may or may not begin an episode by "setting up" an opportunity to increase the likelihood that the child will initiate a response.

Figure 1 depicts how a coincidental teaching episode proceeds.

Coincidental teaching has been demonstrated to be effective in increasing

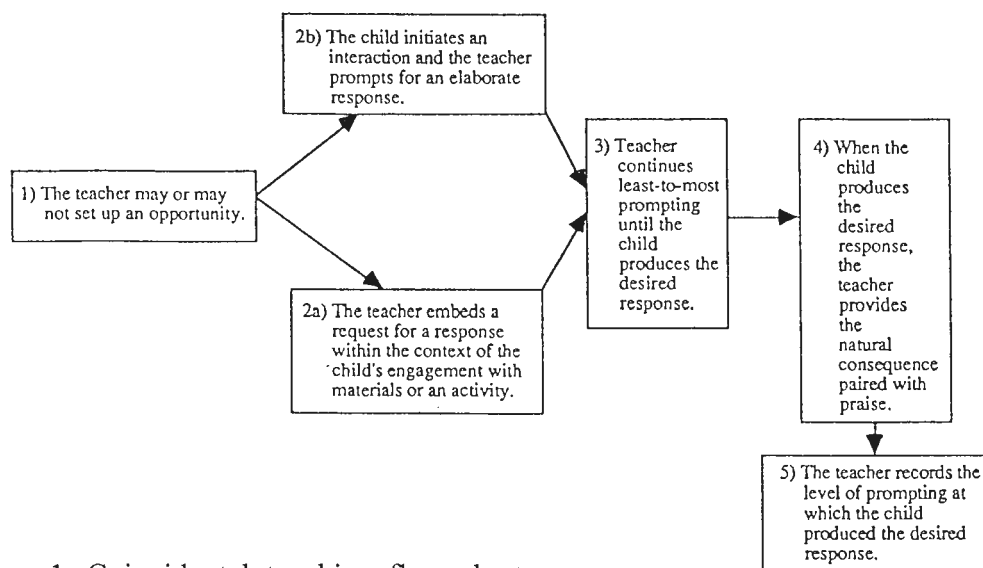


Figure 1: Coincidental teaching flow chart.

language and social skills of young children with disabilities (Stowitschek et al., 1986; Schulze, 1989). If teachers could be instructed to use coincidental teaching, they would gain a potentially effective instructional skill useful for teaching children specific skills in natural environments.

### Roots of Coincidental Teaching

Coincidental teaching combines elements of several naturalistic teaching procedures (i.e., incidental teaching and mand-model). Naturalistic teaching strategies are rooted in the field of applied behavior analysis and make use of specific response prompting strategies (Wolery & Fleming, 1993). Wolery and Fleming described "response prompting" as those procedures which are "designed to transfer stimulus control from controlling stimuli (i.e., response prompts) to natural or target stimuli" (p. 117). They described response prompting strategies as sharing three common characteristics. First, the teacher assists or prompts the child to

perform a target behavior within the presence of a controlling stimuli. For example, if the target behavior is requesting an object, then the object is present when the prompt is given (e.g., the teacher holds up a cookie and tells the child, "If you want a cookie, say 'want cookie.'"). Second, a consequence is provided contingent upon the child's performing the target behavior (or an adequate approximation of the target behavior). Finally, prompts or assistance to the child are systematically faded so the child produces the target response without assistance from the teacher.

System of least prompts (SLP). The system of least prompts is one of the most widely used of the response prompting strategies (Wolery & Fleming, 1993). Procedurally, Doyle, Wolery, Ault, and Gast (1988) described SLP as follows: Before instruction begins, the teacher analyzes the target skill and identifies prerequisite and component skills, as well as the child's ability to respond. To begin the procedure she presents a target stimulus. For example, a cookie may be the target stimulus. If the child responds independently to the target stimulus (says, "Want cookie"), she is reinforced with the cookie. If the child fails to respond or responds incorrectly, the teacher provides the first level of prompting with more intensive prompts delivered as needed until the child responds correctly. Levels of prompting include verbal, gestural, model, and physical. The purpose of SLP is to transfer stimulus control from the artificial stimulus (i.e., the prompt "If you want a cookie, say 'Want cookie.'") to the target stimulus itself (the cookie) (Doyle et al., 1988). Inherent in this approach are fading prompts so the child learns to respond independently (Billingsley & Romer, 1983). The system of least prompts has been

demonstrated to be effective in helping children acquire a variety of skills (Doyle et al., 1988).

### Naturalistic Teaching Strategies: An Overview

The terms milieu or naturalistic teaching strategies encompass a number of strategies that share certain procedural components (Kaiser, Yoder, & Keetz, 1992). First, with each strategy the adult takes advantage of the child's interest to provide the context for intervention. Second, with each strategy the adult uses multiple opportunities that naturally occur within the child's environment, to prompt for elaborated language responses. Third, systematic prompting strategies are used to elicit elaborated responses from children. Finally, consequences indigenous to the context of the child's activity are used as possible reinforcers for elaborated responses. The types of strategies described as naturalistic include naturalistic time delay (Halle, Marshall, & Spradlin, 1979), incidental teaching (Hart & Risley, 1968; 1975; 1980), and mand-model (Rogers-Warren & Warren, 1980; Warren, McQuarter, & Rogers-Warren, 1984). Each of these strategies will be described in greater detail below.

### Naturalistic Time Delay

Both naturalistic or progressive and constant time delays are prompting strategies rooted in the work of Touchette (1971) and investigated by Halle and his colleagues (Halle et al., 1979) and other researchers (e.g., Snell & Gast, 1981; Gast, Ault, Wolery, Doyle, & Belanger, 1988; Wolery, Ault, Gast, Doyle, & Griffen,

1990). Wolery, Ault, and Doyle (1992) described three basic steps when using a time delay procedure. First, the teacher identifies the responses with which the child will need assistance and the settings in which those responses are most likely to be needed. Second, the teacher makes him- or herself available for assistance at times during which these responses will be needed. Finally, the teacher makes assistance contingent upon the an appropriate response and systematically waits for the child to exhibit a desired response. For example, Maria might need to learn how to request objects. Snack time would naturally be a time that Maria might need assistance in requesting objects, so the teacher would make herself available to Maria during snack time. To help Maria request a drink, the teacher would give Maria juice contingent upon an appropriate response (i.e., "I want juice."). She would help Maria respond appropriately by prompting her to say "I want juice," but would systematically delay her assistance until Maria had an opportunity to respond independently. Using the time delay procedure, she would look expectantly at Maria, waiting for her to respond before delivering the controlling prompt ("What do you want?"). When the procedure is first implemented, the teacher delivers the controlling prompt ("What do you want?") while simultaneously presenting the controlling stimulus (the juice pitcher). Then she models the desired response ("I want juice.") and consequences contingently the child's response (pours a drink of juice and gives it to the child). As instruction continues, the amount of time that elapses between the controlling stimulus and the controlling prompt is increased.

Effectiveness of time delay strategies. Time delay procedures have been

successfully used to teach persons with disabilities a wide range of both discrete and chained skills (e.g., Alig-Cybriwsky, Wolery, & Gast, 1990; Halle et al., 1979; Snell & Gast, 1981). In fact, in some studies, time delay procedures have been found to be more efficient at helping individuals with disabilities learn new skills than other response prompting strategies such as the system of least prompts (e.g., Gast et al., 1988; Wolery et al., 1990).

### Incidental Teaching

Incidental teaching is perhaps one of the most widely used and researched of the naturalistic teaching procedures. Developed in 1968 by Hart and Risley to facilitate generalization of communication skills by disadvantaged preschoolers, the procedure capitalizes on children's initiations to adults in the context of routine, daily activities. An incidental teaching episode begins with (a) the caregiver targeting a specific skill or target response for intervention and (b) arranging the child's environment to increase the probability that the child will initiate an interaction. When the child does initiate an interaction, the caregiver (c) systematically prompts the child for a desired response. Finally, (d) the teacher provides a consequence indigenous to the activity and contingent upon the child's response. For example, the caregiver may introduce a new toy to the child, keeping the toy within the child's sight, but out of her reach (e.g., on a high, open shelf) so that the child will have to ask for the materials. The child's initiation is used as the opportunity to elicit an elaborated response from the child. When the child points to the inaccessible toy, the caregiver requests an elaborated response from the child



("What do you want?"). The caregiver continues prompting the child (usually using the system of least prompts) until the child produces the desired response. When the child does produce the desired response ("Want truck"), the teacher gives the child the truck. Incidental teaching episodes are brief and positive in nature. Warren and Kaiser (1986) stated that if a child does not produce a desired response after the teacher delivers two specific prompts, the teacher provides the child with the materials or assistance she needs.

Theoretical roots of incidental teaching. Incidental teaching is consistent with the methods of applied behavior analysis and the philosophies of *developmentally appropriate practices* (DAP, Bredekamp, 1987). As with other instructional strategies, incidental teaching relies on providing systematic instruction through the processes of shaping, modeling, and functional reinforcement (Kaiser, Yoder, & Keetz, 1992). Incidental teaching, however, is also consistent with what has been termed developmentally appropriate practices in that the purpose is to provide children with meaningful opportunities to talk. When she is using incidental teaching, the caregiver follows the child's lead and uses the child's interest in materials to create an occasion to use language. Because it is consistent with what are sometimes opposing theoretical bases, such as DAP- and ECSE-recommended practices, incidental teaching has great appeal across the fields of early childhood education and early childhood special education.

Research on incidental teaching: Skill generalization. As described earlier, incidental teaching was first developed to facilitate the generalization of new

language forms by disadvantaged preschoolers (Hart & Risley, 1968). In this first study, Hart and Risley demonstrated that incidental teaching could be use to help preschool children learn to use language skills in settings other than the instructional setting. This was done by arranging the classroom environment (by placing certain toys out of reach) and providing access to the toys contingent upon children's appropriate use of language. Hart and Risley's later work (1975; 1980) also demonstrates the effects of incidental teaching as a way to give children more practice in using language as a method of communicating their needs.

Other researchers have examined the effectiveness of incidental teaching on skill acquisition (not skill generalization) with children who had disabilities (e.g., Cavallaro & Bambara, 1982; Cavallaro & Poulson, 1985; Dolley & Wheldall, 1991; Valdez-Menehaea & Whitehurst, 1988). Cavallaro and Bambara compared the effectiveness of incidental teaching with a question-labelling procedure for a preschool boy with a severe language delay (1982). The dependent measures for this investigation were (a) the rate of two-word requests emitted by the child in a free-play setting, and (b) the overall rate and complexity of language produced by the child in free play. The question-label procedure was one that had been developed by the child's teachers in the classroom. Using an alternating treatments design, Cavallaro and Bambara found that the incidental teaching method produced stronger increases in the child's use of novel two-word requests and language complexity. However, this procedure was only used with one child and the effects would need to be replicated before any firm conclusions could be drawn.

In another investigation, Cavallaro and Poulson (1985) taught new verbs and the sentence form (I + verb + object) at lunch and free play to preschoolers with disabilities by training the teachers to use incidental teaching. As children asked for various objects, teachers prompted them to use a new verb or a desired sentence form; for example, "I want a cookie" or "I painted a picture." The consequence for responding was either teacher praise, teacher attention, or a natural reinforcer (e.g., a cookie). Cavallaro and Poulson effectively taught teachers to use this strategy within the context of everyday activities; they did not set aside special structured times to teach the children to use new verbs and sentence forms.

Using incidental teaching to teach social skills. In addition to language skills, incidental teaching has also been used to help children learn and practice a variety of appropriate social skills (Brown, McEvoy, & Bishop, 1991). Brown et al. (1991) described a study conducted by Nordquist, Twardosz, and McEvoy (cited in Brown et al., 1991) in which peer interactions by children with autism were promoted using incidental teaching procedures. Brown et al. (1991) provided a strong rationale for using incidental teaching to improve peer interactions of preschool children:

Because teachers can implement incidental teaching of social behavior with young children within the context of common classroom activities, the tactic may be more practical and efficient than many traditional social skills remediation techniques. (p. 36)

#### Arranging the Environment to Increase Children's Initiations

As previously described, preceding an actual teaching opportunity, the caregiver may physically arrange the child's environment to increase the likelihood

that the child will initiate an interaction. Ostrosky and Kaiser (1991) described a number of ways in which caregivers may physically arrange the environment to encourage children to initiate. In addition to placing materials out of children's reach, caregivers can withhold or block access to materials. For example, if a teacher is passing out a snack to a group of children, she might "accidentally" forget to give the target child a snack in the hopes that the child will then ask for one. The teacher may make comments, ask questions, or do absurd things that violate a child's expectations in the hopes that the child will initiate a response. For example, the teacher or caregiver may attempt to dress a doll by putting the doll's shoes on the doll's hands. Another environmental manipulation involves providing a number of different kinds of materials and asking children to choose between them. For example, a teacher may set up an art activity and provide three or four colors of paint. She may then withhold access to the paint and provide it contingent upon the child telling her what color paint he wants. Finally, a teacher may give a child materials or objects for which the child requires adult assistance to operate. For example, she may put beads that she knows the child likes in a jar with a tightly screwed-on lid: In order to play with the beads, the child must first ask for help from the teacher, thereby initiating an interaction and providing an opportunity for the teacher to ask for an elaborated response. While other researchers have described environmental manipulations using slightly different terms (e.g., Bricker & Cripe, 1992; Deer, Rowland, & Rule, 1993; Noonan & McCormick, 1993), the

concept is the same--the teacher tries to increase the probability that the child will initiate an interaction.

In summary, incidental teaching is an instructional strategy that has been effectively employed to help children to learn and practice a variety of language and social skills. However, because it relies solely on a child's initiations as opportunities to provide instruction, it may not be effective for children who rarely initiate interactions. Research has shown that children with disabilities are less likely to interact with objects or individuals in their environment and are less likely to be actively engaged with objects or people in their environment (Bailey & Wolery, 1992). Hence, the incidental teaching strategy has been modified to allow teachers or caregivers to initiate interactions with children, thereby creating more opportunities for instruction to occur.

#### Modified Incidental Approaches: Mand-Model

As previously described, when instructional opportunities are initiated and thus controlled by the child, there may be insufficient instructional opportunities for children who initiate interactions at very low rates. To compensate for this, Rogers-Warren and Warren (1980) investigated the effectiveness of the mand-model procedure, a modification of incidental teaching. As with all naturalistic procedures, instruction occurs within the context of the child's interest with materials or an activity. However, while an incidental teaching episode begins with a child's initiation, a mand-model episode begins with the caregiver initiating an interaction by "manding," i.e., requesting a verbal response from the child, thus creating an

opportunity for the child to use language. If the child is unable to produce the desired response, the caregiver systematically prompts him until he does respond appropriately. Contingent on the child's appropriate response, the teacher then delivers a consequence indigenous to the child's interest. For example, a teacher may interrupt a child who is playing with play dough and say, "Tell me what you are doing," thus creating an opportunity for the child to use language. The child may or may not respond appropriately. If the child does respond appropriately, the teacher praises the child. If the child does not respond appropriately, the teacher models the response for the child and prompts the child to imitate the response (e.g., "Say, I'm playing with play dough.") After the child successfully imitates the response, the teacher provides a consequence. It is important to note that instruction occurs within the context of the child's activity. As with incidental teaching, the purpose of the mand-model procedure is to give children frequent opportunities to use language.

Research on the mand-model procedure. In two separate experiments, Rogers-Warren and Warren (1980) and Warren et al. (1984) investigated the effects of the mand-model procedure on children's language use. In the Rogers-Warren and Warren (1980) study, the mand-model procedure was used in conjunction with formal individualized language training programs for the target children. Formal language training was provided out of the classroom and was used throughout all phases of the study. The dependent measures in the 1980 study were: (a) rates of verbalization, (b) use of novel language forms, (c) communicative responsiveness of

the children, (d) children's use of trained words and forms, and (e) children's use of untrained words and forms. The results of this study showed increases in all dependent measures. It should be noted, however, that a steadily increasing trend in children's use of untrained words and forms from baseline to intervention may indicate that these increases cannot be attributed to the use of the mand-model procedure.

In the second study Warren et al. (1984) systematically replicated the Rogers-Warren and Warren (1980) study. Dependent measures also included measures of children's language use: (a) children's nonobligatory (unprompted) speech, (b) their responsiveness in obligatory speech situations, (c) the effects of withdrawing the procedure, and (d) general speech complexity, as measured by the mean length of children's utterances (MLUs). As with the first study, the investigators used a multiple baseline design across subjects to examine the effects of the intervention. However, this study differed from the first in that the effects of the mand-model procedure were examined independent of any other language training program. The results indicated that for two out of the three subjects, all dependent measures increased, with the exception of nonobligatory speech. While the greatest changes occurred in children's responsiveness to teacher mands, their total verbalizations also increased. Because increases in children's language use occurred in the absence of a formal language training program, the authors concluded that the approach may be useful as a primary language intervention for some children. The mand-model procedure was also used by McGee, Krantz, Mason, and McClannahan (1983) to

teach children with autism receptive object labels; their use of receptive object label skills generalized across settings.

Modified Incidental Teaching Approaches:  
Coincidental Teaching

Coincidental teaching is a procedure that uses mand-model instruction of a skill in a context of activities conducted for reasons other than teaching the target skill. Coincidental teaching is a systematic form of instruction; teachers target specific skill deficits as the focus for intervention. As with other forms of naturalistic teaching, coincidental teaching coincides with other routine events or activities; teachers use materials in which the child is interested or engaged (as opposed to furnishing materials only for purposes of instruction). A coincidental teaching episode can be initiated by either the child or the teacher. Prior to an initiation, the teacher may manipulate the environment in some way (e.g., "forget" to give the child materials needed to complete a project) to increase the likelihood that the child will initiate an interaction. After the initiation, the teacher prompts an elaborated response from the child and, contingent upon the child's response, provides a consequence appropriate to the context of the interaction.

Research on coincidental teaching. The effectiveness of coincidental teaching has been demonstrated with both communication and social skills. Stowitschek et al. (1985) demonstrated that coincidental teaching was effective in increasing the rates of peer-peer interactions of preschool children with disabilities during structured learning activities.



In a related study, Schulze (1989) demonstrated that teachers' use of coincidental teaching was related to gains in children's social interaction skills. Preschoolers in Schulze's study included children enrolled in Head Start classrooms and in mainstreamed preschool special education classes.

#### Summary: Naturalistic Teaching Strategies

If naturalistic teaching strategies are to be used as part of the curriculum intervention for young children with disabilities, teachers must know what types of goals to target and how to use naturalistic teaching in a systematic manner. Haring and Innocenti (1989) emphasized that when using any type of naturalistic procedure (e.g., coincidental teaching), teachers should first plan for its use by targeting specific skills (e.g., IEP goals) in need of intervention.

The research presented suggests that naturalistic teaching strategies are effective ways of helping children learn to communicate. While there are still questions about whether or not naturalistic teaching does, in fact, promote skill generalization (see Kaiser et al., 1992), researchers agree that naturalistic teaching strategies can enhance children's language or social development. It is reasonable, therefore, to examine ways in which teachers might learn to use naturalistic teaching strategies.

#### Training Opportunities for Inservice Teachers

While preservice students may be exposed to early childhood special education teaching strategies, there are generally few options available for inservice

teachers to gain the skills necessary for effective ECSE instruction. In order to meet state certification criteria and ensure that quality instruction is provided to young children with disabilities, a variety of training alternatives should be available to teachers (Kontos & File, 1993). The availability of training alternatives that reflect teachers' needs is congruent with the teacher empowerment movement inherent in current school reform measures.

In the field of inservice training, Stayton and Miller (1993) identified four logistical and support factors that must be in place for inservice training to be effective. First, training should be accessible to participants; i.e., it should be conducted within close geographical proximity and without undue financial burden to participants. Second, inservice training should not interfere with participants' job requirements. Inservice training should have administrative support and, finally, should occur within the context of team activities to ensure implementation.

Learning through self-study might be one alternative to providing training to busy teachers. If teachers are able to complete self-instruction modules at their own pace, they might be more inclined to take advantage of the training opportunities necessary to meet certification needs. Any self-instruction package utilized should contain teaching methods that have been shown to be effective (e.g., discrimination training, modeling, practice, and feedback to the learner).

### Purpose of the Study

The purpose of this study was to examine the effects of a self-study package that combines didactic training, modeling, discrimination training, practice, and

feedback on three dependent variables: (a) teachers' use of a specific naturalistic instructional strategy (i.e., coincidental teaching) during routine preschool activities, (b) changes in behavior that might be attributed to completing this package, and (c) participants' attitudes towards two components of this study, self-instruction as a method of providing inservice training, and the use of coincidental teaching in the classroom.

### Research Questions

The research questions described below address two basic issues: (a) whether teachers can learn to use coincidental teaching through a self-study package, and (b) given that teachers can learn to use coincidental teaching by completing the self-study package, does that learning lead to behavior changes in the classroom? That is, do teachers use coincidental teaching more in routine preschool activities after completing the self-study package? Also, because coincidental teaching focuses on instruction that is related to children's specific IEP goals, does the proportion of time spent in goal-related interactions increase as a result of completing this package? Third, is a self-study package a socially valid method of delivering information? Do participants find coincidental teaching feasible to use? The specific research questions for this investigation are:

1. How do teachers who complete a self-study package on coincidental teaching perform on:

- (a) written assignments (assessing knowledge change) and
- (b) assignments to videotape themselves using coincidental teaching

(assessing behavioral proficiency)

when the package includes:

- (a) written assignments,
- (b) practice using coincidental teaching, and
- (c) instructor feedback?

Specifically, after completing the self-study package and receiving instructor feedback, do teachers demonstrate knowledge of coincidental teaching through written assignments, including:

- (a) identifying functional skills targeted for intervention during snack time and free play,
- (b) setting up opportunities within snack time and free play to address children's target skills,
- (c) discriminating between videotaped examples and nonexamples of prompting and praising,
- (d) discriminating between videotaped examples and nonexamples of coincidental teaching,
- (e) developing written coincidental teaching plans to address children's target skills.

Also, can teachers demonstrate proficiency by using coincidental teaching (as portrayed in practice videotapes)?

2. What are the effects of the self-study package on teachers' use of coincidental teaching during free play and snack time, immediately after training and

over time? That is, after completing the self-study package, does the rate of coincidental teaching episodes (i.e., interactions that contain all components of coincidental teaching) change? Finally, does the length of time spent in goal-related instruction increase after teachers complete the self-study package?

3. How do teachers who complete the package rate coincidental teaching in terms of:

- (a) its effectiveness,
- (b) ease of use,
- (c) the frequency with which they use it in their classrooms, and
- (d) the coincidental teaching components (e.g., setting up opportunities, prompting, providing natural consequences) that are the easiest and most difficult to implement?

Additionally, in terms of the self-study package, how do teachers rate their: (a) satisfaction with the instructional delivery format (e.g., self-instruction as compared to a traditional university class or practicum experience) and (b) satisfaction with the components of the instructional package (e.g., didactic training, modeling, practice, and instructor feedback)?

## CHAPTER II

### REVIEW OF THE LITERATURE

The purpose of this chapter is to review the literature relevant to this investigation. Hence, two fields of research will be reviewed: (a) specific studies in which adults (mothers or teachers) learned to use specific types of naturalistic procedures, and (b) effective teaching procedures for adult learners (e.g., discrimination training, modeling, practice, and feedback). Throughout this review, the term "adult" is used because one study (Alpert & Kaiser, 1992) used mothers as subjects.

#### Training Adults to Use Naturalistic Procedures

In addition to assessing the effectiveness of naturalistic teaching approaches with young children, researchers have also examined the effectiveness of training programs designed to help adults learn to use various types of naturalistic strategies. Table 1 provides studies whose purpose was to examine the effectiveness of training adults to use naturalistic procedures. Also included is a more detailed analysis of each study.

Halle, Baer, and Spradlin (1981). These researchers examined the effectiveness of training teachers to use time delay for experimenter-identified training opportunities. Halle et al. taught two teachers who worked in the same classroom to use time delay for specific opportunities during free play, snack, and lunch activities. Training consisted of didactic training and modeling. Halle et al.

Table 1

Summary of Caregiver Training Studies

Reference	Teachers	Students	Teacher DV	Child DV	Description of Training	Research Design	Results
Halle, Baer, & Spradlin (1981)	Two special education teachers with 3-4 years of experience.	Six children, 3-5 years with developmental delays who attended integrated preschool class containing 11 children.	Teacher use of time delay opportunities during snack, free play, and lunch.	Child vocal initiation made in response to teacher delay.	Hour meeting in which experimenters modeled use of delay, identified and explained delay opportunities, and requested teacher to use delays.	Multiple baseline across children. Experimenters used different observation system during maintenance.	Increases in child vocal initiations. The percent of delays used increased when training was introduced.
Haring, Neetz, Lovinger, Peck, & Semmel (1987)	Three certified special education teachers (severe) with 3-6 yrs. experience.	21 students between 5 and 13 yrs. (mean CA = 10 yrs.) with moderate to severe MR or autism.	Opportunities for child communication as measured by use of 4 modified incidental techniques during classroom transitions.	Student correct responding to teacher-initiated opportunities (both prompted and spontaneous).	Self-instruction manual that combined didactic training and self-management component (teacher planning sheets).	Multiple baseline across teachers. Did not assess maintenance or generalization.	Increases in use of techniques for 2 of 3 teachers. For students, responses to teacher-initiated opportunities increased.

(table continues)

Reference	Teachers	Students	Teacher DV	Child DV	Description of Training	Research Design	Results
Mudd & Wolery (1987)	Four Head Start teachers with 8-12 yrs. experience.	20 children between 4-6 yrs. who had language or cognitive deficits.	Percentage of child requests for which teachers used 6-step incidental teaching procedure during free play.	Child requests for materials, information or assistance (opportunities for incidental teaching).	Inservice training session followed by intermittent written feedback after classroom observations. Training included didactic training, role-play, peer discussion, written handouts, and visual examples (slides). Knowledge criterion on posttest needed to be judged competent. For some teachers, individual verbal feedback was needed.	Multiple baseline across subjects. Observers recorded components of incidental teaching in sequential manner.	Two teachers increased use of incidental teaching without verbal feedback. Other two teachers needed verbal feedback to increase incidental teaching use. Increases maintained 1-4 weeks after intervention ended.

(table continues)



Reference	Teachers	Students	Teacher DV	Child DV	Description of Training	Research Design	Results
Pearson, Pearson, Fenrick, & Greene (1988)	Four teachers, two regular preschool teachers and two ECSE teachers.	Five children between 4-5 yrs. All had cognitive and language delays.	(a) Rate of initiations to target children; (b) Proportion of total initiations given to different types of naturalistic approaches (e.g., model, mand-model, time delay). Measured during snack time.	(a) Word rate; (b) Mean length utterance; (c) Mean number of words per utterance; (d) Syntactic maturity; (e) Percent of initiations by other adults and peers to which target responded.	2-hour training session during which teachers were shown baseline data and intervention goals. Teachers given oral and written instructions to increase rate of DV. Feedback on intervention data given once.	Group design. Used $t$ or $z$ tests for related measures to compare baseline and intervention data. Did not assess maintenance or generalization.	Mean rate of initiations did not increase. Proportion of different types of initiations did increase.
Peck, Killen, & Baumgart (1989)	Three regular preschool teachers who had no special education training.	Three children with cognitive or language delays between 3 and 5 years.	Teacher prompts and consequences related to target IEP behaviors.	Target behaviors on children's IEPs.	Individual consultation with teachers during which teacher identified ways in which IEP instruction could be embedded in structured group activities. Included teacher self-evaluation and positive feedback from consultant.	Multiple baseline across teacher-child dyads. Measured generalized use of IEP instruction in nontraining setting.	Increases in prompts and consequences for all teachers in training setting. One teacher showed slight increase. Increases for two teachers in generalization setting.

(table continues)

Reference	Teachers	Students	Teacher DV	Child DV	Description of Training	Research Design	Results
Schwartz, Anderson, & Halle (1989)	Four teachers who taught in one classroom for children with severe disabilities. Teachers had some experience in behavior modification techniques.	Three students, aged 8-9 with autism or mental retardation and accompanying behavior problems.	(a) Use of training opportunities for time delay; (b) Missed training opportunities for time delay; (c) Use of generalized opportunities for time delay; (d) Other verbalizations directed to students that were requests for language. DVs measured during transitions.	(a) Responses to time delay only; (b) Rate of spontaneous speech; (c) Responses to teacher prompts used after time delay.	30-minute meeting outside of class for all teachers together. Phase 1 training included didactic methods, modeling, role-playing and discrimination training. Teachers given a list of training opportunities and told to use them and any others they could think of. During Phase 2, teachers practiced identifying novel opportunities for time delay.	Multiple baseline design across types of opportunities. Maintenance and generalization phase (generalize across settings).	Use of training opportunities increased. Phase 2-increases in use of non-training opportunities. Students' responsiveness to time delay increased. Students' utterances decreased and response to teacher prompts were variable.

(table continues)

Reference	Teachers	Students	Teacher DV	Child DV	Description of Training	Research Design	Results
Alpert & Kaiser (1992)	Six low to middle income mothers of preschool boys.	Six preschool boys with language impairments.	Mothers' correct use of 4 milieu training procedures (child-cued modeling, mand-model, time delay, incidental teaching) during home-based structured play session. Measured generalization during 2 non-training sessions.	(a) Mean length utterance; (b) Total words produced; (c) Novel words produced.	Four clinic sessions followed by 30-86 home training sessions which lasted for approximately 1 hour. Training included feedback, discrimination training, and modeling. To move through training program, mothers were required to reach certain performance criteria.	Multiple baseline across mother-child dyads. Generalization measured during 2 settings following home-based sessions.	Mothers' use of each milieu technique increased as a result of training. Correct use of techniques also increased during generalization settings. Mothers had most difficulty learning incidental teaching. Child DVs also increased.

reported increases in the percent of experimenter-identified opportunities for which teachers used time delay during both the intervention and maintenance phases of their study. They also reported anecdotal data that teachers generalized use of time delay to other children and settings. Although the authors reported maintenance of increased use of the time delay procedure, a different measurement system was used to measure maintenance of the effects during a maintenance phase. Also, the settings during which maintenance data were obtained were different from the baseline and intervention settings. Finally, no clear description of training was given. For example, the investigators note that "occasional feedback was given during the first week of intervention," but give no specific procedural descriptions.

Haring, Neetz, Lovinger, Peck, and Semmel (1987). Haring and his colleagues examined the effectiveness of a self-instruction package on teachers' use of four environmental arrangements (or teacher set ups) during daily transition periods. The four setups were: (a) placing materials out of reach, (b) providing students with choices of materials, (c) blocking access to needed materials, and (d) presenting materials out of context (e.g., giving the student a book when he needed a spoon for snack). The training package consisted of didactic materials (e.g., explanations of each setup) as well as planning sheets for writing ways to incorporate the setups during routine transition times. The teachers were told that the planning sheets would be collected 2 weeks after they received the package; however, the investigators did not provide any feedback or correction to the teachers about their planning forms. Neither did they provide any feedback about teachers'

use of the setups during transition times.

Haring et al. examined both preplanned and spontaneous use of teacher setups during the training setting. While teachers' spontaneous use of nonplanned set-ups is evidence of generalization, the investigators did not assess generalization of the training to other classroom activities. Haring et al. reported increases in the use of setups for all teachers. An increasing trend of set-up use was evident during baseline, thereby limiting the degree of confidence in the conclusions for this teacher. The other two teachers, however, showed no such increase. Finally, although teachers' use of environmental manipulations is a central component of incidental teaching, it is difficult to assess the effects of training on teachers' use of setups because identifying teachers' actions as purposeful setups necessitates inferences about teacher behavior. For example, Haring et al. defined placing materials out of reach as "*purposefully* [italics added] placing something out of the student's reach and waiting a minimum of 3 s for the student to request the item before prompting a request" (p. 220). Because there are many reasons why teachers put certain materials in certain places, it is difficult to judge the teacher's intent.

Mudd and Wolery (1987). Mudd and Wolery examined the effectiveness of training five Head Start teachers who taught in different classrooms to use incidental teaching with children who had cognitive or language deficits. They provided a clear description of their training package, which consisted of didactic training, role-playing, peer discussion, and visual examples (slides). They also required that teachers meet a certain criterion on a posttest assessing teachers' knowledge of

incidental teaching. Following the training session, Mudd and Wolery provided daily written feedback to teachers about their correct use of incidental teaching and for two teachers, provided individualized verbal feedback. Using a multiple baseline design across teachers, their results showed clear increases in teachers' use of incidental teaching as measured by the percentage of opportunities (as defined by child requests for materials, information, or assistance) for which teachers used incidental teaching. The Mudd and Wolery study also defined incidental teaching as having a number of components that occurred in a sequential order. Thus, a correct episode of incidental teaching had to contain each component presented in the correct order. This is important because incidental teaching includes more components than simple prompting and consequating. The results of this study provide evidence that teachers can learn to use incidental teaching with young children during routine preschool activities.

Pearson, Pearson, Fenrick, and Greene (1988). These investigators also trained teachers to use a combination of naturalistic teaching techniques and measured their use during preschool snack time. They included four teachers in their sample--two were regular early childhood education teachers and two were early childhood special education teachers. Pearson et al.'s training session was not clearly described. The authors reported that teachers attended a 2-hour group session during which they were shown baseline data on naturalistic teaching use as well as the goals for intervention. They instructed teachers to increase their rates of initiations to children and to increase the proportion of those initiations that

represented models, mand-models, and time delays. These investigators used a group design to measure the effects of training, and consequently there was a threat to internal validity in that the investigators did not employ a control group. They used repeated  $t$  or  $z$  tests for related measures to test for significant differences between baseline and intervention data and found that, although the mean rate of initiations did not significantly increase, there were statistically significant increases in the proportion of different types of initiations. Because the data for all four teachers were pooled, the group design may obscure the results of their intervention. For example, readers are not provided with information about the performance of individual teachers and how the intervention changed performance between baseline and intervention; differences could be attributable to only one teacher who made dramatic gains, while the other three teachers showed no changes in their rates of initiations. These authors did not assess maintenance or generalization of effects, and results from this study should be interpreted cautiously.

Peck, Killen, and Baumgart (1989). Peck and his colleagues investigated the effects of a different type of training, i.e., indirect consultation with regular preschool teachers. Peck et al.'s training consisted of two consultation sessions (in Experiment 1 the consultant was the second author, in Experiment 2 the consultant was a special education teacher in the school district). During the time spent with the teacher, the consultant used a problem-solving approach to help the regular teacher identify ways in which instruction related to children's IEP goals could be embedded in structured learning activities unrelated to the target goals. It is

interesting to note that this was the only study of all those reviewed that focused naturalistic teaching techniques solely on IEP goals of children. The consultant provided positive feedback to teachers for using teacher-identified naturalistic strategies; no corrective feedback was provided. Using a multiple baseline design across teachers, the investigators observed increases in the rates of teacher prompts and consequences that were related to preidentified children's IEP goals. It should be noted that naturalistic instruction was defined simply as prompts and consequences and not as any sequential use of prompting and consequating. Also, while the investigators coded only prompts that were related to children's IEP goals, there is no evidence that these prompts were embedded within the context of the activity taking place. While the authors stated that they selected IEP goals that could be naturally incorporated into the target settings, they did not measure whether, in fact, goal-related prompts were embedded within the context of instruction. For example, the goal for one child might be "answering yes/no questions." A goal-related prompt during a structured learning activity (e.g., sorting objects by color) would presumably be scored if the teacher said, "Are you going to Grandma's house today?," even if the prompt was unrelated to the activity. Given this caution, however, it appears that the consultation approach was an effective way in providing training to teachers.

Schwartz, Anderson, and Halle (1989). In this study, Schwartz and her colleagues investigated the effects of a training package designed to teach teachers how to use the time delay procedure with students who had severe disabilities. The



target setting for this investigation was transition times. Training for this study consisted of a group meeting outside of the classroom during which the investigators explained the time delay procedure and provided a rationale for its use. The investigators gave teachers written materials about time delay and they also modeled the procedure. Then, the teachers engaged in role-playing to practice and discriminate between examples and nonexamples of time delay. It should be noted that all three teachers taught in the same classroom. Perhaps one of the unidentified components of training was peer modeling or peer coaching. During the training session, the investigators gave teachers a list of opportunities for which to use time delay; these were the designated training opportunities. Prior to the study, the investigators had also identified other opportunities for time delay that routinely occurred in the teachers' classroom. These were not told to the teacher, but measured as generalization opportunities.

The authors used a multiple baseline design across three types of opportunities: (a) opportunities that specified identified reinforcers, (b) opportunities that specified materials or actions not identified as reinforcers but required to gain access to reinforcers, and (c) opportunities that specified materials or actions that were not reinforcers, but were components of well-established classroom routines.

During the group training session the investigators gave teachers instructions to use the time delay procedure during the identified type of opportunity and to use time delay whenever they thought it was appropriate. The data showed that rates of time delay use increased for the training opportunities, but not for the generalization

opportunities. When a Phase 2 intervention was implemented and teachers were asked to identify novel opportunities for time delay, use of time delay in generalization opportunities increased. This study again provided evidence that teachers could be taught to use a naturalistic teaching procedure.

Alpert and Kaiser (1992). This study focused on training mothers to use milieu language training (i.e., child-cued modeling, mand-model, time delay, and incidental teaching) with their preschoolers with language impairments. Alpert and Kaiser thoroughly described their training package, which included both clinic-based and home-based training sessions. The components of the training package were didactic training, feedback on performance, and modeling examples and nonexamples of each procedure. Additionally, mothers were required to reach a certain performance criterion before training in the next training technique commenced. The authors provided evidence that each of the six mothers learned to use the milieu procedures. One drawback of this study was the length of time spent in intervention. Intensive home-based sessions were conducted two to three times per week for approximately 17 to 21 weeks. Even though the training was successful in teaching mothers effective language techniques, the length of training might severely limit the number of parents who would be willing to participate.

#### Summary: Training Adults to Use Naturalistic Teaching

The studies included in this review indicated that it is possible to help adults learn to use various types of naturalistic teaching strategies. In all of the studies,

participants increased their use of specific teaching strategies after some type of instruction. For each study, the instruction was multi-faceted and consisted of various types of specific training methods. Table 2 describes the specific training methods employed by each study. Following Table 2 is a discussion of each of the training methods.

Table 2

Specific Training Components in Reviewed Studies

Study	Didactic Training	Modeling and or Role-Playing	Discrimination Training	Feedback (includes self-management)
Halle et al. (1981)	x	x		
Haring et al. (1987)	x			x
Mudd & Wolery (1987)	x	x		x
Pearson et al. (1988)	x			x
Peck et al. (1989)	x			x
Schwartz et al. (1989)	x	x	x	
Alpert & Kaiser (1992)	x	x	x	x

### Effective Training Components in Teacher Training

The following is a discussion of various behavioral components (i.e., didactic training, modeling, discrimination training, and feedback) that have been reported to be effective in helping teachers learn to use naturalistic teaching.

Didactic training. All of the teacher training studies reviewed above used various training components to help teachers learn to use naturalistic teaching strategies. Each of the studies used some form of didactic training, i.e., the presentation of information or knowledge. The method of delivering didactic training differed: Some investigators used written materials, while others relied on presenting information verbally, through lecture or discussion. In a review of the efficacy of training methods used to teach teachers how to use behavioral techniques, Allen and Forman (1984) reported that didactic training is almost always included, but it may not be effective in changing teacher behavior when used independent of any other type of training.

Modeling. Of the studies reviewed above, four also used some form of modeling. Modeling has been shown to be an effective technique in changing teacher behavior (Allen & Forman, 1984; Koran & Snow, 1971; MacLeod, 1987; Madle, 1982). Madle described a study by Watson and Uzzell (cited in Madle, 1982) that relied heavily on modeling to teach staff persons to teach self-help skills to residents with developmental disabilities.

As with didactic training, modeling has been used most often with other training components. Allen and Forman (1984) reported that modeling is often used

with role-playing to produce changes in teachers' classroom behavior. Additionally, the setting in which modeling and/or role-playing takes place may have an effect on behavioral outcomes. Madle (1982) reported that training that includes a modeling component may be more effective if modeling is conducted directly in the trainees' work area (e.g., classroom).

Because modeling has been demonstrated to be an effective training component, some researchers have examined the effects of different media (e.g., written versus filmed) to present behavioral models (e.g., Koran & Snow, 1971). MacLeod (1987) reported that several researchers (e.g., Koran, 1969; Orme, 1966; Young, 1969, all cited in MacLeod, 1987) have found that perceptual modeling is slightly more effective than written models, perhaps because people are more motivated to watch videotapes or television than they are to read written materials. Finally, MacLeod suggested that perceptual models that are labeled or coded for viewers provided clearer examples of the target behavior. Hence, it would make sense to label or briefly describe when modeling the procedure being modeled.

Discrimination training. Another training component related to modeling is discrimination training. Discrimination training requires trainees to distinguish between examples and nonexamples of a phenomenon. Discriminating between examples and nonexamples of a specific teaching behavior is an important component of teaching adult learners (Hargie & Maidment, 1978). Hargie and Maidment reviewed literature on teaching models that contained a discrimination training component. They describe a study by Wagner (1973) that compared the

effects of discrimination training on undergraduate training of "pupil-centered teaching behaviors" (p. 90). Wagner found that students who received the discrimination training performed better than a control group of students who received the same teaching unit without discrimination training.

Feedback. Feedback is defined as "the systematic delivery of consequences for desired performance" (Madle, 1982, p. 77). In his review on staff performance management, Madle distinguished between different types of feedback as informational, self-recording, feedback plus social approval, and feedback plus incentives. This review will focus on the effects of informational feedback to teacher trainees because it is appropriate to use within a self-study package.

Allen and Forman (1984) reviewed studies that employed the use of feedback as a training method and concluded that "feedback procedures appear to have the most evidence of effectiveness..." (p. 28). They also reported that frequent feedback (e.g., every 10 minutes) appears to be somewhat more effective than feedback provided at the end of the day. Given, however, the realities of daily school operations, frequent feedback may not be possible to provide teachers. Similar to the Allen and Forman and Madle reviews are conclusions drawn by other researchers about the efficacy of feedback: Immediate, accurate, and specific feedback enhances teacher behavior (Frager, 1985; MacLeod, 1987).

#### Summary: Effective Training Components

The results of this review indicate that there are a number of empirically validated training methods (e.g., didactic training, modeling, discrimination training,

and feedback) for helping teachers learn to use naturalistic teaching strategies.

While the authors of two reviews on teacher training methods (Allen & Forman, 1984; Madle, 1982) cautioned against the use of any of these techniques used in isolation, used in combination, they can be useful in producing changes in teacher behavior. Thus, in the present research we constructed an instructional package that included didactic training, modeling, discrimination training, and feedback to instruct teachers to use coincidental teaching in routine preschool settings, namely free play and snack time.

## CHAPTER III

## METHOD

Overview of Methodology

Table 3 provides an overview of the methodology used in this investigation. Each section is subsequently described in detail.

Table 3

Overview of the Present Investigation


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Methodology

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Participants:	Three preschool teachers and six target children in each classroom.
Setting:	Free play and snack time in 2 classrooms; free play only in one classroom.
Independent Variable:	Self-study package on coincidental teaching
Dependent Variables:	<ul style="list-style-type: none"> <li>(a) Scores on a pre/posttest</li> <li>(b) Scores on completed teacher assignments</li> <li>(c) Demonstrations of coincidental teaching during videotaped practices</li> <li>(d) Use of coincidental teaching in the classroom</li> <li>(e) Teacher evaluation of coincidental teaching and self-study package</li> </ul>

(table continues)



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## Methodology

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Measurement:	Teacher-completed tests and assignments  Teacher-made videotapes of coincidental teaching assignments  Videotapes of teachers and target children during free play and snack.
Videotape Observation System:	Event recording system that addressed episodes of coincidental teaching (e.g., first teacher initiation, then subsequent prompting, and consequating), and other instructional and noninstructional interactions
Reliability:	Determined as the number of agreements divided by the number of agreements plus disagreements for each target teacher behavior
Experimental Design:	Multiple baseline across subjects
Social Validity:	Addressed through structured interviews with teachers after experimental phase of investigation ended.

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## Participants

Teachers. Three teachers participated in this investigation. To be eligible participants, teachers had to possess certain qualifications. First, they had to be the head teacher in a classroom that served preschool children (ages 3 to 6) with, or at risk for, disabilities. Second, they had to teach in different classrooms in different schools. Third, they had to have daily scheduled time for free play and snack time in their classrooms. Finally, they could have no previous formal inservice or preservice training in coincidental or naturalistic teaching. The investigator told each teacher

that the purpose of the investigation was to examine interactions between teachers and children during routine preschool activities. The specific research questions were revealed to the teachers after the investigation had ended. Teachers were paid \$100.00 at the end of the investigation contingent upon completing the self-study package according to the investigator's timelines and their allowing a technician to videotape during free play and snack time for the length of the investigation. The investigator also told the participating teachers that a technician would return approximately one month after videotaping had ended to videotape free play and snack time on three separate occasions, but they were not told the exact dates when videotaping would occur. There were no additional criteria, such as grades for teachers' performance on the self-study package. Participating teachers are described in detail below.

Erin was a preschool special education teacher in a neighborhood school for kindergarten and preschool children with disabilities. Erin was 27 years old and had a B.S. degree in special education. At the time of this investigation, she had been teaching for 5 of 6 years in an ECSE preschool. Erin was working towards her certificate in early childhood special education. During the previous year she had attended one inservice training program on behavior management offered by the local district. She had no prior experience with coincidental teaching.

Susan was a preschool teacher for a federally funded program for poverty level families at a university-affiliated program in the same city as Erin. While the

children in Susan's classroom did not have identified disabilities, all were at risk for disabilities because of the poverty status of their families. Susan was 43 years old and had a B.A. in child development. She had also earned a certificate in elementary education from another state. At the time of this investigation, Susan had been teaching for less than a year at the preschool. Previous to the investigation, she had been a long-term substitute in a middle school. Susan had not attended any inservice training programs during the 12 months previous to this investigation, nor did she have prior experience with coincidental teaching.

Louise was the third participant in this investigation. She was 24 years old and a preschool special education teacher in a school district approximately 100 miles from the city where the other two teachers resided. At the time of this investigation, Louise had been teaching for less than a year. She had a B.A. degree in special education with a focus on severe and profound disabilities. During the 12 months previous to this investigation, Louise had attended one inservice training program on behavior management. She also had no prior experience with coincidental teaching.

Children. All participating children were between the ages of 3 to 6. Prior to the investigation, the investigator sent letters to parents of children in each classrooms, asking permission to (a) videotape interactions between the children and participating teachers, and (b) release information about children's IEP or instructional goals. Parents were told that the purpose of the investigation was to examine interactions between teachers and children during routine preschool activities.

A copy of this letter is included in Appendix A. All parents of the 11 children in Susan's classroom gave permission for their child to be videotaped. In Erin's classroom, parents of 10 of the 11 children agreed and in Louise's classroom, parents of 12 of the 14 children in the classroom gave permission. For the purposes of this investigation, an effort was made to keep children who did not have permission to be videotaped out of the video camera's range (e.g., a paraprofessional educator played with the children during free play time). If the children did come into an area that was being videotaped, the videotape technician covered the camera lens with her hand until the child left the area.

In order to complete the self-study package, the participating teachers were asked to identify from the pool of children whose parents had returned informed consents, target children in each of their classrooms on whose needs the teacher could focus when completing the self-study package. Only interactions between participating teachers and those children designated as target children were analyzed. Teachers chose children on the basis of their availability for observation, and no other criterion was set. Erin and Susan each were asked to choose three children; Louise chose four children because the children in her classroom did not attend school every day of the week. The investigator then randomly chose three additional children in Erin's and Susan's classrooms and four additional children in Louise's classroom to also serve as target children for two reasons: (a) to ensure that there would be enough children with whom the teacher could interact on a given day, and (b) to help

ensure that the participating children were not selected solely on the basis of their personal characteristics. For example, a teacher might not choose a particular child because that child is difficult to work with. This process resulted in a total of six target children in Erin's and Susan's classroom, and eight target children in Louise's classroom.

In Erin and Louise's classrooms all of the target children had disabilities and current IEPs. In Susan's classroom, each target child had an educational plan that specified instructional objectives in the areas of language, cognition, social-emotional, self-help, and motor (both fine and gross).

### Setting

Free play and snack/breakfast time were selected as the target settings because they occurred daily and usually lasted for 10 minutes or longer and are not typically activities in which teachers plan and conduct instruction. Free play time was defined as a scheduled daily activity in which children chose their own activities, either within a teacher or child-specified area of the room. Snack or breakfast time was defined as a scheduled daily activity in which children sat together with a teacher to eat a snack. In Susan's classroom, children ate breakfast instead of a snack. Snack time was not a target setting in Erin's classroom because Erin typically used that time to do paperwork; the paraprofessionals in the classroom gave children their snack. Table 4 describes how snack time and free play began and ended for each teacher.

Table 4

Description of Target Settings for Each Teacher

	Snack or Breakfast	Free Play
Erin	Not a target setting for Erin.	Began when at least one child was in free play area with Erin. Ended when Erin announced that it was time to clean up.
Susan	Began when at least 4 of 6 target children were seated at the table. Ended when Susan announced that it was time to finish breakfast.	Began when at least one child was in the designated free play area with Susan. Ended when Susan announced that it was time to clean up.
Louise	Began when at least 3 target children were seated at the table. Ended when there was only one child left eating snack.	Began when at least one child was in free play area with Louise. Ended when Louise announced that it was time to clean up.

Free play in Erin's classroom. Because the free play areas in Erin's classroom were small, she assigned children to play in specific areas. Children were free to choose an activity in the specified area. Free play time occurred immediately after snack (approximately 11:00 a.m.). There were never more than four children assigned to any one area and during the investigation, Erin always assigned four of the six target children to the same area and she stayed with them while they played. In Erin's classroom, free play time lasted approximately 10 minutes. Data from free play sessions shorter than 6 minutes were coded but not reported. Free play areas for

Erin included: (a) a block area that was equipped with large legos, large and small blocks, and other manipulatives, (b) a housekeeping area that was equipped with child-size furniture, housekeeping equipment (e.g., a refrigerator, pretend stove, washer/dryer), pretend food, dolls, and dress-up clothes, and (c) a book area in which there was a bean bag chair and a variety of children's books.

Free play time in Susan's classroom. In Susan's classroom, free play was structured slightly differently. For Susan, free play began as soon as the children began to arrive at the classroom in the morning (approximately 8:40 a.m.). Although children were allowed to select any area in the classroom in which to play, Susan usually suggested an activity for free play and kept the group of target children together. For example, during one free play session she might put out play dough for children to play with. During another free play session, she might suggest that children play with large cardboard blocks in the block area. There was always a minimum of three target children present during any free play session. Occasionally, there were also one or two nontarget children present. The investigator asked Susan to keep interactions with nontarget children to a minimum. Free play sessions for Susan typically lasted 10 minutes; data from free play sessions shorter than 6 minutes were coded but not reported. Free play areas included: (a) a table adjacent to low shelves that contained paper, paints, play dough, crayons, puzzles, and scissors, (b) a block area that contained large cardboard bricks and other kinds of building blocks, and (c) a housekeeping area that contained child-sized furniture, kitchen equipment, pretend food, and dress-up clothes.

Breakfast in Susan's classroom. Breakfast occurred immediately after free play time, usually around 9:00 a.m. During breakfast, all of the target children sat at one kidney-shaped table and Susan sat with them at the table. Occasionally, if one of the target children was absent, a nontarget child would also sit at that table. There was never more than one nontarget child sitting at the target children's breakfast table during the investigation. Also, there were always at least four target children sitting at the table during breakfast. For Susan's classroom, breakfast usually lasted for 10 minutes. Data from breakfast sessions shorter than 6 minutes were coded but not reported.

Free play in Louise's classroom. In Louise's classroom, free play time was always held after snack time (usually at 11:00 a.m.) in one corner of the classroom that had two different areas. One area was equipped with blocks, cardboard brick blocks, and small manipulatives (e.g., pegboards and pegs, puzzles). The other area was a housekeeping area and was equipped with a child-sized house, furniture, dolls, doll clothes, dress-up clothes, and a doll shopping cart. Louise kept all of the target children in that corner of the classroom during free play and stayed with them there. On all but one occasion, there were at least three target children in the free play area during the investigation. Free play time in Louise's classroom typically lasted for 20 minutes. Sessions shorter than 6 minutes were not included in the analysis.

Snack time in Louise's classroom. During snack time in Louise's classroom, all of the target children sat at one table with Louise to eat a snack. Paraprofessionals sat with the nontarget children at a separate table. Snack time usually began at 10:45



a.m. On one occasion there was a nontarget child present at the snack table.

Independent Variable: The Self-Study  
Package and Investigator Feedback

The self-study package and feedback from the instructor were the independent variables for this investigation. The self-study package consisted of three major components that are explained in detail below. Before a teacher was allowed to proceed to the next assignments, the investigator examined her completed assignments and provided feedback about the answers. If the answers were judged inadequate, the teacher completed remedial training until she reached a certain criterion. Remedial training is described on pages 56 and 57 of this chapter. Table 5 describes each component of the self-study package.

1. Didactic information was included in a training manual that described the research foundation for incidental and coincidental teaching as well as the individual steps (e.g., initiating interactions, prompting, consequating) of coincidental teaching. Outside readings and related assignments were also included. Copies of each assignment are available upon request from the investigator. Each assignment is described below:

- (a) Teachers were instructed to read an article by Hart and Risley (1980) and a book chapter by Bricker and Cripe (1992). These provided empirical evidence of incidental teaching's effectiveness and a rationale for using naturalistic teaching in the classroom. Teachers were then asked to answer

Table 5

Components of Training Package

Training Component	Description of Assignment	Performance Criteria	Type of Remedial Training
Outside readings by Hart & Risley (1980) and Bricker & Cripe (1992).	Study questions focusing on: 1) the rationale for using naturalistic strategies (Bricker & Cripe, 1992); and 2) the need for providing environments to promote generalization of skills (Hart & Risley, 1980).	1) Completeness; 2) Clarity of answers;and 3) Answers must be equivalent to answers provided performance criteria (available upon request from the investigator).	If the instructor did not judge the answer as complete, she provided specific feedback to the participant, and the participant repeated the assignment.
Part I of training manual provides: 1) background information on naturalistic teaching; 2) the need to address functional objectives; and 3) identifying routine activities within which to address target skills.	Participants will identify 4 IEP objectives for three children that are functional and can be taught in a snack time and free play.	1) Completeness; 2) Clarity; 3) Skills are: a) functional, b) would naturally be used in target settings.  10 of 12 objectives must meet criteria for assignment to pass.	For objectives judged as non-functional, participants either  (a) modified the objective to make it more functional, or (b) chose another objective.

(table continues)

Training Component	Description of Assignment	Performance Criteria	Type of Remedial Training
Outside readings: Bricker & Cripe, 1992 (pp. 129-141) and Ostrosky and Kaiser, 1991.	Participants complete a table in which they describe how they can set up twelve opportunities within six routine activities.	1) Completeness; 2) Clarity; 3) Planned opportunities are relevant to skills and settings; 4) Setups are embedded in context of the child's activity. 10 of 12 opportunities must be judged as correct to pass the assignment.	The instructor provided written feedback on any setups judged as incorrect. Using this feedback, participants repeated the assignment and resubmitted it to the instructor.
Part II of Training Manual: Components of Coincidental Teaching.	Practice Planning Form: Identifying ways of setting up opportunities within snack time and free play for objectives previously identified by teachers.	Same as above.	Same as above.
	Discrimination training: Identifying examples and nonexamples of prompting, praising, and coincidental teaching.	Discrimination training: Identify 4 of 5 vignettes correctly for both prompting and praising, and 8 of 10 vignettes correct for the coincidental teaching vignettes.	If participants did not meet this minimum criteria, they were required to repeat the exercise using short written examples and nonexamples of each of the three components. This continued until they met the minimum criteria (4 of 5 identified correctly.)
	Record children's responses for each videotaped vignette.	Record children's performance: Teachers will correctly record (18 of 20) children's responses specifying the prompting level at which the child responded correctly.	Participants repeated the exercise until they met the performance criteria.

(table continues)

Training Component	Description of Assignment	Performance Criteria	Type of Remedial Training
Practice using coincidental teaching (CT) in classroom. Develop three CT plans and hand them in for feedback.	Participants develop three CT plans (one for each of the target children) using form in manual.	<p>Coincidental teaching plans, participants describe how they would coincidentally address an IEP objective previously identified.</p> <p>All four components for each plan must be judged as correct for plans to pass.</p>	The instructor specified why any components were incorrect. Teachers corrected incorrect components and resubmitted the plan.
Demonstration of use of coincidental teaching in the classroom.	Participants are videotaped three times as they use coincidental teaching in the classroom (including recording children's responses); they follow the plans they developed (see above).	<p>Videotapes judged on same basis as written plans--must demonstrate correct use of each component of coincidental teaching. Children's responses on videotape must match teachers' recordings of their responses.</p> <p>Videotapes judged as <u>pass</u> or <u>fail</u>.</p>	<p>If any component of any of the three videotapes was inadequate, the instructor used the coincidental teaching plan developed by the teacher and modeled the correct behavior on videotape. Teachers viewed the videotape and made a second videotape. This process continued until the instructor judged each component as correct.</p>

seven study questions about the readings. The investigator selected outside readings for their clarity, relevance to coincidental teaching, and practical classroom application.

(b) Teachers were required to read a book chapter from Bricker and Cripe (1992) and an article by Ostrosky and Kaiser (1991). These readings provided specific suggestions for altering classroom environments to facilitate naturalistic teaching. Using information from these readings, teachers were asked to complete a table in which they described ways of setting up instructional opportunities during different types of classroom activities (e.g., free play, snack, transitions).

(c) Based on information presented in the self-study workbook, teachers identified four functional skills for the three children they had previously identified as target children.

(d) Teachers then completed three Coincidental Teaching Planning Forms, worksheets on which they described ways of either setting up instructional opportunities or embedding a prompt within the context of the child's activity during free play and snack time to address the three target children's functional skills.

2. Modeling and discrimination training was provided through a videotape developed for instruction in coincidental teaching. The videotape contained 30 vignettes depicting:

(a) models of teachers using coincidental teaching,

- (b) examples and nonexamples of prompting for elaborated responses,
- (c) examples and nonexamples of teachers consequating children's responses (e.g., using general and descriptive praise), and
- (d) examples and nonexamples of coincidental teaching episodes.

As they viewed each vignette, teachers described on worksheets whether each vignette represented an examples or nonexample of prompting, consequating, or coincidental teaching. In addition to identifying each vignette as an example or nonexample, teachers also provided rationales for their answers. Copies of these worksheets are also available upon request from the investigator.

### 3. Demonstration of the use of coincidental teaching in the classroom.

Teachers wrote three coincidental teaching plans and submitted them to the investigator. When she judged the plans as adequate, teachers implemented these plans in the classroom. Each teacher was videotaped implementing her plans with the target children. These demonstration videotapes were the last assignments in the self-study package.

### Feedback

Along with the self-study package, feedback is the other independent variable employed in this investigation.

1. The investigator gave the teachers feedback on all completed assignments from the self-study package. Feedback consisted of:

- (a) positive comments for clear and complete answers and (b) comments as to

the accuracy of the answers--if teachers gave incorrect responses, the investigator provided specific reasons why the answer was incorrect.

2. The investigator made written statements about whether the teacher identified (a) functional objectives, (b) routine activities during which to address objectives, and (c) ways in which opportunities can be set up. The investigator's statements were based upon the degree to which:

- (a) the objective represented a functional skill (one the child could use during routine activities at home or in the classroom),
- (b) the set-up opportunity was embedded within the context of the child's interest or engagement with materials or activities, and
- (c) the description of the particular set-up corresponded to the provided definitions.

3. The investigator gave written feedback regarding the videotaped vignettes that teachers identified as examples or nonexamples; feedback specified:

- (a) the number of correct answers, and
- (b) specific reasons why an answer was incorrect.

4. For the coincidental teaching plans, investigator feedback focused on:

- (a) positive comments about clear and complete plans,
- (b) specific reasons why any component of the plan was incorrect or incomplete.

5. The investigator also gave feedback to teachers on their coincidental teaching demonstration videotapes. Again, feedback focused on:

- (a) positive comments for completing the task,
- (b) the ability of teachers to implement their written coincidental teaching plans, and
- (c) a specific reason why a portrayed component was incorrect or inappropriate.

The investigator kept copies of all written feedback. Also, if a teacher needed remedial help, written feedback was used to guide the teacher to the correct answer. Incomplete responses were always judged as incorrect. If responses were unclear (e.g., poor handwriting or grammar), the investigator telephoned teachers for clarification.

### Remedial Training

To successfully complete the self-study package, teachers' scores had to meet the minimum criteria specified in Table 5. If teachers failed to meet the minimum criteria, the investigator provided remedial feedback until their completed assignments met the criteria. For most assignments, an 80% mastery level was required. For example, teachers had to correctly discriminate four of the five videotaped vignettes for prompting and consequating. They also had to correctly describe 10 of 12 setups (approximately 83%) for target objectives. If teachers correctly described only eight setups, they revised those setups graded as incorrect.

To demonstrate proficiency on their videotapes, teachers had to correctly demonstrate each component of coincidental teaching. If they failed to demonstrate



proficiency on any component, the investigator provided verbal feedback about why the component was incorrect, and teachers were videotaped again.

#### Documentation of the Independent Variable

In order to demonstrate that the independent variable (i.e., the self-study package plus feedback) was implemented as planned, a table describing the types of feedback provided to teachers for specific assignments is included in the Results section.

#### Dependent Variables and Measurement Systems

In this section, the dependent variables and the systems used to measure them will be described. The dependent variables are (a) teachers' knowledge of coincidental teaching demonstrated on a pretest/posttest measure and written assignments, (b) teachers' videotaped demonstration of their use of coincidental teaching in their classrooms, (c) the rate of coincidental teaching episodes and number of coincidental teaching components correctly implemented during free play and snack time, independent of any assignment, (d) the percentage of goal-related interaction time between teachers and target children, (e) the percentage of instructional interaction time between teachers and target children, (including both IEP goal-related and non-goal related instruction), and (f) qualitative information collected during interviews. Each dependent measure is described in greater detail below.

Knowledge of coincidental teaching demonstrated on pretest/posttest and written assignments. After they completed a pretest, teachers were required to

complete the written assignments included in the self-study package to demonstrate knowledge of each coincidental teaching component. Performance on written assignments was judged as pass/fail using criteria found in Table 5. After they completed the self-study package, teachers completed a posttest, identical to the pretest. A copy of the pretest/posttest is included in Appendix B.

Demonstration of coincidental teaching on practice videotapes. In addition to completing written assignments, teachers let trained technicians videotape them three times as they implemented their written coincidental teaching plans in the classroom. These demonstration videotapes were a culminating activity. Performance on the practice videotapes was judged on a pass/fail basis using the criteria found in Table 5. For a videotape to pass, the teacher must have correctly demonstrated all coincidental teaching components. For example, if a teacher correctly embedded an initial prompt within the context of the child's activity, but failed to prompt the child correctly for an elaborated response, the videotape did not pass. If that occurred, the investigator followed the remedial training procedures previously described.

Independent use of coincidental teaching during free play and snack time. In addition to written and videotaped products, the rate of coincidental teaching episodes and correctly implemented coincidental teaching components was measured through observations of videotapes of teacher behavior during free play and snack time. Rate was determined by dividing the number of coincidental teaching episodes or components observed by the total number of minutes of the videotaped session (rounded off to the nearest half minute).

A coincidental teaching episode included the following behaviors which occurred sequentially: (a) an initial teacher prompt (referred to as a teacher initiation) which could be embedded or not embedded, (b) child response, (c) subsequent teacher prompts, (d) teacher consequence, (e) record child response. Coincidental teaching episodes were observed within the context of teacher-child interactions, i.e., reciprocal verbal or nonverbal behavior between the teacher and child. Behavioral definitions of a coincidental teaching episode and components of coincidental teaching are described as follows:

**Prompt:** A question, cue, or signal that the teacher uses to help the child produce a desired response. Prompts were coded as:

1. **Verbal:** A verbal cue, mand, or direction given by the teacher. Verbal prompts were either indirect (e.g., "It's time to clean up the toys") or direct (e.g., "Leon, pick up the truck and put it on the shelf.")
2. **Model/Gestural:** A demonstration (either complete or incomplete) of the target response provided by the teacher.
3. **Physical:** Physical guidance or assistance in completing the target response. A physical prompt was either partial or full physical assistance.

**Goal-Related:** A prompt related to a target child's instructional goal as described by the teacher and defined in observable terms by the investigator.

Examples of specific goals from each teacher's classroom are included in Appendix C. Prior to the baseline phase of the investigation, the teacher provided the investigator with a list of instructional goals for each target child.

**Embedded:** An initial prompt was embedded if it was related to either the child's activity or the ongoing activity. For example, a prompt such as "What color is the doll's hair?" was embedded in the child's activity if the child was playing with a doll. A prompt such as "What color is the balloon on the wall?" was not embedded in the child's play with the doll. The prompt could also be embedded in the ongoing activity. For example, a teacher prompt such as "How many cups do we need for snack?" was coded within the context of the activity if snack time was the ongoing activity.

**Teacher-Initiation:** An initial prompt for a goal-related response delivered by the teacher that may or may not be embedded within the context of the child's activity or the ongoing activity.

**Child response:** If a teacher initiated an interaction, the child had to respond for the interaction to continue. Children's responses are coded as "correct," "incorrect," "no response," and "can't tell."

1. **Response correct:** Child responded correctly to the teacher's initiation.

Responses were coded as correct if there was a right/wrong answer (e.g., "The egg is white.") or if the child responded appropriately (e.g., Says "Rescue Rangers" if the teacher asked what his favorite cartoon is.)

2. **Response incorrect:** Child responded incorrectly to the teacher's initiation.

Responses were coded as incorrect if there was a definite right or wrong answer and the child provided the wrong answer (e.g., "The egg is green.") or if the child responded inappropriately (e.g., Says "I'm going to Grandma's" if

the teacher asked what his favorite cartoon is.)

3. No response: Child did not respond to teacher's initiation.
4. Don't know: Child's response was unintelligible or child's response could not be seen or heard.
5. Attempted/Assisted: Child attempted, but did not fully complete the response without help from the teacher or teacher assistance occurred before child attempted target response.

**Subsequent Prompt**: Another prompt given at least 4 seconds after the initial prompt, or after the child responded to the initial teacher prompt. Prompting levels coded are described above (i.e., verbal, model, physical).

**Natural consequence**: The natural result of the interaction. A consequence of a CT episode might be one or more of the following:

1. Access to materials requested (e.g., teacher gave child paintbrush he requested)
2. Access to an activity requested (e.g. teacher allowed child to go outside)
3. Feedback about the child's response (e.g., "That's right! You knew that was the blue one!"). Feedback included some kind of evaluative statement or comment, rather than just continued conversation. There were three types of teacher feedback:

- (a) **Praise statements** which were either general or descriptive and occurred when the teacher said or did something indicating approval to the child.

(b) **Reflective or confirming statements** about the child's response

(e.g., "You knew where the red one was!")

(c) **Information about the correctness** of the child's response (e.g.,

"That was the blue block.")

**The child's response was recorded:** Evidence that the teacher wrote something on a piece of paper within 15 seconds after the child's response.

**A complete episode of coincidental teaching consisted of:**

1. An embedded teacher initiation, related to a child's instructional goal, which may be followed by
2. A teacher prompt for an elaborated response from the child, which must be followed by
3. A consequence inherent to the child's activity.

**End of a CT episode** A CT episode ended when:

1. More than 10 seconds elapsed between the end of: (a) a child response, (b) a teacher consequence, (c) a teacher prompt, and the next teacher statement. This occurred when the teacher was interrupted, when she did not attend to the child for more than 10 seconds, or when she spoke to another child.
2. The teacher's prompt was either not goal-related or was related to a goal different from the previous prompt.

**Setting Up an Opportunity:** Although setting up opportunities for teaching is a component of coincidental teaching, interpreting teacher behavior as a deliberate

setup rests upon inferences about teachers' intentions. For instance, a teacher might place a toy on a shelf out of a child's reach either because (a) she wants him to ask for it (this would be a setup), or (b) she didn't have any other place to put it (this would not be a setup). Because teachers' intentions are not directly observable, setups could not be included as a dependent variable for this investigation.

Observers, however, coded evidence of the following setups from the videotaped free play and snack sessions:

1. Choice-making: Occurred if the teacher presented the child with more than one option for an activity or materials and asked a question such as "What do you want?" or looked expectantly (e.g., with shoulders elevated and a quizzical facial expression) at the child.
2. Assistance: Occurred if the teacher directly gave the child objects or materials that required adult assistance to open or use ("Here Joe, you can play with this [tightly closed] can of blocks."). Excluded from this category were those materials or objects in the classroom that the child could manipulate independently or objects in the room that required adult assistance but that the teacher did not directly give the child.
3. Sabotage: Occurred if the teacher failed to provide all the materials needed by the child to complete the task (e.g., providing paint but not paintbrush when the child asks to paint), or otherwise prevented her from carrying out an activity or instruction (e.g., physically blocked access to materials).

4. Absurd Situations: Occurred if the teacher setup a situation that violated conventional expectations. For example, when asked to help dress the doll, the teacher might have put the dolls' shoes on the dolls' hands. Another example of an absurd situation would occur if the teacher placed a block or a crayon on the child's plate at snack instead of food. Absurd situations could be either nonverbal (see example above) or verbal. An example of a verbal absurd situation was if the teacher looked out the window at a sunny day and said "Wow, it's really snowing hard today!"

Proportion of interaction time that teachers spent in goal-related interactions.

Because the investigator was interested in examining whether the percentage of interaction time that teachers spent in goal-related interactions changed as a result of each one completing the self-study package, observers coded the amount of time (in seconds) teachers spent in both goal-related and non-goal related interactions with target children. A goal-related interaction was one in which the teacher's verbalization or actions focused on a child's instructional goal as identified prior to baseline of the experimental design. For example, if a child's goal was to name colors and the teacher asked her "What color is your jacket?," then that interaction was coded as goal-related. A non-goal-related interaction was one in which the teacher's verbalization or actions was not related to a child's instructional goal.

Percentage of non-goal-related interactional time that teachers spent instructing target children. Because the self-study package included information about using routine activities as teaching opportunities, the investigator was also interested in



examining changes in the amount of non-goal related interaction time that teachers spent instructing children or getting children to talk more. For non-goal-related interactions, observers coded the duration of teacher-child interactions. They used four categories to describe the content of the interaction: mand, instruction, direction, or other. Each is defined below:

1. Mand: A request for a verbal response that was not a yes/no question.
2. Instruction: A teacher verbalization that instructed the child how to perform a certain task. For example, the teacher might instruct the child in cutting paper by saying "Hold the paper in one hand, and turn the paper around while you cut with the scissors." A nonexample of an instruction would be "Cut out the circle." because the teacher did not tell the child how to cut out the circle. Also included here would be instances when the teacher provided physical assistance to perform the task.
3. Direction: A teacher direction to complete a motor response that required the child to discriminate between objects on the basis of size, number, color, shape, or position in space. For example, a statement such as "Put all the blue blocks together" would be coded as a direction because it required the child to discriminate between colors. Verbalizations such as "Sit down" or "Go get a tissue" would not be counted as directions because they did not require such discriminations.
4. Other: All other teacher verbalizations such as comments, requests, exclamations, yes/no questions, or social conversation.

The investigator added time spent in manded, instructional, and directive interactions and divided that figure by the total amount of time spent in non-goal related interactions.

Teachers' comments about coincidental teaching and the effectiveness of the self-study package. To answer the third research question, i.e., how teachers rated the efficacy of both coincidental teaching and the self-study package, an interviewer conducted exit interviews with teachers after maintenance data were collected. These interviews were audiotaped and transcribed using a word processor. Interview questions focused on teachers' opinions about coincidental teaching as a viable instructional strategy, the easiest and most difficult components to implement and their plans to use coincidental teaching in the future. Teachers were also asked their opinions about the self-study package as a method of learning as well as specific components of the self-study package that they liked or did not like. Interview questions are included in Appendix D.

#### Data Collection

To measure teachers' use of coincidental teaching in the classroom, two technicians videotaped teacher behavior during free play and snack time.

Equipment. Two Quasar color video cameras (Model #VK744XE) mounted on tripods were used to videotape all teacher behavior. These video cameras inscribed a time code on the videotapes. In addition, each teacher wore a wireless FM microphone during videotaping (Realistic FM Wireless Video Camera

Microphone System) to record dialogue between teachers and target children.

Videotaping target settings. The investigator trained the two technicians to use the video camera and microphone equipment. Written instructions followed by videotape technicians are available upon request from the investigator. The technicians were instructed to remain as unobtrusive as possible and to always film the children with whom the teacher was interacting. Before they were allowed to videotape in the classroom, technicians practiced videotaping in other classrooms. The investigator watched the practice videotapes and gave the technicians feedback about their quality. Videotaping in target classrooms began when the investigator was satisfied with the quality of the practice videotapes.

Videotape technicians were told always to focus the videocamera on the teacher. However, if the teacher was in a place such that it was impossible to videotape the teacher and child she was interacting with simultaneously, the technician recorded the child's behavior, because the teacher's verbalizations were recorded with the wireless microphone system. Videotape technicians were given specific rules about when to begin and end videotaping in each teacher's classroom.

### Observation System

Coding coincidental teaching episodes and components. Two observers used an event recording system to code videotaped teacher-target child interactions (Tawney & Gast, 1984). To calculate the rate of coincidental teaching episodes and the rate at which teachers used coincidental teaching components, observers recorded:

(a) the time (in minutes and seconds as shown on the videotape) at which they observed the teacher delivering an initial prompt related to one of the target children's instructional goals (they wrote down the child's name and goal), (b) whether or not the initial prompt was embedded, (c) the child's response to the initial prompt, (d) the presence or absence of any subsequent prompts, (e) the presence or absence of a teacher-delivered consequence and, (f) evidence that the teacher recorded the child's response. Observers followed specific coding conventions to determine when episodes began and ended. These are included in Appendix E, along with a sample coding sheet.

Coding time spent in goal-related and non-goal-related interactions. Observers recorded the duration of time teachers spent in goal-related and non-goal related interactions with each target child. First, they coded the amount of time spent in goal-related interactions with a child by recording the time (in minutes and seconds as shown on the videotape) when a goal-related interaction began and ended. The times were summed across interactions. Then, they coded all of the non-goal-related interactions with children. Observers coded the non-goal related interactions in the categories of "mand," "instruction," "direction," and "other" using the definitions described above. Observers followed specific coding conventions found in Appendix H to determine when interactions began and ended. Sample coding sheets are also found in Appendix F.

Coding evidence of teacher setups. Observers also coded evidence that teachers set up the opportunities previously described (i.e., providing choices,

providing materials that needed assistance, sabotage, and violating expectations). As they coded the duration of goal and non-goal-related interactions, observers noted whether or not they saw evidence of a setup and recorded the time (in minutes and seconds) that it began. A sample setup coding sheet is included in Appendix G.

### Observer Training

Observer training for investigator feedback. To assess the reliability of the investigator feedback, a second person graded 20% of all participants' assignments using predetermined criteria written by the investigator. This coder was an advanced doctoral student in early childhood special education who was knowledgeable about coincidental teaching. Prior to the investigation, the investigator taught her to code assignments from the self-study package completed by teachers who were part of a pilot study. The investigator developed a set of criteria for grading each assignment. (Note: A copy of the criteria is available upon request from the investigator.) During training, the investigator described each assignment and the criteria used to grade them to the reliability coder. The investigator and reliability coder then independently used the criteria to grade practice assignments, comparing grades after each assignment was graded. Before grading teachers' assignments for the investigation, the reliability coder and investigator reached a 90% agreement level for three consecutive sets of practice assignments. The method for computing agreements is described in the section entitled Reliability.

### Observer training for coding coincidental teaching episodes, including evidence

of setups. Two female observers coded the videotaped free play and snack sessions for each teacher. Both had previous experience coding behaviors on other research projects. One observer had a B.A. degree in child development and the other observer was an undergraduate student at Utah State University. One observer coded Erin's and Louise's videotapes and the other observer coded Susan's videotapes. The investigator served as the third observer; she coded 30% of the videotapes for reliability purposes.

In a pilot study, the investigator had received permission to videotape in two other teachers' classrooms. This videotaped footage served as training footage. The investigator used several procedures to train observers. These are described below.

During the first training session, the investigator defined and modeled the components of coincidental teaching (e.g., embedded or nonembedded teacher initiations, children's responses, subsequent prompts, and consequences), and provided videotaped examples of each component. She also provided written definitions of all target behaviors. Then, observers as a group practiced identifying teacher behaviors as initiations, prompts, and consequences. They also practiced identifying examples of embedded and nonembedded initiations.

During the second session, observers completed a written quiz to assess their knowledge of target behavior definitions and again the group practiced identifying videotaped examples of target behaviors. The investigator explained the data coding sheet and coding conventions to the observers. The investigator also provided observers with fictitious copies of children's goals so that observers could learn to

discriminate goal-related from non-goal-related interactions. The group then practiced coding a portion of a videotaped session together using the coding sheet, coding conventions, and fictitious goals.

Before the third training session, observers independently coded an investigator-selected videotaped snack or free play session. The investigator provided copies of children's fictitious goals for each of the training videotapes. Both observers and the investigator coded the same videotaped session and met together as a group to discuss agreements and disagreements in coding. Disagreements centered on the time recorded or observed dependent behaviors and whether or not a behavior was goal-related. The investigator took notes about apparent coding difficulties and solutions, providing observers with copies of these notes. Discussions surrounding these training tapes also enabled the investigator to refine behavioral definitions and coding conventions. This training procedure continued for 5 weeks until each observer had reached a criterion of 90% agreement with the investigator across three consecutive videotaped sessions.

The final training procedure took place using videotapes of each participating teacher collected during a prebaseline phase. As described below in further detail, the investigator defined each of the target children's instructional goals in behavioral terms so observers could accurately code teacher behaviors. The investigator and observer practiced coding these prebaseline videotapes using the operational definitions of target children's goals before observers coded any baseline videotapes. The investigator provided written definitions and coding conventions for all target

behaviors and observers practiced coding prebaseline videotapes until they reached 90% agreement with the investigator for two consecutive sessions.

Booster training sessions. The investigator met weekly with each observer separately to discuss problems or questions concerning the coding system. In addition, all three met once a month as a group to discuss issues related to coding the videotapes. During booster training sessions, observers were reminded of the coding conventions.

### Reliability

Reliability of investigator feedback on written assignments. The investigator calculated agreements point by point between the second coder and herself by examining the grades assigned to each component of the assignment. For each assignment, the grading criteria usually consisted of several parts. For example, for the questions about the outside readings (i.e., Bricker & Cripe, 1992; Hart & Risley, 1980), teachers must have included a number of essential points. An answer was judged correct if it contained all essential points. An agreement was defined as the same grade (either a pass or fail) given by the investigator and reliability coder for each part of an assignment. The investigator divided the total number of agreements, by the total number of agreements plus disagreements, multiplying by 100.

Reliability of coding coincidental teaching episodes and components. The investigator served as the reliability observer and coded approximately 30% of all videotaped sessions across each teacher and experimental condition using each of the



measures applied in the study. She calculated agreements separately for each coincidental teaching component as described below:

1. For the initial prompt, the two observers were said to be in agreement if they (a) recorded the time of the initial prompt within three seconds of each other, (b) identified the same child and goal, and (c) agreed upon whether or not the initial prompt was embedded in the context of the child's activity.
2. For the subsequent prompts, the observers were in agreement if they both agreed that a subsequent prompt either did or did not occur within the interaction that began with the initial prompt.
3. Finally, for consequences, observers were said to be in agreement if they both agreed that for each interaction that began with the initial prompt, there either was or was not a consequence.

Reliability of coding duration of goal- and non-goal-related interactions. The investigator calculated agreements on a point-by-point basis for the following components:

1. Target child: Observers were said to be in agreement if they recorded the same child's name as the target of the interaction. (If the teacher was involved in a conversation with more than one target child and the observer could not tell to whom the teacher was talking, she recorded all of the children's names.)
2. Interaction beginning: The observers were said to be in agreement if they recorded, within one second of each other, the time an interaction began.
3. Interaction ending: The observers were said to be in agreement if they

recorded within one second of each other, the time an interaction ended.

For goal-related interactions, observers were said to be in agreement if both stated the same goal as the target for the interaction. For non-goal-related interactions, observers were said to be in agreement if they both stated the same interaction category (i.e., "mand," "instruction," "direction," or "other"). Agreements for each component described above was calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100.

### Experimental Design

The investigator intended to use a multiple baseline design across subjects to determine if changes in teacher behavior (i.e., increases in the rate of coincidental teaching episode) occurred after teachers completed the self-study package on coincidental teaching (Tawney & Gast, 1984). The investigator began collecting baseline data for Erin first and then at the same time for Susan and Louise for three reasons. First, they did not know each other. Second, they taught in separate towns, over 90 miles apart and, finally, they did not attend any inservice training programs at the same time. Each phase of the study is described in more detail below.

Prebaseline. Before the investigation began, the investigator asked each teacher to select from the pool of children whose parents had given permission to participate in the investigation three children with specific instructional needs. They would focus on these three as they completed the assignments in the self-study

package. The investigator then randomly selected an additional three target children for each teacher, resulting in a total of six children per classroom. (In Louise's classroom, however, eight children were selected because not all of the children came to school 4 days per week.) Although interactions between the teachers and all of the children were videotaped, only interactions between the teachers and target children were analyzed.

One week before the baseline phase began, the investigator asked each teacher to provide descriptions of all target children's instructional goals. The investigator then wrote operational definitions for each goal, gave them back to the teacher, and asked the teacher to provide feedback on the accuracy of the goal descriptions. Based upon teachers' feedback, the investigator revised the definitions.

To reduce possible reactivity created by the videotaping procedures, the videotape technician videotaped free play and snack sessions for one week during this prebaseline phase. Four videotapes were made in each of the teachers' classrooms during the prebaseline phase. The data from these videotapes are not included in the study.

Baseline. During the baseline phase, videotaping during free play and snack time continued. There was no contact between the investigator and the teacher. This condition continued until baselines were stable or decreasing. Baseline data were considered stable on the basis of two criteria levels: (a) when the rate of coincidental teaching episodes observed during the final videotaped observation was less than or equal to the mean percentage of episodes recorded for the two previous videotapes

(hence, a minimum of three data points for either setting was necessary) and (b) when the percentage of change about the mean value of 80-90% of the data points fell within a 15% range of the mean level of all data points in baseline.

Interim phase. After baselines were stable and at least three data points had been recorded in each setting, the investigator asked the teacher if she would be able to complete the self-study package within two and a half weeks if she were given the package at that point. All assented. The investigator then sent the teacher a pretest (via the videotape technician) in a sealed envelope and asked her to complete it in the presence of the videotape technician and return it immediately to the investigator. Teachers were instructed to spend no more than 15 minutes completing the pretest, but, a time limit was not enforced. The interim phase lasted for 1 day for each teacher.

Intervention phase. After the first teacher completed the pretest and returned it to the investigator, she sent the teacher the self-study package either through the videotape technician or via Express Mail. The package, including the cycle of work and feedback, was designed to be completed independently within two and a half weeks; it contained specific directions for completing the assignments. Teachers returned assignments either through the videotape technician or via a facsimile machine. Figure 2 describes the sequence in which teachers finished the assignments and received feedback. Videotaping during free play and snack time continued throughout the intervention phase.

Postintervention phase. Immediately after teachers had successfully completed

the self-study package, they completed a posttest. The posttest was identical to the pretest and teacher completed it in the presence of the videotape technician. The videotape technician then returned it to the investigator. Videotaping continued during the postintervention phase until eight data points had been recorded in each target setting.

Maintenance. Approximately 1 month after the postintervention phase ended, the technician returned unannounced to each classroom, for 3 nonconsecutive days to videotape free play and snack settings.

### Social Validity

After the experimental phase of the investigation had ended, an interviewer with whom participating teachers had no previous contact conducted a structured interview with each participating teacher. The purpose of the interview was to solicit participants' opinions about (a) coincidental teaching as an effective and useful instructional strategy, and (b) the self-study package as an instructional vehicle. The interviewer was the advanced doctoral student in early childhood special education who served as the reliability coder for the self-study package. She audiotaped each interview and took detailed notes about participants' responses. The tape-recorded interviews were transcribed using a word processor.

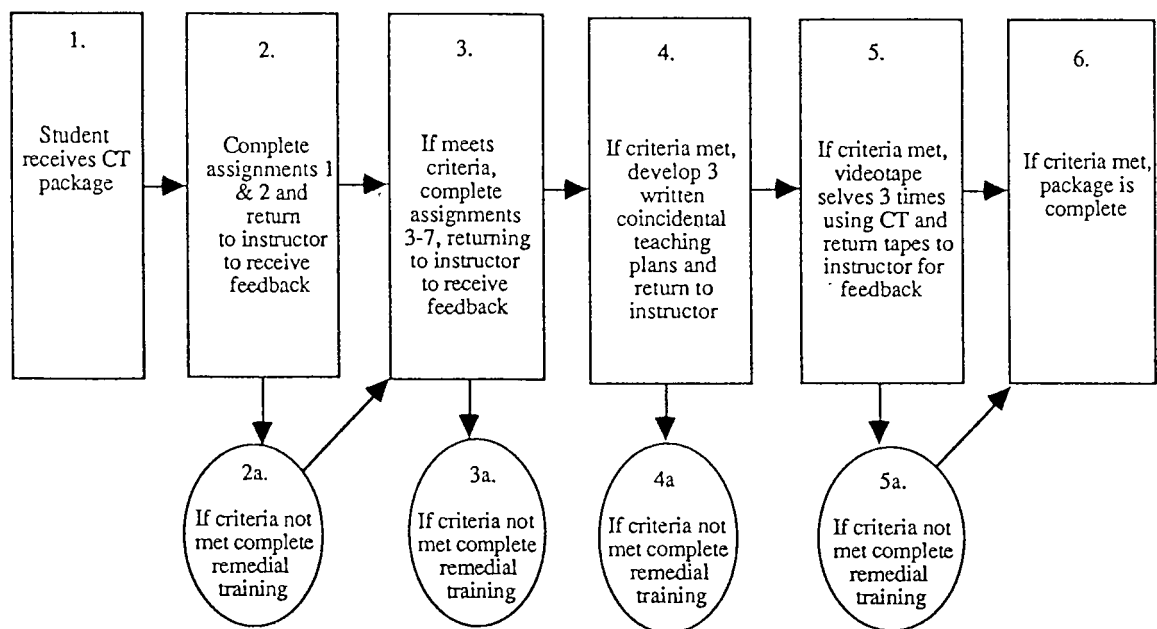


Figure 2: Flow chart for completing self-study package.

## CHAPTER IV

### RESULTS

#### Child Demographic Characteristics

Table 6 is a description of the demographic characteristics for each target child in Erin's, Susan's, and Louise's classrooms. All children in the three classrooms were 3 or 4 years old. In Erin's classroom, five of the six target children were boys and the majority of children had language delays. Erin categorized all but one as coming from a middle-class family. In Susan's classroom, none of the children had disabling conditions, but all were at risk. Susan identified any learning problems that the children in her room were having. All of the children came from low-income families and the target children were evenly divided between boys and girls. Finally, in Louise's classroom, all but one target child were boys. In Louise's classroom, nine target children were identified instead of six because most of the children in Louise's classroom only came to school 2 days per week. Two children, 3B and 3C, came to school 4 days per week. Three additional children were targeted so that there would be sufficient children with whom Louise could interact. Louise categorized all but one child in her classroom as coming from middle-class families.

#### Changes in Multiple Baseline Design

It should be noted that the intended research design was a multiple baseline design. Implicit in the multiple baseline design is that the intervention will be applied

Table 6

Child Demographic Characteristics

Child	Gender	Age	Disabling Condition	Ethnicity	SES
Erin					
Child A	Male	4	Behavior Disordered	Caucasian	Middle
Child B	Female	4	Physically Impaired Behavior Disordered	Caucasian	Middle
Child C	Male	3	Language Delay	Caucasian	Middle
Child D	Male	4	Language Delay	Caucasian	Middle
Child E	Male	3	Language Delay	Caucasian	Middle
Child F	Male	4	Language Delay	Caucasian	Middle

(table continues)



Child	Gender	Age	Disabling Condition	Ethnicity	SES
Susan					
Child A	Male	3	None	Caucasian	Low
Child B	Female	3	Language Delay	Native American	Low
Child C	Female	4	Social Delay	Caucasian	Low
Child D	Male	3	Speech/Language Delay	Caucasian	Low
Child E	Male	4	None	Mexican-American	Low
Child F	Female	4	None	Caucasian	Low

(table continues)

Child	Gender	Age	Disabling Condition	Ethnicity	SES
Louise					
Child A	Male	4	Cerebral palsy	Caucasian	Middle
Child B	Male	3	Cognitive, language, & motor delays	Caucasian	Middle
Child C	Male	3	Social & language delays	Caucasian	Middle
Child D	Female	4	Cognitive & speech delays	Mexican-American	Low
Child E	Male	4	Hemiplegic, motor, speech, & cognitive delays	Caucasian	Middle
Child F	Male	4	Cognitive & speech delays	Caucasian	Middle
Child G	Male	3	Cognitive, speech, & motor delays	Caucasian	Middle
Child H	Male	3	Cognitive, speech, & motor delays	Caucasian	Middle

to each baseline at a different time and will be applied only when criterion-level responding is achieved in the first baseline (Tawney & Gast, 1984). Unfortunately, calendar time forced the investigator to make several changes. First, Erin's baseline data began before Susan's and Louise's. Erin completed the self-study package before the investigator began to collect baseline data in Susan's and Louise's classrooms. Second, Erin and Louise had the same number of baseline sessions (7), albeit at different points of time. This occurred because the end of the school year was approaching and prolonging Louise's baseline would have prevented completion of the study. Consequently, the research design used in this investigation was not as strong as it would have been if all baselines had begun simultaneously and had differed in absolute number of sessions.

#### Participants' Performance on Pre- and Posttest

Table 7 is a description of teachers' scores on the pre- and posttest measure designed to test knowledge of coincidental teaching. As can be seen from Table 7, they scored higher on the posttest than the pretest. Pretest scores ranged from 30% to 54%, while posttest scores ranged from 70% to 95%. A  $t$  test for repeated measures was conducted and the results showed statistically significant differences ( $p < .001$ ) between the pre- and posttest scores for the three teachers (Ferguson & Takane, 1989). None of the teachers was able to correctly identify the coincidental teaching components before they completed the self-study package nor was any able to describe five ways teachers could set up coincidental teaching opportunities. After

Table 7

Participants' Pre- and Posttest Scores

Test Question	Erin		Susan		Louise	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
1. Who initiates a coincidental teaching episode?	10	10	10	10	10	20
2. Describe two ways a coincidental teaching episode can begin.	20	20	20	10	20	20
3. Describe the terms "natural consequence" and "mand."	10	20	0	20	10	20
4. Name the four components of a coincidental teaching episode in order.	0	15	0	20	0	15
5. List five ways teachers can "set up" a coincidental teaching opportunity.	8	20	0	20	4	20
<b>Total Scores</b>	48	85	30	70	54	95

they completed the self-study package, teachers were able to identify at least three of the four coincidental teaching components.

Agreements Between Investigator and  
Reliability Coders on Judgments of  
Coincidental Teaching Assignments

Table 8 is a description of the percentage of agreement between the investigator and the reliability coder for each self-study package assignment. The average percentage of agreement was 90%, with a range of agreements from 42% to 100%. The median percent agreement was 94%.

Participants' Performance on Self-Study  
Package Assignments

Performance on outside reading study guides. Table 9 is a description of teachers' initial grades on each self-study package assignment. Grades are described as the percent correct for each assignment. Included in Appendix H (Table 18) is a description of teachers' subsequent remedial training for each assignment. The average judgment for the Hart and Risley study guide was 3.3 questions correct of a possible 4, for an average percentage correct of 82%. All teachers passed the Hart and Risley study guide. Only Erin needed remedial training to pass the Bricker and Cripe study guide. The average judgment for Susan and Louise on the Bricker and Cripe study guide was 2.75 out of 3, for an average percentage correct of 92%.

Setting up opportunities for coincidental teaching. Both Erin and Susan successfully completed the assignment focusing upon setting up opportunities for coincidental teaching. Erin completed 9 of 11 setups, for an average percentage correct of 82%. Susan completed 9 of 10 setups for a percentage correct of 90%. Louise needed remedial training to successfully complete the assignment. Initially

Table 8

Agreements Between Investigator and Second Coder on Coincidental Teaching Assignments

Self-Study Package Component	% Agreement
Outside Reading Assignments:	
Hart & Risley (1980)	100
Bricker & Cripe (1992)	100
Describing ways of setting up opportunities within routine activities	93
Identifying functional skills that can be taught in free play or snack time	100
Completing Coincidental Teaching Planning Forms (Erin)	42
Completing Coincidental Teaching Planning Forms (Susan)	90
Discrimination Training	92
Developing Coincidental Teaching Lesson Plans	94
Practice Coincidental Teaching Videotapes	100

Note. The investigator obtained a percentage of agreement between herself and the second coder for two sets of Planning Forms because the investigator initially graded Erin's CT Planning Forms as "uncodable" resulting in a low level of agreement between the investigator and reliability coder. She later added Susan's Planning Forms to the reliability analysis.

Table 9

Summary of Teachers' Initial Grades on Self-Study Package Assignments

Teacher	Outside Reading Study Guides		Setting Up Opportunities	Identifying Functional Skills	Coincidental Teaching Planning Forms		Discrimination Training	Developing Coincidental Teaching Lesson Plans		Coincidental Teaching Practice Videotapes	
Erin	Hart & Risley	<b>75%</b>	82%	100%	Plan 1	100%	Prompt 100%	Plan 1	<b>fail</b>	Tape 1	pass
	Bricker & Cripe	<b>0%</b>			Plan 2	<b>0%</b>	Consequence	Plan 2	<b>fail</b>	Tape 2	pass
					Plan 3	<b>25%</b>	80% Coincidental Teaching <b>50%</b>	Plan 3	<b>fail</b>	Tape 3	pass
Susan	Hart & Risley	88%	90%	100%	Plan 1	100%	Prompt 80%	Plan 1	<b>fail</b>	Tape 1	pass
	Bricker & Cripe	100%			Plan 2	<b>75%</b>	Consequence	Plan 2	<b>fail</b>	Tape 2	pass
					Plan 3	100%	100% Coincidental Teaching 80%	Plan 3	<b>fail</b>	Tape 3	pass
Louise	Hart & Risley	88%	<b>75%</b>	100%	Plan 1	<b>75%</b>	Prompt <b>40%</b>	Plan 1	<b>fail</b>	Tape 1	pass
	Bricker & Cripe	83%			Plan 2	<b>75%</b>	Consequence	Plan 2	<b>fail</b>	Tape 2	pass
					Plan 3	<b>100%</b>	<b>40%</b> Coincidental Teaching 100%	Plan 3	<b>fail</b>	Tape 3	<b>fail</b>

Note. Bolded figures depict grades for assignments for which teachers required remedial training.

Louise completed 9 of 12 setups correctly, for a percentage correct of 75%.

Identifying functional skills for target children. All three teachers successfully identified 12 of 12 functional skills of target children in their classroom, for an average percentage correct of 100%.

Planning to use coincidental teaching during free play and snack time. Susan and Louise both successfully completed the assignment that focused on planning to use coincidental teaching in either snack time or free play. The average judgment for their plans was 3.5 out of 4, for an average percentage correct of 88%. Erin needed remedial training to successfully complete the assignment focusing on planning for coincidental teaching during snack time or free play. Two of Erin's three plans were judged incorrect because she described children's objectives instead of how she as a teacher would use coincidental teaching. Her average judgment was 42% prior to remedial training.

Discrimination training. For the examples and nonexamples of prompting, the average judgment across the three teachers was 3.6 correct of the 5 vignettes, for a percentage correct of 73%. Erin and Susan successfully completed this component; their percentages correct were 100% and 80%, respectively. Louise identified 2 of 5 vignettes correctly as examples and nonexamples, for a percentage correct of 40%. Louise received remedial training to successfully complete the assignment; her posttest remedial score was 100%.

Erin and Susan identified an average of 4.5 of 5 examples and nonexamples of consequence correctly resulting in 90% correct. Louise identified 2 of 5 examples



and nonexamples correctly, resulting in 40% correct. Louise completed remedial training to successfully complete this assignment; her posttest remedial score was 100%

Susan and Louise identified an average of 9 of 10 examples and nonexamples of coincidental teaching vignettes, resulting in 90% correct. Erin correctly identified 5 of 10, or 50%, vignettes correctly as examples or nonexamples of coincidental teaching. Erin received remedial training to successfully complete this assignment.

Writing coincidental teaching plans. None of the teachers successfully completed this assignment. All teachers neglected to include a plan for evaluating when the child had successfully completed the task (e.g., child responds correctly 3 of 4 times over 3 consecutive trials). In addition, Erin's Plan 2 did not describe the child's target skill in observable terms. All three teachers completed remedial training to successfully complete this assignment. After to completing remedial training, which consisted of written feedback from the instructor, each teacher's plan received a passing score.

Coincidental teaching practice videotapes. Both Erin and Susan's practice videotapes were judged correct by the instructor. Two of Louise's three videotapes were judged correct by the instructor. Louise's third videotape was judged incorrect because her initial mand or prompt was not embedded within the context of the child's activity. After remedial training Louise successfully completed this assignment.

Agreements Between Observers and Reliability  
Coder for Rate of Coincidental Teaching Episodes  
and Rate of Coincidental Teaching Components

Table 10 describes the average percentage of agreement between the investigator and reliability coders for the rate of coincidental teaching episodes across all experimental conditions and settings. The average percentage of agreement for initiations during free play was 87%. For prompts during free play, the average percentage of agreement was 84% and the average percentage of agreement for consequences during free play was 84%. For snack time, the average percentage of agreement for initiations was 87%. The average percentage of agreement for prompts during snack time was 94%, and the average percentage of agreement for consequences was 94%.

Rate of Coincidental Teaching Episodes  
Across Experimental Conditions

Figure 3 depicts the rate of coincidental teaching episodes per minute for all participants across all experimental conditions. The median rate of coincidental teaching episodes per minute for Erin during free play across the experimental conditions of baseline, intervention, postintervention, and maintenance was .29 .35, .12, and .20, respectively.

Susan's median rate of coincidental teaching episodes during free play across experimental conditions was .20, .20, .20, and .20. No changes were observed across experimental conditions.

Table 10

Summary of Inter-Observer Agreements for Coincidental Teaching Components

Setting/Behavior	% of Sessions Checked	Mean	Median	Range
<b><u>BASELINE</u></b>				
<b>Free Play</b>				
Initiations	45	88	86	75-100
Prompts	45	97	100	77-100
Consequences	45	91	90	67-100
<b>Snack</b>				
Initiations	31	82	88	50-100
Prompts	31	82	88	50-100
Consequences	31	88	100	50-100
<b><u>INTERVENTION</u></b>				
<b>Free Play</b>				
Initiations	27	90	100	63-100
Prompts	27	80	100	0-100
Consequences	27	75	87	0-100
<b>Snack</b>				
Initiations	54	86	100	50-100
Prompts	54	100	100	none
Consequences	54	93	92	75-100

(table continues)

Setting/Behavior	% of Sessions Checked	Mean	Median	Range
<b><u>MAINTENANCE</u></b>				
<b>Free Play</b>				
Initiations	33	84	88	64-100
Prompts	33	88	90	75-100
Consequences	33	85	100	55-100
<b>Snack</b>				
Initiations	33	92	92	83-100
Prompts	33	100	100	none
Consequences	33	100	100	none

During free play, Louise's median baseline rate of coincidental teaching episodes was .00. That rose to .05 during the intervention phase of the study and further increased to .10 episodes per minute during the postintervention phase. Louise did not demonstrate any coincidental teaching episodes in free play during the maintenance phase, resulting in an average rate per minute of .00.

Figure 4 describes Susan's and Louise's rate of coincidental teaching episodes per minute during mealtime (breakfast for Susan and snack for Louise). Susan's rate of coincidental teaching episodes during breakfast showed decreasing trends across intervention and postintervention. During baseline Susan's median rate of episodes for breakfast was .10. That rate fell to .00 and .05 during intervention and post-intervention, rising to .25 during maintenance. During snack time, except for the

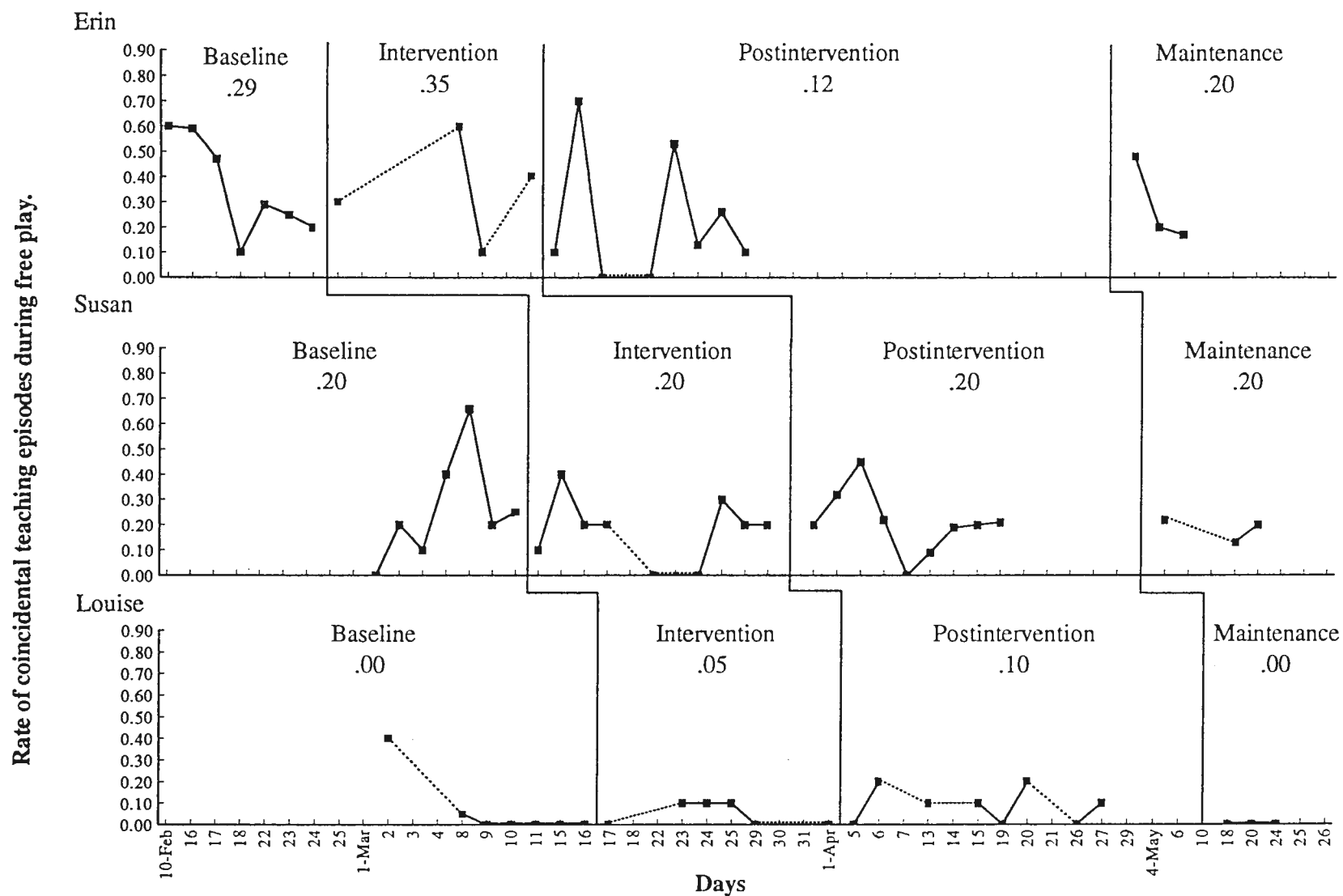


Figure 3. Rate of coincidental teaching episodes during free play. (Median rates for each condition are provided)

Rate of coincidental teaching episodes during mealtime.

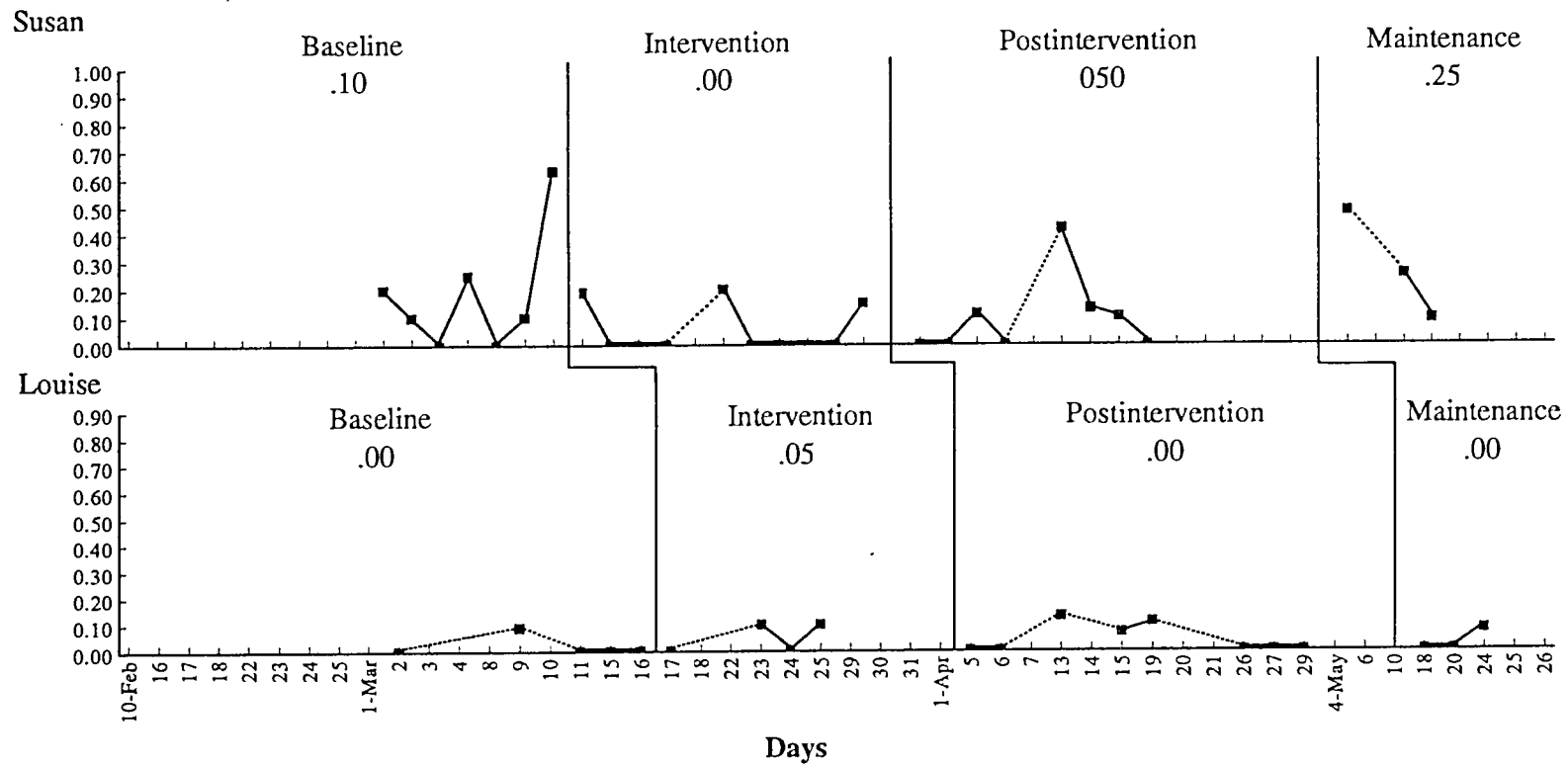


Figure 4. Rate of coincidental teaching episodes during mealtime. (Median rates for each condition are provided)

initial day, Louise's rate of coincidental teaching episodes doubled during the intervention phase, rising from an average of .00 during baseline to .05. Louise's median rate of episodes then fell to .00 for both postintervention and maintenance.

#### Rate of Coincidental Teaching Components Across Experimental Conditions

Figures 5 and 6 illustrate the changes of rate of coincidental teaching components (i.e., embedded initiations, prompts, and consequences) for Erin, Susan, and Louise during free play and mealtime. Table 11 is a description of the average rate of coincidental teaching components for each teacher across experimental conditions. As Figures 5 and 6 illustrate, neither Erin or Susan showed any increasing patterns across the condition phases. Louise's free play data showed increases from baseline to intervention and postintervention, with decreasing trends during maintenance. Louise also showed some increases in mealtime data, especially in her median rate of initiations from baseline to intervention.

#### Teachers' Use of Coincidental Teaching Setups Across Experimental Conditions

Observations of teachers' use of coincidental teaching setups involved inferences about teacher behavior. For example, did the teacher put a toy on a shelf out of the child's reach because she wanted to encourage the child to ask for it, or because she had no where else to put it? Because interpreting these behaviors required inferences, teachers' use of coincidental teaching setups was not a dependent variable. However, increased setup use across experimental conditions

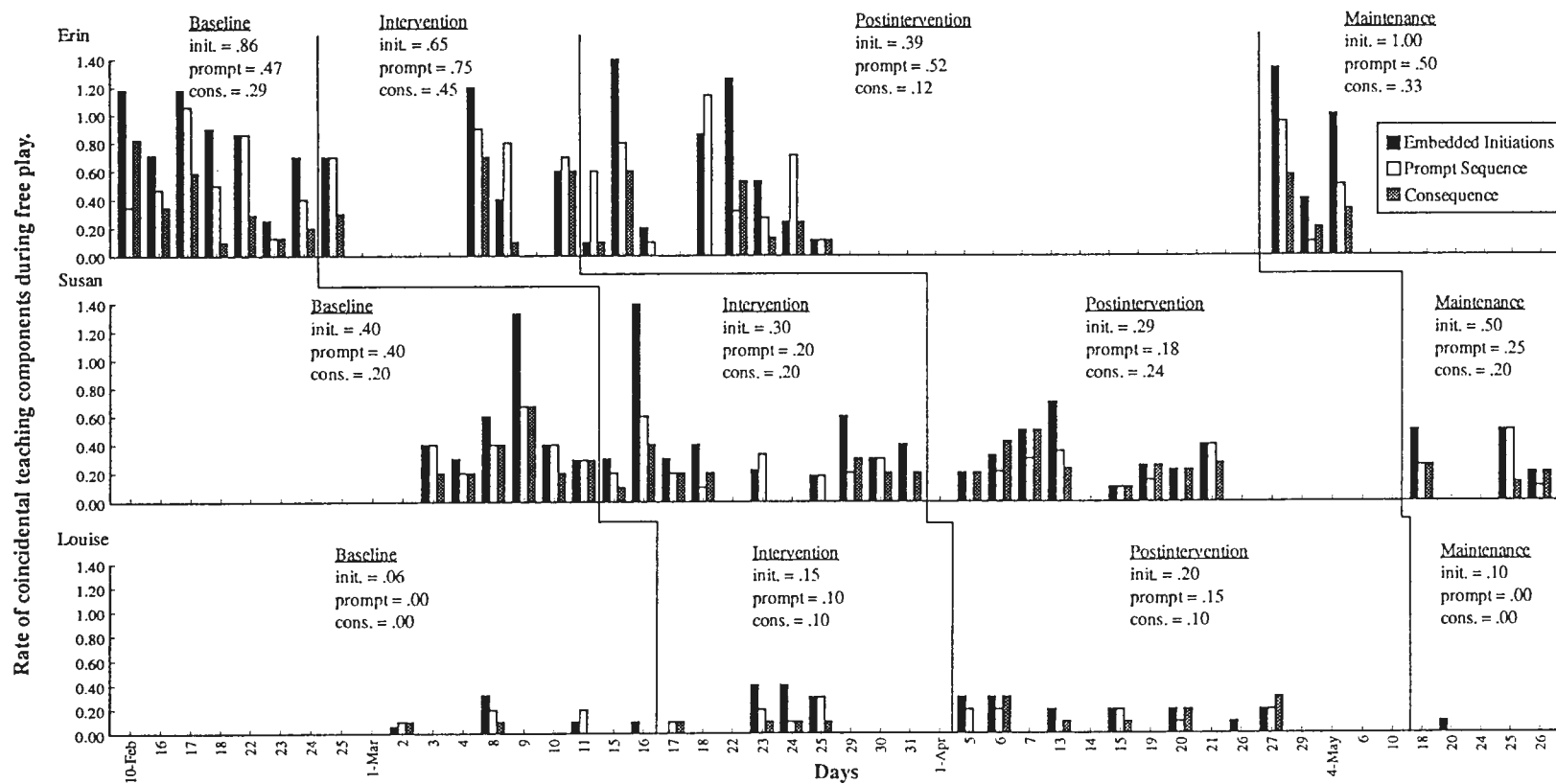


Figure 5. Rate of coincidental teaching components during free play. (Median rates for each condition are provided)



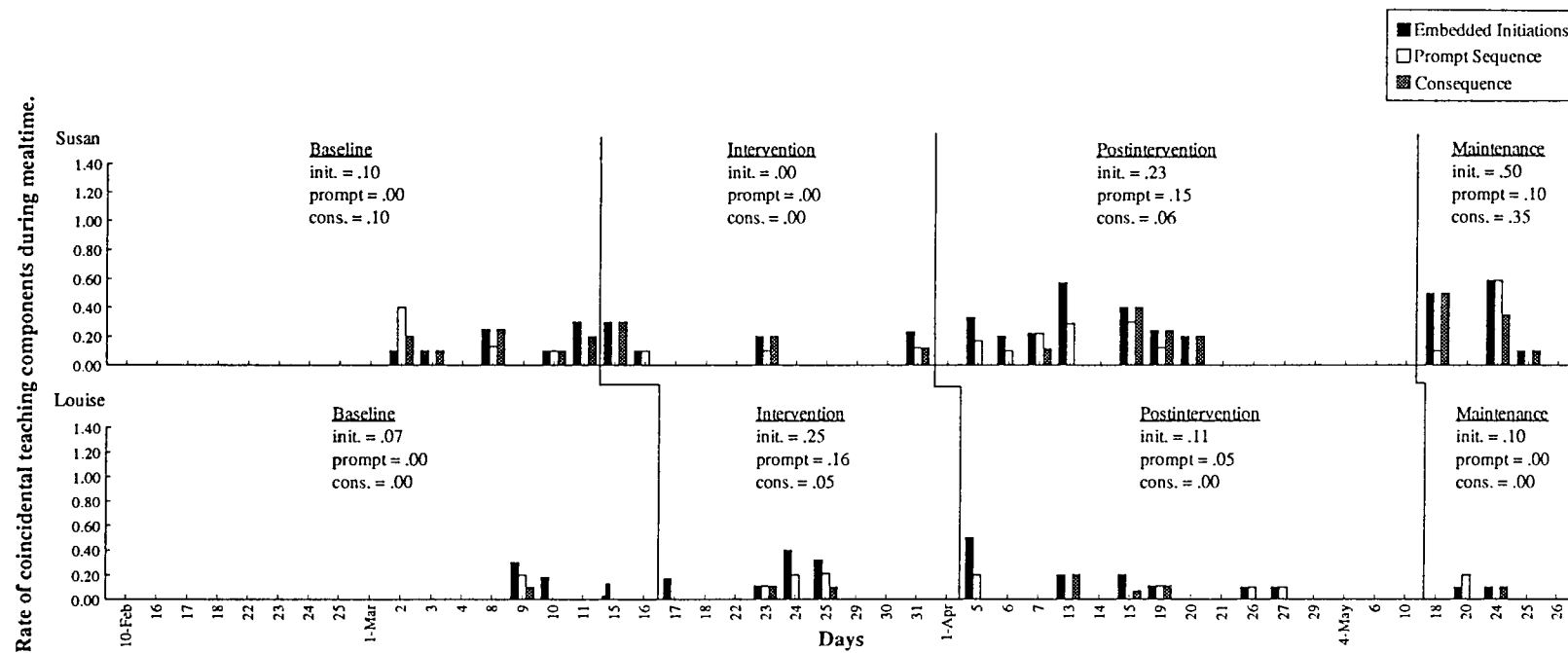


Figure 6. Rate of coincidental teaching components during mealtime. (Median rates for each condition are provided)

Table 11

Average Rate of Coincidental Teaching Components Per Minute

Teacher	Baseline	Intervention	Postintervention	Maintenance
<u>Erin--Free Play</u>				
Initiations	.86	.69	.58	.96
Prompts	.57	.50	.54	.53
Consequences	.41	.33	.25	.36
<u>Susan--Free Play</u>				
Initiations	.39	.55	.34	.39
Prompts	.14	.04	.20	.27
Consequences	.25	.22	.27	.19
<u>Susan--Breakfast</u>				
Initiations	.31	.06	.28	.40
Prompts	.32	.30	.19	.28
Consequences	.20	.04	.12	.32
<u>Louise--Free Play</u>				
Initiations	.09	.23	.18	.02
Prompts	.06	.17	.12	.00
Consequences	.03	.06	.14	.00
<u>Louise--Snack</u>				
Initiations	.11	.25	.19	.11
Prompts	.11	.16	.07	.09
Consequences	.01	.07	.05	.03

may suggest the influence of the self-study package. Table 12 is a description of the degree of agreement between the investigator and the reliability coders for each experimental condition and setting for coding setups. The two measures of interest are the setup type (e.g., sabotage, violating expectations) and the time (minute and second) that evidence of the setup was observed. Figures 7 and 8 show changes in the rate of coincidental teaching setups per minute for each Erin, Susan, and Louise, respectively. Table 13 provides the average rate of coincidental teaching setups observed per minute for each participant. It can be noted in Figures 7 and 8 that there were no changes in the median rate of coincidental teaching setups for any of the participants. Table 13 shows that both Erin and Susan showed increases in the rate of coincidental teaching setups observed from the baseline to the intervention phase of the investigation.

Agreement Between Observers and Reliability  
Coder on the Proportion of Teacher-Child  
Interaction Time Devoted to Instruction

Table 14 is a description of the average percentage of agreement between observers and reliability coder for the proportion of teacher-child interaction time devoted to instruction. Percentage of agreement is reported for each of the following variables: (a) the child with whom the teacher was interacting, (b) whether the interaction was goal- or non-goal related, (c) the time the interaction began (in minutes and seconds), and (d) the time the interaction ended. If the interaction was goal-related, observers also noted the specific goal targeted by the

Table 12

Agreement Between Investigator and Reliability Coders for Evidence of Setups

Setting/Behavior	% of Sessions Checked	Mean	Median	Range
<u>BASELINE</u>				
<u>Free Play</u>	45%			
Setup Type		94	100	50-100
Setup Time		94	100	50-100
<u>Snack/Breakfast</u>	43%			
Setup Type		84	100	0-100
Setup Time		84	100	0-100
<u>INTERVENTION</u>				
<u>Free Play</u>	20%			
Setup Time		67	100	0-100
Setup Type		67	100	0-100
<u>Snack/Breakfast</u>	17%			
Setup Time		100	100	none
Setup Type		100	100	none
<u>POSTINTERVENTION</u>				
<u>Free Play</u>	20%			
Setup Time		100	100	none
Setup Type		100	100	none

(table continues)

Setting/Behavior	% of Sessions Checked	Mean	Median	Range
<u>Snack/Breakfast</u>	18%			
Setup Time		100	100	none
Setup Type		100	100	none
<u>MAINTENANCE</u>				
<u>Free Play</u>	22%			
Setup Type		100	100	none
Setup Time		100	100	none
<u>Snack/Breakfast</u>	33%			
Setup Type		100	100	none
Setup Time		100	100	none

teacher. If the interaction was non-goal-related, observers noted whether or not the interaction was instructional (i.e., a mand or direction to perform an instructional task).

#### Changes in the Proportion of Teacher-Child Interaction Time Devoted to Instruction

Figures 9 and 10 show changes in the proportion of teacher-child interaction time devoted to instruction across each experimental condition. None of the participants showed significant changes in the proportion of instructional time across experimental conditions. All show great variability and overlap of data points across each experimental condition. Table 15 displays the average proportion of interaction time devoted to instruction across each experimental condition.

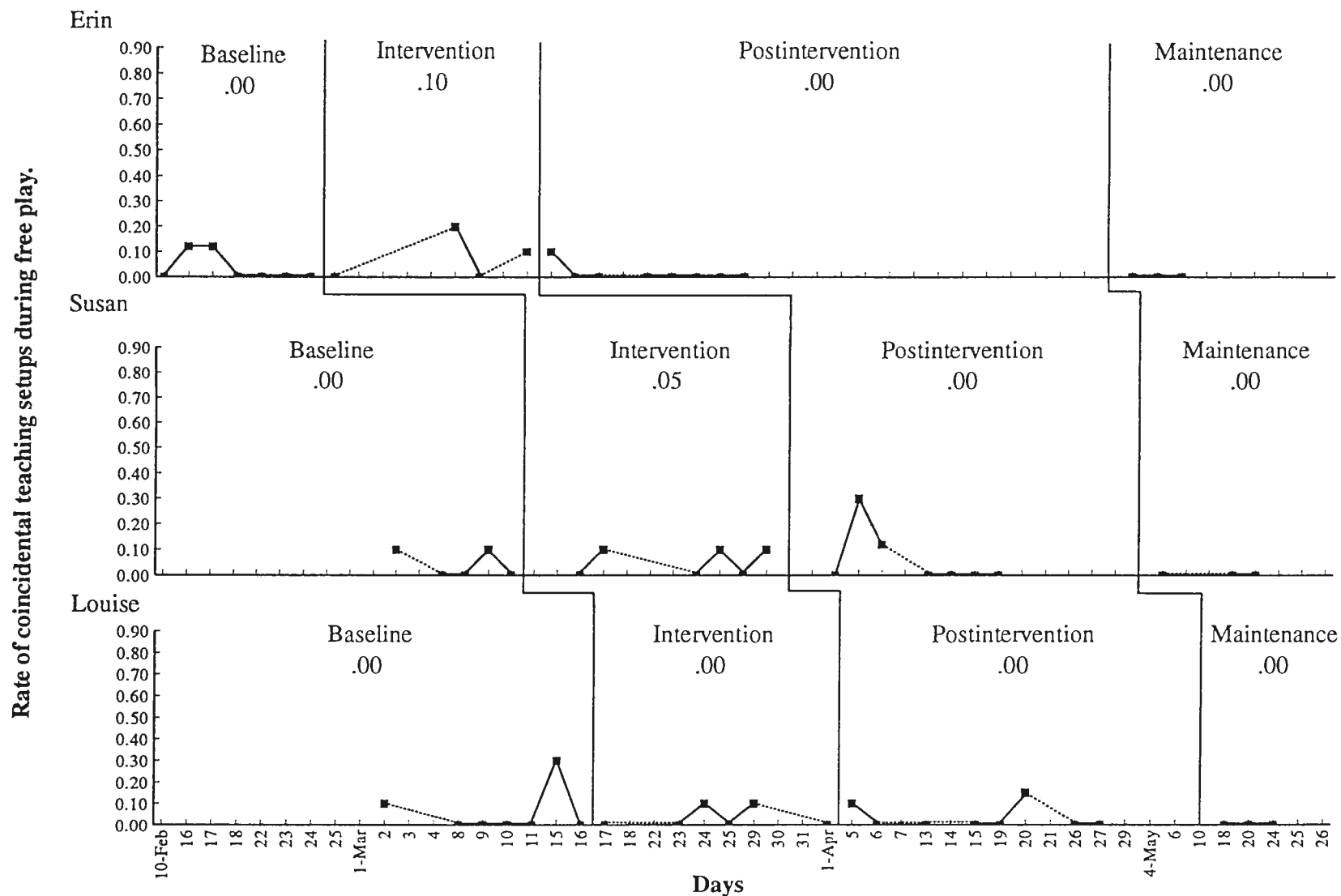


Figure 7. Rate of coincidental teaching setups during free play. (Median rates for each condition are provided)

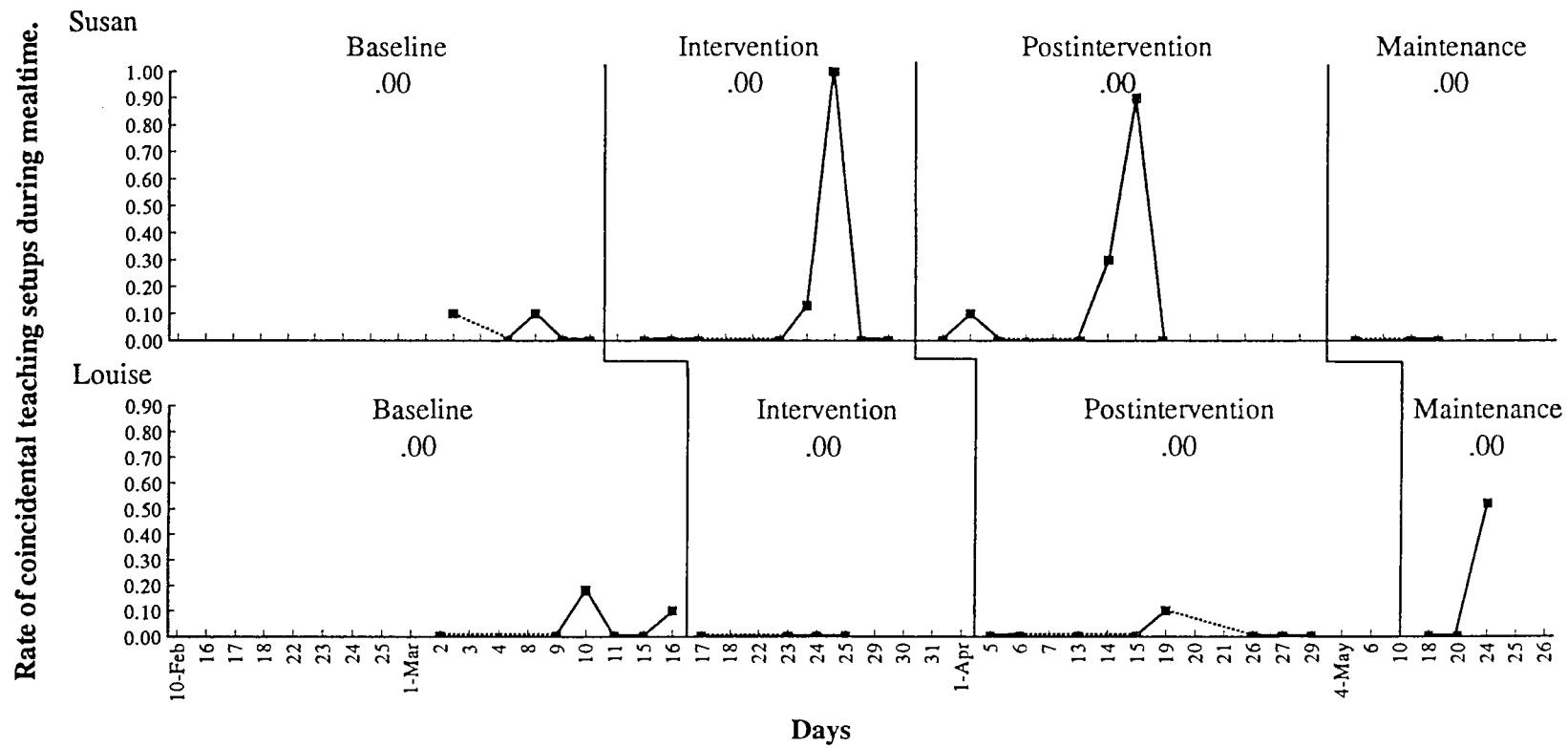


Figure 8. Rate of coincidental teaching setups during mealtime. (Median rates for each condition are provided)

Average Rate of Coincidental Teaching Setups Per Minute Across Experimental Conditions

Teacher-- Setting	Baseline	Intervention	Post- Intervention	Maintenance
Erin--Free Play	.03	.10	.01	.00
Susan--Free Play	.04	.05	.08	.00
Susan-- Breakfast	.04	.13	.16	.00
Louise--Free Play	.05	.04	.04	.00
Louise--Snack	.04	.00	.01	.17

Table 14

Agreement Between Observers and Reliability Observer on Proportion of Interaction Time During Which Teacher Provided Instruction

Experimental Condition	% of Sessions Checked	Mean	Median	Range
<b>FREE PLAY--BASELINE</b>	35%			
<u>Goal-Related</u>				
Target Child		92	100	44-100
Beginning Time		90	100	44-100
End Time		71	57	33-100
Goal		94	100	56-100

(table continues)



Experimental Condition	% of Sessions Checked	Mean	Median	Range
<b>FREE PLAY--INTERVENTION</b>				
<u>Non-Goal-Related</u>	35%			
Target Child		97	97	94-100
Beginning Time		94	94	88-100
End Time		96	92	90- 97
Interaction Category		95	96	85-100
<b>FREE PLAY--POST INTERVENTION</b>				
<u>Goal-Related</u>	25%			
Target Child		88	100	40-100
Beginning Time		88	100	40-100
End Time		71	66	40-100
Goal		88	100	40-100
<u>Non-Goal-Related</u>	25%			
Target Child		91	92	85- 95
Beginning Time		87	89	76- 95
End Time		86	87	74- 95
Interaction Category		92	92	89- 95
<u>Goal-Related</u>	21%			
Target Child		90	100	50-100
Beginning Time		87	100	50-100

(table continues)

Experimental Condition	% of Sessions Checked	Mean	Median	Range
End Time		74	100	0-100
Goal		90	100	50-100
<u>Non-Goal-Related</u>	21%			
Target Child		99	100	95-100
Beginning Time		89	90	75- 98
End Time		90	92	73- 98
Interaction Category		98	98	95-100
<b>FREE PLAY--</b>				
<b>MAINTENANCE</b>				
<u>Goal-Related</u>	44%			
Target Child		100	100	none
Beginning Time		97	100	88-100
End Time		90	92	75-100
Goal		100	100	none
<u>Non-Goal-Related</u>	44%			
Target Child		89	94	72- 97
Beginning Time		79	82	54- 97
End Time		77	82	48- 97
Interaction Category		92	96	76-100

(table continues)

Experimental Condition	% of Sessions Checked	Mean	Median	Range
<b>SNACK--BASELINE</b>				
<u>Goal-Related</u>	36%			
Target Child		100	100	none
Beginning Time		100	100	none
End Time		100	100	none
Goal		100	100	none
<u>Non-Goal-Related</u>	36%			
Target Child		97	98	93-100
Beginning Time		98	97	95-100
End Time		96	96	92-100
Interaction Category		94	93	92- 98
<b>SNACK-INTERVENTION</b>				
<u>Goal-Related</u>	29%			
Target Child		92	100	67-100
Beginning Time		86	88	67-100
End Time		94	100	75-100
Goal		92	100	67-100
<u>Non-Goal-Related</u>	29%			
Target Child		90	93	76- 97
Beginning Time		92	91	85-100
End Time		89	87	81-100
Interaction Category		96	97	92-100

(table continues)

Experimental Condition	% of Sessions Checked	Mean	Median	Range
<b>SNACK--POST INTERVENTION</b>				
<u>Goal-Related</u>	19%			
Target Child		100	100	none
Beginning Time		72	67	50-100
End Time		66	67	50- 80
Goal		100	100	none
<u>Non-Goal-Related</u>	19%			
Target Child		92	98	81- 98
Beginning Time		85	83	77- 95
End Time		85	85	77- 94
Interaction Category		94	95	87-100
<b>SNACK--MAINTENANCE</b>				
<u>Goal-Related</u>	50%			
Target Child		100	100	none
Beginning Time		100	100	none
End Time		100	100	none
Goal		100	100	none
<u>Non-Goal-Related</u>	50%			
Target Child		92	91	90- 94
Beginning Time		87	87	84- 91
End Time		85	89	76- 91
Interaction Category		87	87	84- 91
Interaction Category		94	93	92- 98

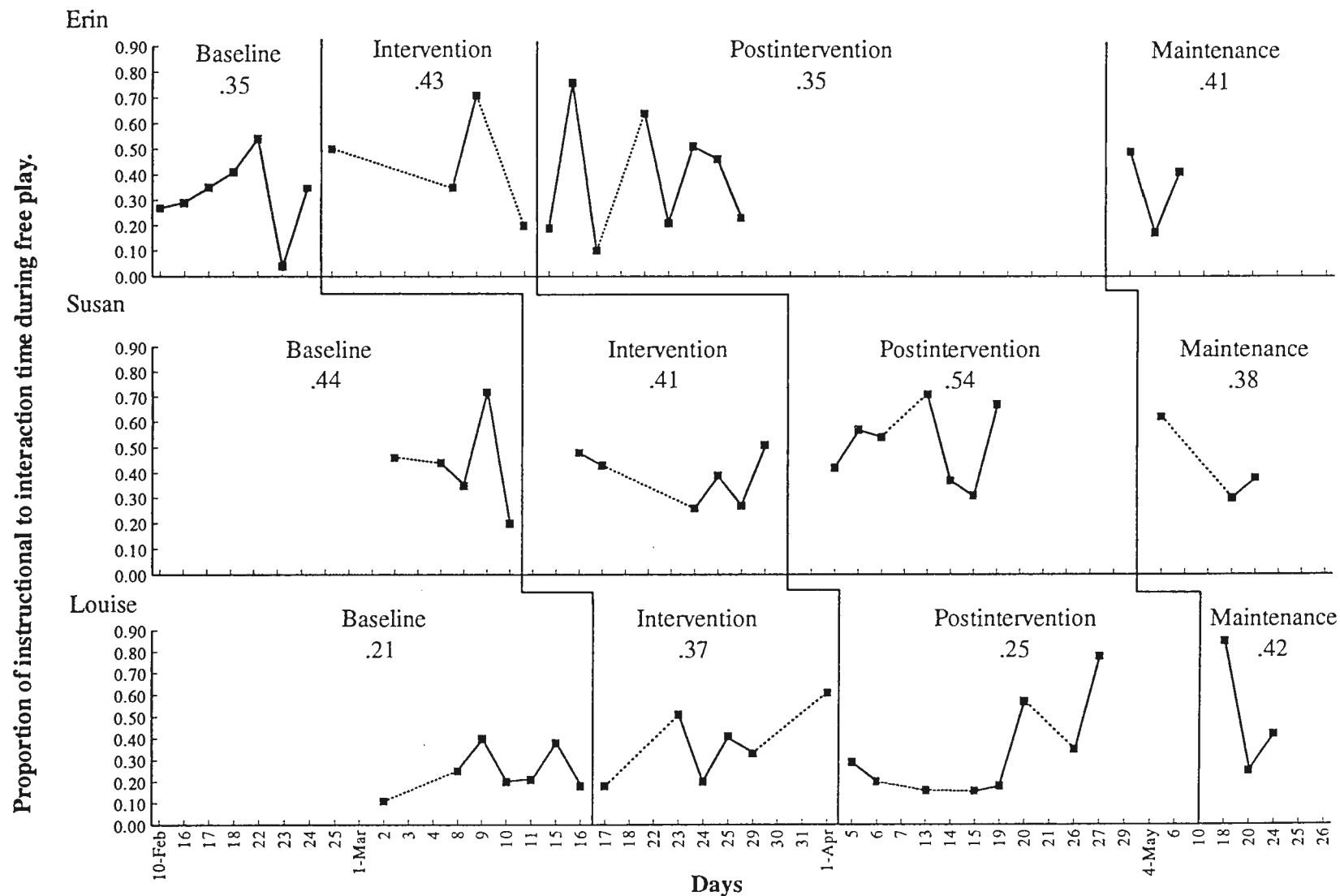


Figure 9. Proportion of instructional to interaction time during free play. (Median rates for each condition are provided)

Proportion of instructional to interaction time during mealtime

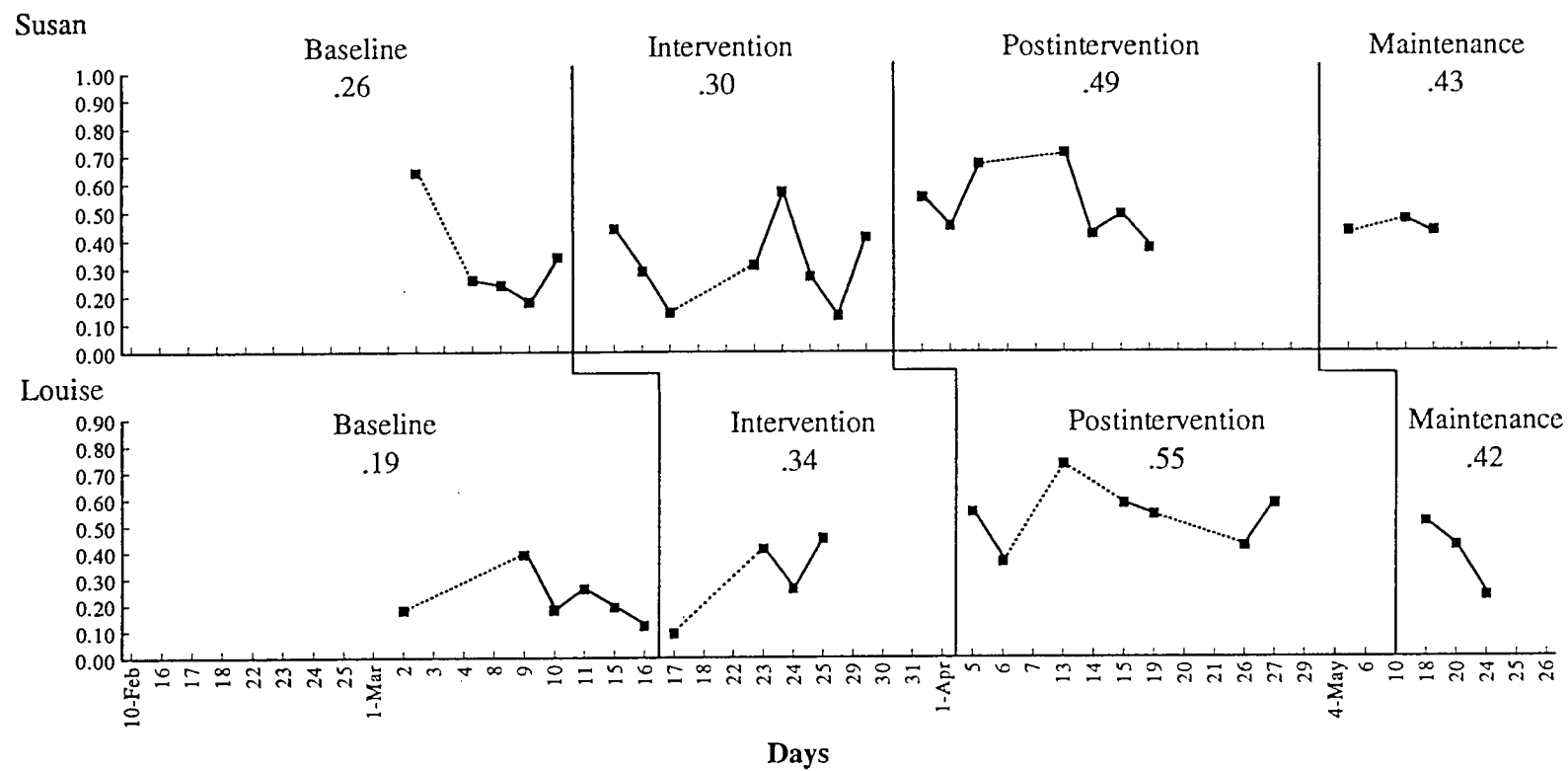


Figure 10. Proportion of instructional to interaction time during mealtime. (Median rates for each condition are provided)

Table 15

Average Proportion of Teacher-Child Interaction Time Devoted to Instruction

Teacher--Setting	Baseline	Intervention	Post-intervention	Maintenance
Erin--Free Play	34 %	42 %	39 %	36 %
Susan--Free Play	43 %	39 %	51 %	43 %
Susan--Breakfast	35 %	30 %	52 %	44 %
Louise--Free Play	19 %	41 %	42 %	51 %
Louise--Snack	20 %	37 %	47 %	39 %

Changes in the Rate of Coincidental Teaching Episodes and the Proportion of Instructional Time for Individual Target Children

Of interest was whether or not teachers increased their use of coincidental teaching with specific target children. To answer this question, the investigator conducted individual analyses for all target children. Graphs for individual children are included in Appendix I. Graphed data show no clear increases in the rate of coincidental teaching episodes per child for any teacher during target settings. There were however, increases in the proportion of teacher-child interactions spent in instructional interactions for two of six (30%) children with whom Susan used coincidental teaching and three of nine (30%) children with whom Louise used

coincidental teaching. Susan increased her instructional interactions with child 2D during both free play and breakfast. She also increased instructional interactions with child 2B during breakfast. Similarly, Louise increased her instructional interactions with child 3B during both free play and snack. She also increased her instructional interactions with child 3E during free play and with child 3D during snack time. Tables 19 through 23 are included in Appendix J; they display the average rate of coincidental teaching episodes per minute per child for each teacher. Tables 24 through 28 are also included in Appendix J and display the proportion of teacher-child interaction time spent in instructional time.

#### Summary of Interviews with Teachers

Interviews were conducted with each teacher following the maintenance phase of the investigation. The results of these interviews are summarized in Tables 16 and 17. Teachers were asked about the effectiveness of coincidental teaching, specific coincidental teaching components that were easy and difficult to implement, whether or not they would continue to use coincidental teaching, and why they may not use coincidental teaching.

How effective is coincidental teaching? All three teachers stated that coincidental teaching is an effective instructional strategy for classroom use. All three teachers discussed the ease with which coincidental teaching could be used during routine activities and naturally-occurring opportunities.



Table 16

Summary of Teacher Responses about Coincidental Teaching as an Instructional Strategy

Interview Question	Erin	Susan	Louise
<i>How effective is coincidental teaching?</i>	Very effective because teachers can take advantage of naturally-occurring opportunities	Very effective because it can be used with other types of teaching. It's good to use during free play and meals because it makes me think about how children can learn from my responses.	Very effective because it is helpful to address expressive language skills. It takes advantage of the environment and children's interest.
<i>Which coincidental teaching component was the easiest to implement?</i>	The prompts and the natural consequences. Prompting a child to respond seems more natural.	Setups--they are the closest to which I've been doing all along.	Consequences--it is easy to use things that occur naturally in the classroom.
<i>Which coincidental teaching component was the most difficult to implement?</i>	Setting up opportunities. They were time-consuming and required me to plan ahead. If the child isn't interested in what I've set up, I've wasted my time.	Prompting a child to give a target response. I didn't know how to proceed once an opportunity happened. It didn't come naturally.	Monitoring children's behavior (data collection). It was often time-consuming and difficult to organize for myself and the paraprofessionals.

(table continues)

Interview Question	Erin	Susan	Louise
<i>Will you continue to use coincidental teaching in the classroom?</i>	Yes, but not to the extent proposed in the package. Setting up opportunities was burdensome.	Yes, because it's effective.	Yes, because it was fun and beneficial. It was easy to use things that already existed in the environment that helped accomplish goals. It also kept learning the context of the child's activity.
<i>Why might you not use coincidental teaching as the packet proposed?</i>	Because it seemed burdensome (except for the PIEP cards--they worked really well)	Incidental teaching is even better because the child initiates it and then pulls me in. Coincidental teaching can be frustrating because I have to initiate and the child may not be interested.	I really don't think I wouldn't use it. It's something you can use throughout your whole day, not just for snack or free play. Especially the PIEP cards, I thought those were helpful to use in all the data that you take and all the areas we focus on in preschool.
<i>During what setting--free play or snack, was coincidental teaching easiest to implement?</i>	For a broader range of skills--free play. It was easier to address children's goals during free play. Snack was good for social and self-help skills (like cutting), but the children I work with aren't up to that point yet.	Free play is easier because there are a lot more things kids can ask for or you could set up. At the [snack] table there's just some specific things you can talk about.	I found that they were both quite easy to implement. On either one, I didn't find one harder than the other.
			(table continues)

Interview Question	Erin	Susan	Louise
<i>What are some reasons you might not use coincidental teaching in routine classroom activities?</i>	None, other than I just might not think of it.	If I have to set up an opportunity and initiate an interaction with the child, the child may not be interested. If I follow the child's lead like I do in my individual lesson, the child will often lead me in a different direction with the same kind of concept and I follow them...	None that I can think of.

Table 17

Summary of Teacher Responses about the Self-Study Package

Interview Question	Erin	Susan	Louise
<i>Compared to traditional ways of learning, do you think the instructional package was an effective method of learning?</i>	Instructions in part of the package were unclear. I had a couple of questions and I had to keep calling Laurie. It's harder when the instructor is not there. In some cases a question comes up and so you go ahead and do it the way you think it is and it's not what they wanted. Compared to a traditional class, it was a little more hectic.	Yes--that's my kind of learning style. I like to do things on my own. The videotapes helped. I thought it [the self-study] package was very effective.	I thought the booklet was really good. The video was a little hard to, well I liked the video, but sometimes I didn't know what I was looking at.
<i>What activity in the instructional package did you enjoy the most?</i>	I liked seeing the video tapes and watching the different scenarios. The graph [matrix for outside readings] was nice.	I liked them all because this were new to me, this term coincidental teaching. I never knew what it was, so I needed to read about it, and I needed to answer the questions. I like the videos and I liked everything. And I needed everything. The film was probably the best because I got to take it and put it in practice.	I liked the one where we had to think of activities to go along with that little table she gave us. I use those [ideas] a lot now and I really like that.

(table continues)

Interview Question	Erin	Susan	Louise
<i>What activity did you least enjoy?</i>	The essay questions [for outside readings]. For one thing, my personal life was very busy at the time. I answered the questions the way I thought they should be, but they weren't what she wanted so we kept passing them back and forth.	Probably just answering the questions [the study questions] those are kind of boring.	Probably the journal readings. There was one that was really long...with all the data and the responses [Hart & Risley].
<i>What activity in the instructional package helped you learn about coincidental teaching?</i>	The first part, when they outlined and defined what coincidental teaching was and the different ways of doing it. The examples that they showed were also helpful.	The videotaping and answering the questions and whether it was coincidental teaching [discrimination training].	Watching the video and filling out what was going on [discrimination training]. We could see what was going on and how the children might react and what you could do to get them to respond.
<i>What activity in the package was the least effective in helping you learn about coincidental teaching?</i>	Everything after the first part was just repeating what had already been said. The first research article [Hart & Risley] I didn't get a lot out of. I don't enjoy reading research articles.	The questions...(?). I would have liked to have more videotaped examples just in a classroom, not staged. I would have loved to see another teacher walk through her day in a very natural way. I think the only thing lacking was that I didn't get to practice it in a classroom with a peer or something and I was just kind of on my own.	Probably just answering the questions [study questions].

(table continues)

Interview Question	Erin	Susan	Louise
<i>Would you like to take a class again that used these methods of delivering instruction?</i>	Probably not for awhile. Right now I don't have the time or the interest. I have done other correspondence [classes] and I find them difficult to do because of other things going on.	Yes	Yes--it was really beneficial and since it was my first year of teaching, anything to help me improve and anything to help make teaching more interesting.

Which components of coincidental teaching were easiest and most difficult to implement? Erin and Louise both identified providing natural consequences as the easiest component to implement. Erin also stated that prompting a child during an activity was easy to implement. Susan stated that setting up opportunities for coincidental teaching was the easiest, stating that "they are the closest to what I've been doing all along." All three teachers had different responses to this question. Erin thought setting up opportunities was the most difficult, Susan identified prompting a child for a response was difficult for her, while Louise spoke about the difficulty in monitoring students' responses.

Will you continue to use coincidental teaching in the classroom? Why might you not use coincidental teaching? All three teachers said that they would continue to use coincidental teaching in the classroom. Erin, however, expressed reservations about using coincidental teaching as it was outlined in the self-study package. In response to this question, Erin again identified setting up coincidental teaching opportunities as difficult to do on a systematic basis. When asked why she might not use coincidental teaching as the package proposed, Susan also alluded to the difficulty in trying to interest a disinterested child in a coincidental teaching interaction. Both Erin and Louise said that the PIEP cards (data collection forms) included in the package worked very well in their classrooms.

During what setting was coincidental teaching easiest to implement? Louise could not identify either snack time or free play as being an "easier" setting within which to implement coincidental teaching. Erin and Susan, however, both identified

free play as the "easier" setting. Their responses indicated that because free play was less structured, that there were more opportunities to address various skills.

### Summary of Teacher Responses about the Self-Study Package

Compared to traditional ways of learning, how effective was the self-study package? Teachers were asked their opinion on delivering instruction via the self study package. Specifically, the interviewer asked them to compare the self-study package to traditional ways of learning. Both Susan and Louise said they enjoyed learning about coincidental teaching via the self-study package. Erin, however, thought that the self-study package was unclear and hard to complete.

Which components of the self-study package were the most and least enjoyable? Both Erin and Susan enjoyed watching the videotape that portrayed examples and nonexamples of coincidental teaching. For Louise, however, the discrimination training was the least enjoyable self-study component. Erin enjoyed completing the matrix for which she identified specific ways of setting up coincidental teaching opportunities during routine activities. All three teachers said that they least enjoyed completing the outside reading study guides.

Which package components were the most and least useful in helping you learn about coincidental teaching? Both Susan and Louise said that the discrimination training assignment completed by watching the videotape was the most useful and helped them the most. Erin said that the first part of the workbook (the written explanation of coincidental teaching) was the most useful. All three teachers again



identified the outside readings (i.e., Bricker & Cripe, 1992; Hart & Risley, 1980) as the least useful for learning about coincidental teaching.

Would you take a class again that used these methods of delivering instruction?

Susan and Louise both stated that they would again take a class that involved self-study. Erin, however, said that she would not like to take a self-study class again "for a while."

## CHAPTER V

### DISCUSSION

The purpose of this investigation was to examine the effects of a self-study package that combined didactic training, modeling, discrimination training, practice, and feedback on teachers' use of coincidental teaching during free play and snack time, two routine preschool activities. Specifically, this investigation addressed three major research questions. The first question addressed the issue of knowledge change, i.e., could teachers learn to use coincidental teaching by completing the self-study package? Second, did teachers begin to use coincidental teaching more often in their classrooms after completing the self-study package? Finally, what were teachers' perceptions about the self-study package in terms of (a) satisfaction with the instructional format (i.e., self-study versus traditional university class) and (b) satisfaction with coincidental teaching as an instructional strategy?

#### Knowledge Changes Concerning Coincidental Teaching

Three teachers participated in this investigation, two of whom taught in early childhood special education classrooms. The third teacher taught in a preschool for children from economically disadvantaged families who were "at risk" for developmental delays. To answer the first research question, teachers completed a pretest and posttest designed to measure changes in knowledge of coincidental teaching as a result of the self-study package. They also completed a series of written

assignments included in the self-study package. These assignments were graded by the investigator (and a second person who assessed reliability of grading) who provided feedback and remedial instruction until each teacher reached a criterion level of performance. Results of this investigation provide evidence that teachers: (a) performed significantly better on a posttest than a pretest designed to assess changes in knowledge of coincidental teaching, (b) reached criterion levels of 80% correct on all written assignments included in the self-study package, and (c) demonstrated through practice videotapes that they were able to correctly implement a coincidental teaching episode.

Teachers who completed the self-study package were able to demonstrate several competencies. These included: (a) identifying functional skills for intervention during free play and snack time, (b) describing how to set up coincidental teaching opportunities, (c) discriminating between videotaped examples and nonexamples of prompting and consequating, (d) discriminating between videotaped examples and nonexamples of coincidental teaching, and (e) developing written coincidental teaching plans. The teachers in this study had difficulty writing behavioral objectives that included evaluation criteria within their coincidental teaching plans. This difficulty probably stems from a deficiency in the self-study package; it was assumed that teachers would be able to write appropriate behavioral objectives. The culminating activity of the self-study package was to implement the coincidental teaching plans previously described, thereby providing evidence of behavioral proficiency. All three teachers successfully demonstrated that they could

use coincidental teaching in their classroom. Thus, this investigation demonstrated that the self-study package can be used to help teachers learn how to use coincidental teaching.

### Changes in Teachers' Use of Coincidental Teaching

The second research question was intended to be addressed through the use of an experimental research design, i.e., a multiple baseline design across teachers. Using this design would have enabled the investigator to determine if changes in teacher behavior (i.e., increases in the [a] rate of coincidental teaching episodes and components, [b] rate of coincidental teaching set ups, [c] proportion of total interaction time with target children that the teacher devoted to instruction) occurred after teachers completed the self-study package. Unfortunately, practical considerations forced the investigator to modify the research design. These modifications limited the validity of the present results. Changing the conditions under which baseline and intervention data were collected resulted in possible threats to the internal validity of this investigation. Specifically, the investigator could not control the effects of possible historical confounding that may have differentially affected the results of the investigation. Given this confound, the results of this study demonstrated no effects on teachers' behavior associated with completing the self-study package. The results of the study are discussed more thoroughly below.

Changes in the rate of coincidental teaching episodes. The results of

observations showed little increase in either Erin's or Susan's use of coincidental teaching as measured by the rate of coincidental teaching episodes. Their rates were highly variable. Louise did show increases in the rate of coincidental teaching episodes from baseline to intervention and post-intervention; however, these increases were not apparent during the maintenance phase of the investigation.

Changes in the rate of coincidental teaching components. Other dependent measures for this investigation included coincidental teaching components, specifically, teacher initiations embedded within the context of the child's activity, teacher prompts to produce a correct response, and teachers' provisions of consequences contingent upon a correct child response. Consistent with the rate of coincidental teaching episodes, the data analysis showed little change in the rate of any coincidental teaching components for either Erin or Susan. Louise's data showed increases in the initiations, prompts, and consequences from baseline to intervention and postintervention, but these were not apparent during the maintenance phase of the investigation. Louise also increased her rate of prompting and consequating children's responses from baseline to intervention and postintervention; however, none of these increases were maintained. One possible explanation for this phenomenon is the small number of data points in the maintenance condition. Maintenance data were only collected on three occasions for both free play and snack. The data points may not be an accurate representation of true coincidental teaching behavior for any of the participating teachers.

Changes in the rate of coincidental teaching setups. As part of the self-study

package, teachers learned to describe how they would set up coincidental teaching opportunities. However, they did not consistently increase the number of coincidental teaching setups from baseline to intervention, postintervention, or maintenance. Only Susan's breakfast data showed increases in the average rate of setups observed from baseline to intervention and postintervention (but not during maintenance).

Changes in the proportion of teacher instruction time. Along with the rate of coincidental teaching episodes and components observed per minute, the proportion of time that teachers devoted to instruction during interactions with target children was another dependent variable. The results of the data show that within interactions with children, only Louise significantly increased the proportion of time during which she provided instruction from baseline to intervention and postintervention.

#### Translating Knowledge about Coincidental Teaching into Increased Use of Coincidental Teaching in Classrooms

It is clear from this investigation that teachers who completed the self-study package scored higher on a pre-/posttest measure and were able to successfully complete written assignments about coincidental teaching. Furthermore, teachers demonstrated on a practice videotape that they could implement written coincidental teaching plans in their classroom. Why then, were there no observed increases in teachers' use of coincidental teaching in their classrooms? To answer this question, it is informative to examine teachers' comments about the self-study package and coincidental teaching obtained during interviews. It is also necessary to examine

limitations of this investigation to determine what if any effect they might have had on the results. First, the interview results with teachers will be analyzed. Following this analysis is an analysis of the possible effect that definitional issues, experimental design, and control issues might have had on the results. Finally, the investigator will turn to the literature on professional development and classroom behavior change in an attempt to account for the inconsistencies in behavior change in this investigation.

### Results of Interviews with Teachers

The final dependent measures for this investigation were teachers' responses to interview questions asked after the experimental phase of the study ended. Teachers' responses were generally positive about both the self-study package and coincidental teaching as an effective instructional strategy: They felt that the self-study package was an effective way to learn and they also felt that coincidental teaching was an effective instructional strategy. All three teachers identified the outside reading assignments as being the least enjoyable and beneficial component of the self-study package. They differed in what they identified as the most difficult coincidental teaching component to implement in the classroom. Each teacher's comments will be discussed in further detail below.

Erin's comments. Of all the participants, Erin was the most experienced and used coincidental teaching most often during the investigation. It is interesting to note then, that her responses were the least positive of all three participants. During this

investigation, Erin was experiencing a stressful personal life. Participation in this investigation quite possibly added to these stressors, thereby resulting in negative comments about the self-study package and coincidental teaching as an instructional strategy. Erin's less-than-enthusiastic endorsement of the self-study package or coincidental teaching is consistent with what was observed during videotaped free play sessions: Erin's data showed no increases in any of the rate measures designed for this study or the proportion of interaction time devoted to instruction. Also consistent with the data was Erin's response that setting up opportunities for coincidental teaching was the most difficult coincidental teaching component to implement. As with Susan and Louise, observers rarely noted evidence of coincidental teaching setups for Erin during the study.

There are discrepancies between what Erin identified as the easiest and most difficult coincidental teaching components to implement and Erin's data. For example, although she said that prompting and consequating children were the easiest components to implement, the rate at which she embedded initiations was consistently higher than either the rate at which she prompted or consequated responses.

Susan's comments. Susan's comments were probably the least consistent with her behavior as observed during the videotaped free play and breakfast sessions. Susan was very positive about coincidental teaching: She said that it was an effective instructional strategy and that she would continue to use it. Despite these comments, Susan's data showed little increase in her use of coincidental teaching. During this investigation, Susan was also experiencing difficulties in the classroom. New children



were enrolling in her classroom and she expressed frustration at not being able to interact with the children during free play and breakfast. (Readers are reminded that during this investigation, teachers were asked to interact only with target children during free play and snack or breakfast.) Perhaps these classroom difficulties constrained Susan's use of coincidental teaching during free play or snack time. Other discrepancies between Susan's comments and her behavior existed: Although she identified prompting as the most difficult coincidental teaching component to implement, the rate at which she prompted children was higher than the rate at which she provided a consequence.

Louise's comments. Louise's comments were probably the most consistent with data collected during videotaped observations of free play and snack time. Louise was the only participant to show increases in the use of coincidental teaching from the baseline to intervention and postintervention phases of the investigation. Louise's comments about coincidental teaching as an instructional strategy were also very positive. When asked which component was the most difficult to implement in the classroom, Louise identified monitoring children's responses (i.e., data collection). This response is consistent with the data: With the exception of the videotaped coincidental teaching plans teachers completed as part of the self-study package, observers never noted teacher behavior that might have indicated any were collecting data. Although Louise's comments were generally consistent with the data, there was one discrepancy: Louise identified consequence children's responses as the easiest component to implement, even though she rarely consequence children's

responses during the videotaped sessions.

Naturalistic interventions such as incidental and coincidental teaching are by definition subtle. Teachers who use naturalistic teaching are encouraged to ask questions or make comments within the context of the child's play. Thus, it is difficult to discriminate between everyday teacher verbalizations (saying "Who wants juice?" to a group of children) and verbalizations focused on children's instructional needs (prompting a child with language delays to say "I want juice."). For this reason, it was necessary to delimit coincidental teaching episodes. It is possible that these delimitations may have affected the observed rates of coincidental teaching episodes and components. The effects of these delimitations are discussed in detail below.

#### Defining a "Teaching" Interaction

When is an interaction between an adult and a child a "teaching" interaction? While this question may be relatively easy to answer if the curriculum focuses on academic skills such as mathematical operations or geography, it is much more difficult to answer when the curriculum focuses on social skills and conceptual knowledge common to an early childhood curriculum. For example, is the teacher who tells the child to "throw your cup in the trash can" teaching the child how to: (a) care for a classroom environment, (b) follow a one-step direction, (c) identify a trash can, or (d) comply with a teacher's request? Could that same teacher just be concerned with maintaining a degree of order in her classroom? If so, the interaction

is not a "teaching" interaction per se, but simply a way of maintaining control over the classroom. Hence, for this investigation, "teaching" interactions (and consequently coincidental teaching episodes) were those that focused only on children's IEP goals. While this may have constrained the degree to which an interaction was identified as coincidental teaching, the investigator chose to limit coincidental teaching to only goal-related interactions for two reasons. First, in their description of coincidental teaching, Haring and Innocenti (1989) proposed that as an instructional strategy, coincidental teaching should be planned and used systematically to address children's goals versus using it randomly or spontaneously. By stressing the degree to which coincidental teaching should be used systematically, Haring and Innocenti emphasized its use as an instructional strategy instead of simply a way of interacting with children.

The second reason for delimiting coincidental teaching episodes only to interactions that focused on children's goals was pragmatic in nature. As was previously discussed, it is impossible to judge a teacher's intent only by her spoken words; it is possible that any comment or question to a child could be judged as an instructional prompt. For example, is the teacher who says "Throw your cup in the garbage" prompting the child to (a) follow directions, or (b) gain receptive language skills? Or is it possible that she does not like trash on the table? Conceivably, almost any teacher verbalization could be viewed as having instructional intent. For this reason, only those teacher verbalizations related to target children's goals were coded, perhaps resulting in a necessarily narrow definition of coincidental teaching.

Also, while it is true that these delimiters might have served to suppress the observed rate of coincidental teaching behavior during the investigation, because definitions did not change during the course of the investigation, they did not have a differential effect.

Effects of goal descriptions on observed coincidental teaching behavior.

Embedded within the issue of defining coincidental teaching as goal-related are the goal descriptions used in this investigation. Readers will recall that the investigator asked teachers to provide written descriptions of target children's goals prior to the baseline phase of the study. These goal descriptions were very ambiguous and vague; in order to use them to define a goal-related interaction, the investigator had to translate them into something observable. Because the investigator wanted to be sure that the operational definitions truly represented the teachers' goals for the children, she showed the teachers the operational definitions of the goals. At that time she asked teachers to read the goal descriptions and add any changes or modifications so they would accurately represent children's goals.

It is possible that showing teachers operational definitions of children's goals may have sensitized them to the nature of the investigation; however, this was done at the same time for all teachers (prior to baseline) and should not have had differential effects on changes in teacher behavior. Another way in which goal definitions may have affected this study's results is that the investigator's definitions did not match teachers' definitions of children's goals. As was previously stated, the investigator did ask teachers for feedback regarding the accuracy of the goal descriptions. She let

each teacher keep the goal descriptions for her target children until the teachers had an opportunity to review them and provide feedback. Only Louise modified one goal for a child; both Erin and Susan said the goals were accurate. The investigator, however, did not see any teacher read the children's goal descriptions. There is a possibility that the teachers did not read the goal descriptions and that the investigator's descriptions were not consistent with teachers' intentions. For example, a goal for a child in Erin's class was to give her full name and age. The investigator defined this goal as follows: "Any time the teacher prompts the child to give her full name (first and last) and age. It is OK for the teacher to ask a child to show how many fingers she is; she doesn't have to say the number. She must, however, ask the child to say her full name--responding to her name when called does not count." Using this definition, observers would not have coded a coincidental teaching episode as one in which Erin called the child by name and prompted her to respond to her name. Observers could have only coded the interaction as coincidental teaching if Erin had said "What is your whole name?" Perhaps, however, Erin's view of a goal-related prompt and the investigator's view were different. This could be true if Erin did not read the goal descriptions provided by the investigator.

Defining components of coincidental teaching. Included in the discussion of the possible effects that behavioral definitions may have had on the results of this investigation is the issue of defining components of coincidental teaching, i.e., defining an initiation, a teacher prompt, a consequence, evidence of data collection, and teachers' use of setups. Each of these will be discussed in more detail below.

Defining initiations and prompts. A coincidental teaching episode was defined as the presence of: (a) an initial teacher prompt (referred to as an initiation) that was goal-related and embedded within the context of the child's activity or the routine activity, (b) a child's response to either the teacher's initiation or a subsequent prompt, and (c) a teacher consequence in which the teacher provided the child either access to a desired object, material, activity, or verbal feedback about the child's response.

In addition to an initiation, teachers could also provide subsequent prompts to assist the child in producing the desired response. A prompt was an observed teacher verbalization or action that assisted the child in producing the response. In this investigation, systematic wait time or an expectant look were not coded as teacher prompts, and yet in reality, they could be used to help children produce desired response as in a time delay procedure. Excluding these subtle types of prompts may have again created an overly narrow definition of coincidental teaching that could have constrained the rate of observed coincidental teaching episodes.

Defining consequences. How could the definition of a consequence impact the results of this study? As previously stated, a consequence was defined as either access to an activity, object, materials, or verbal feedback about the child's response. Using this definition, for example, a teacher smile was not coded as a consequence, nor was continued conversation between the teacher or child. Again, it is possible that this narrow definition of a consequence was inconsistent with teachers' teaching styles and constrained the observed rate of coincidental teaching episodes.

Including teacher setups as coincidental teaching components. Finally, a teacher setup was not included as a required component of coincidental teaching. Also, because making inferences about teachers' intentions based solely on their actions is difficult, teacher setups were not included as a dependent variable in this investigation. They were, however, measured as "evidence" of teacher setups and only those setups that did not require observer inferences were measured. For example, placing materials out of a child's reach was not coded as a teacher setup. This was not coded because it is impossible to determine why teachers arrange their classrooms in certain ways. For example, what about the teacher who intentionally places Susie's favorite toy on a high shelf before Susie comes to school? Conversely, what about the teacher who places Sam's favorite truck on a high shelf simply because there is no other place to put it? Readers will understand the difficulties that arise when observers try to interpret teachers' actions, and yet, by not including these actions as possible setups, the rate of teacher setups may have been constrained.

#### Accounting for Effects of Behavioral Definitions in Observing Coincidental Teaching

In order to examine the differential impact of behavioral definitions of coincidental teaching, the investigator analyzed teachers' free play and snack time videotapes for the amount of time teachers spent "instructing" students, regardless of whether that instruction constituted coincidental teaching. This analysis also incorporated amount of time spent in instructional interactions as a variable. Readers

will recall that the rate of coincidental teaching episodes was one dependent measure of interest, not the amount of time teachers spent in coincidental teaching episodes. Perhaps after completing the self-study package, teachers were spending more time in instructional interactions with their students regardless of the number of discrete times they used coincidental teaching. Specifically, the investigator was interested in determining if teachers were increasing the amount of instruction provided to target children regardless of whether or not that instruction was coincidental teaching or goal-related. Using definitions provided in the Methods chapter, observers coded interactions between teachers and target children as instructional or noninstructional. A broad definition of instruction was used. That is, instruction was defined as the teacher: (a) asking the child to produce a response that did not require a yes/no answer ("What did you do at Grandma's yesterday?"), (b) telling or showing the child how to perform a certain task ("When you are cutting out the circle, hold the paper in one hand and turn the paper as you cut the circle."), or (c) asking the child to complete a motor task that required that the child discriminate between objects on basis of specific attributes ("Find all the animals that have four legs.")

The outcomes of this analysis were similar to the analysis of the rate of coincidental teaching episodes: Only Louise's data showed increases in the amount of time she spent instructing target children. Furthermore, although changes in the proportion of instructional time occurred in both free play and snack time, they were most evident during the latter. Susan's breakfast data also showed increases from intervention to postintervention; the proportion of instructional time spent with target



children increased and became less variable from intervention to postintervention. However, changes from baseline to intervention did not occur. Erin's free play data showed little change and great variability across conditions. Because the results were similar for both types of analysis (i.e., rate of coincidental teaching episodes and proportion of instructional time), either definitions specific to obtaining rates of coincidental teaching episodes did not greatly affect the results of this investigation or the definitions affected the results of both analyses.

#### Effects of Nontarget Children

Within the field of educational research, it is often difficult to achieve complete experimental control or consistency in the experimental setting. For example, teachers may be instructed to behave in a certain manner with target children, but may be unable to do so periodically because of extraneous variables. Achieving complete experimental control did not occur during this investigation as described below.

During the videotaped sessions, the investigator asked teachers to adhere to certain guidelines. First, whenever possible, teachers were to interact only with target children. To achieve this, the investigator asked the three teachers to group target children together and to have nontarget play elsewhere during the 10-minute videotaped free play and snack sessions. Each teacher agreed to this condition; however, interactions between the teachers and nontarget children also occurred. Furthermore, they occurred to the greatest degree in Susan's room, while they rarely

occurred in either Erin's or Louise's room. Readers will remember, however, that during the investigation, Susan had new children enrolled in her classroom. Susan stated that she felt restricting the new children's actions during free play was unfair. Susan also felt that she should have made herself accessible to all children in her classroom. While she tried to have the paraprofessionals engage any nontarget child in another activity, she did not restrict her interactions to only target children during the videotaped sessions. Including nontarget children as possible recipients of Susan's attention might have constrained the degree to which observers coded coincidental teaching episodes because observers only coded those interactions between teachers and target children. To examine this further the investigator analyzed whether: (a) the presence of nontarget children, or (b) the number of target children present in each session was related to variability in the rate of coincidental teaching episodes or the amount of instructional time devoted to target children. The results of this analysis indicated no relationship between either factor and variability in teaching behavior. However, it could still be possible that Susan spent more time engaging with nontarget children as the study progressed, thus differentially affecting the amount of time available for her to use coincidental teaching with target children. To examine this further, the investigator analyzed whether or not Susan's time with nontarget children increased across experimental conditions. The results of this analysis showed no changes in the average proportion of time Susan spent with nontarget children during free play (Baseline: 51 seconds, Intervention: 53 seconds, Postintervention: 53 seconds, Maintenance: 117 seconds). During breakfast,

however, readers will note an increasing trend in the amount of seconds Susan spent with nontarget children (Baseline: 28 seconds, Intervention: 53 seconds, Post-Intervention: 65 seconds, Maintenance: 119 seconds.) The amount of time spent with nontarget children during Maintenance was much higher than time spent during the other experimental conditions. Readers should remember, however, that videotaped sessions during Maintenance were unannounced visits and the restriction on interacting with target children was not in effect. Thus, it is not surprising to see that the amount of time spent with nontarget children increased. In conclusion, it is unlikely that the presence or number of nontarget children during videotaped sessions differentially affected coincidental teaching behavior. However, for Susan during breakfast, increasing time spent talking with nontarget children could have taken away available time to spend with target children. This could have differentially affected the observed rate of coincidental teaching episodes or instructional time spent with target children.

#### Snack as a Target Setting in Erin's Room

It should also be noted that the investigator never achieved experimental control in Erin's classroom during snack time. While Erin never explicitly refused to place only target children at one table, except for the first 3 days during prebaseline, she always allowed target and nontarget children to eat at the same table. The videotape technician asked Erin to place only target children together and Erin indicated that the children refused to eat elsewhere. The investigator also asked Erin

to place target children together at one table, and Erin again said that target and nontarget children wanted to eat at the same table and she would not force them to eat elsewhere. It is interesting to note that before the investigation started, Erin indicated that snack time in her room was a time she used to do paperwork and that the paraprofessionals in her room were in charge of snacks. Perhaps Erin was sabotaging the setting by not keeping target and nontarget children apart. In any case, for Erin, snack time was abandoned as an experimental setting.

#### Experimental Context as an Artifact

In trying to determine why teachers' behaviors did not change as a result of completing the self-study package, it is useful to examine the target settings as possible variables. Perhaps no increases in behavior were noted because the target settings, namely free play and snack (for Susan and Louise), were inappropriate. It should be noted that while each teacher provided free play to her students, the topography of free play differed between Susan and the other two teachers, Erin and Louise. Susan frequently set up fairly structured activities for target children that often focused on fine motor skills, thus providing more opportunities for instruction in general and goal-related instruction that could be considered coincidental teaching. For example, Susan would provide children with papers, scissors, crayons, and other art materials and then would help the children work on self-selected art projects. One such session occurred on March 9, during baseline. Many of the target children in Susan's room had goals related to fine motor skills (e.g., holding a pencil correctly or

cutting with scissors). It can be seen on Susan's graphed data in Figure 4 that her rate of coincidental teaching episodes was very high that day, close to .70. In contrast, other free play sessions focused on more playful interactions between Susan and target children. For example, on March 2 Susan interacted with children in the housekeeping center and assumed the role of a co-player. On that day, her rate of coincidental teaching episodes was very low. A change in the nature of the free play session (e.g., instructional versus playful) accounts for some of the variability in the free play data.

The data from Erin's free play sessions with target children (see Figure 3) also illustrates great variability across conditions. Further examination of the videotaped sessions indicates a similar phenomenon, i.e., differential effects of the session's activities on the observed rate of coincidental teaching episodes. Erin's rate of coincidental teaching episodes varied with the focus of the free play session; her interactions with target children were heavily influenced by the free play setting. For example, on days Erin spent in the library corner with children, her interactions with children were fairly structured and limited to reading books to children. She rarely used this setting to engage in instructional interactions with children (i.e., she rarely demanded any kind of response or participation from children when she was reading them a story). Conversely, during free play sessions in the housekeeping area, Erin frequently assumed a more interactive role with children. She asked them frequent questions and used the context of the session to encourage both social interactions among children and practice using language skills. The variability in her free play

data reflect these differences.

During free play in Louise's classroom the nature of the free play remained fairly consistent across sessions. During the baseline conditions of the investigation Louise's role was primarily that of a monitor or observer. She rarely engaged in "teaching" interactions with children. It can be noted on Figure 6 that Louise's first data point during baseline was much higher than any other data point regardless of condition. On this day Louise was focused on managing the behavior of one child, child 3G. One of this child's goals was to follow teacher directions. On this day, Louise spent most of the 10-minute session giving that child directions and then consequating him. On subsequent days she did not engage in such behavior, although the same thing happened during snack time on March 8 (during baseline). On this day, child 3G refused to eat his snack and spent a large part of the snack time lying on the floor crying. Consequently, Louise spent a large portion of the session giving the child directions (e.g., "Sit on your chair and eat your peaches"), resulting in a higher than average data point. Again, the content of the setting directly affected the obtained results.

Finally, one must examine the appropriateness of target settings that were chosen for teachers. Readers will remember that the target settings for this investigation were free play and snack time. While these are generic settings in early childhood classrooms, the teacher behaviors that occur within them vary greatly. To illustrate this point, the following anecdote is offered. After the investigation had ended, Susan told the investigator that she wished we could have videotaped during

the children's "center time." Susan said that during center time, she worked individually with children on their goals, but that she did so within the context of child-directed play. She said that she used free play time as a time for the children to play with each other. During free play, she and the paraprofessionals in her classroom acted as play facilitators or materials managers, but did not directly instruct the children. This clearly might have had an affect on Susan's data, but the implications of choosing free play and snack time as settings for Erin and Louise are less clear. Neither Erin nor Louise offered any information as to the appropriateness of the target settings (except for Erin's reluctance to include snack time as a target setting). It should also be noted that assignments in the self-study package used free play and snack settings as possible target settings for providing coincidental instruction. Specifically, teachers were asked to describe how they could provide children goal-related instruction during both free play and snack time. None of the teachers had any difficulty describing how they would provide such instruction (except that Erin had difficulty focusing her descriptions on teacher actions instead of child actions). Did coincidental teaching occur at a higher rate during other times of the day? That question must remain unanswered. In retrospect, it might have been wise to observe teachers all day in their rooms prior to the identification of target settings so that perhaps more appropriate settings could be chosen. However, free play and snack time are times when all teachers could easily be providing coincidental instruction related to children's goals. Also, the choice of target settings would not

have differential effects on coincidental teaching behavior across experimental conditions.

### Baseline Coincidental Teaching Behavior

Another issue which must be examined is the degree to which teachers already knew how to use coincidental teaching. Both Susan and Louise were novice early childhood teachers. Susan did have prior teaching experience with older children, while Louise had none. Of the three teachers, Erin was the most experienced. She also used coincidental teaching to the greatest degree of the three teachers throughout the investigation.

Although Erin's baseline data indicated that coincidental teaching was part of her repertoire prior to completing the self-study package, her pretest scores indicated that she did not have "knowledge" or verbal behavior to describe coincidental teaching. She required remedial training to reach criterion mastery levels on self-study assignments. Her verbal behavior changed during the study. Because she already applied the techniques in the classroom, variables not associated with verbally describing coincidental teaching apparently controlled the behavior. As already described, changes in activities were associated with changes in her behavior.

Susan's baseline also provides evidence that she used coincidental teaching components in the classroom prior to completing the self-study package. Again, based on pre-/posttest data and written assignments, Susan did not verbally describe coincidental teaching as presented in the self-study package during baseline. In



attempting to explain Susan's use of coincidental teaching during baseline, it is useful to examine an argument raised by Hart and Risley (1986). Hart and Risley cited research by White that argues that some mothers are able to naturally view many daily experiences as teaching opportunities for children (i.e., viewing routine activities as "teaching moments" by capitalizing on children's interactions with people and objects as a method of teaching skills). White labels these mothers "supermothers" and states that for these mothers, incidental teaching is naturally part of their repertoire when interacting with children. Susan may be just such a person. As previously described, Susan did have prior teaching experience and she was also a mother of two grown children.

In summary, baseline data indicate that for Erin and Susan, coincidental teaching was not a novel strategy, but one in which they engaged prior to completing the self-study package. One might argue, then, that Erin's and possibly Susan's rate of coincidental teaching reached a ceiling or was controlled by variables not associated with the verbal behaviors addressed in the self-study package. It can be noted in Figure 3 that Erin's mean rate of coincidental teaching episodes during baseline was .41, i.e., that Erin completed a coincidental teaching episode about every two and a half minutes. Is it realistic to assume that this rate would increase? In order to answer this question, one must turn to other research on teaching adults to use naturalistic strategies. Of the investigations previously described, two used dependent measures similar to those used in this investigation, i.e., rate measures of naturalistic teaching behaviors (Alpert & Kaiser, 1992; Peck et al., 1989). At the end

of the Alpert and Kaiser study, the rate of using naturalistic strategies (i.e., mand-model, time delay, incidental teaching) was approximately 2.5 per minute. In the Peck et al. study, teachers were providing approximately one goal-related prompt or consequence every 2 minutes after intervention. This rate more closely approximates Erin's mean rate of coincidental teaching during baseline. Thus, while Erin's baseline rate did not approach the mothers' naturalistic teaching rates in the Alpert and Kaiser study, it might be considered "adequate" in terms of the Peck et al. study.

On the same note, Susan used coincidental teaching approximately once every 5 minutes during free play and every 4 minutes during breakfast. This rate is significantly lower than Erin's and it is reasonable to expect some increases as Susan completed the self-study package. These increases, however, did not occur. Thus, while there was probably no "ceiling" effect for Susan, there were no changes in teaching behavior associated with changes in verbal behavior. Her verbal behavior changed in the sense that her posttest score was much higher than her pretest score. Of all three teachers, however, Susan had the least need for remedial training in completing the self-study assignments (only on revising her coincidental teaching plans to include an evaluative component). Perhaps the knowledge changes that occurred for Susan were knowledge specific to terminology used in the self-study package.

Louise used coincidental teaching the least as demonstrated in her baseline. Also, she required more remedial help than the other teachers to complete the self-study assignments to criterion. We do not know the extent to which her verbal and

teaching behaviors with respect to coincidental teaching were related, but both increased during the study.

### Conclusions

There are a number of conclusions that can be drawn from the results of this investigation. First, teachers were able to successfully complete (as defined by the performance criterion previously described) assignments in the self-study package on coincidental teaching. Second, teachers' scores on the posttest designed to measure knowledge change were greater than pretest scores, suggesting that the self-study package was effective in helping teachers learn about coincidental teaching. Third, teachers' comments about the self-study package and coincidental teaching as an instructional strategy were generally positive and teachers were able to discuss components of coincidental teaching that were both easy and difficult to implement.

Conclusions about changes in teachers' behavior, i.e., their use of coincidental teaching in the classroom are far more tentative. The results of this investigation suggest that for two of the three teachers in this investigation, increased knowledge about coincidental teaching did not translate into increased use of coincidental teaching. Only Louise increased her use of coincidental teaching from baseline to subsequent experimental phases. The possible effects of behavioral definitions and experimental control on study outcomes would not have affected observed changes in coincidental teaching behavior differentially across conditions. They would affect observed coincidental teaching behavior consistently across experimental conditions.

If teachers possessed knowledge about coincidental teaching and made positive comments about using coincidental teaching in the classroom, why were there not greater increases in the rate of coincidental teaching episodes or the proportion of time teachers used to instruct target children? To answer this question, one must turn to research on teacher behavior change, or transfer of training.

### Effects of Teacher Beliefs on Classroom Behavior

Transforming pedagogical knowledge into changes in classroom practice is a topic of interest to many educational researchers (Cruickshank & Metcalf, 1990; Gersten, 1993; Gleissman & Pugh, 1989; Joyce & Showers, 1981; Mohlman, Coladarci, & Gage, 1982; Richardson, 1990; Thiessen, 1992). One widely accepted conclusion drawn from research on teacher behavior change is that effecting long-term significant change in teachers' behavior is difficult (see Richardson, 1990). In studying variables affecting teacher behavior change, researchers have described three predictors of teacher behavior change (Mohlman et al., 1982). These predictors will be further described below.

The practicality ethic. In attempting to understand why teachers do or do not implement innovative classroom practices, Doyle and Ponder (1977) argued that teachers are more likely to implement a practice that they view as practical. That is, teachers will adopt a practice that (a) is simple and clearly stated, (b) is congruent with the individual's teaching style, and (c) is not costly in terms of the time and energy required to implement the practice. One explanation as to why Erin and Susan

did not implement coincidental teaching may lie in the practicality ethic.

Readers will recall from the interviews that Erin viewed the self-study package as somewhat cumbersome. When asked to compare the effectiveness of the self-study package to traditional ways of learning, Erin stated, "Instructions in part of the package were unclear. It's harder when the instructor is not here." If Erin did not view coincidental teaching as a procedure that was clearly and explicitly stated, she might be less inclined to increasing its implementation in her classroom. Also, the degree to which Erin viewed coincidental teaching as complex might have been influenced with the stresses occurring in her personal life. Perhaps for Erin, a strategy such as coincidental teaching might best be learned within the context of an on-campus university course.

Susan was the other teacher who did not increase her rate of coincidental teaching episodes. Although Susan did not share Erin's view of the ambiguity of coincidental teaching as presented in the self-study package, she did acknowledge having difficulty interacting with the children during free play and breakfast as was requested during the videotaped sessions. Readers will recall that each teacher was asked to interact only with target children during the videotaped free play and snack/breakfast sessions. Also, the investigator requested that the teacher try to keep the target children in one area of the classroom. Susan had great difficulty with this request because of the new nontarget children who were entering her classroom. Consistent with Doyle and Ponder (1977), perhaps Susan chose not to use coincidental teaching during free play because it was inconsistent with her teaching style. In

retrospect, it would have been interesting to see whether or not Susan used coincidental teaching more often during other periods of the day when it more closely matched her teaching style.

If Erin and Susan both failed to significantly implement coincidental teaching as measured in this investigation, why then did Louise increase her rate of coincidental teaching episodes? Perhaps the answer to this question lies in one of the three internal determinants of teacher change as described by Mohlman et al. (1982), i.e., internalization of the values of the proposed change. Teaching has been described as an "intensely personal" activity (Bryk, cited in Richardson, 1990). Teachers bring to their profession personal beliefs and values that color their perceptions of what constitutes "good teaching." Although speculative in nature, it may be possible that Louise's beliefs and values were more closely aligned with the information presented in the self-study package, hence causing Louise to value coincidental teaching more than Erin and Susan. Also, of the three teachers who participated in this investigation, Louise was the most novice. Erin had taught for a number of years prior to this investigation, and while Susan was also a first year teacher, she was older and had classroom experience teaching older children. It is possible that Louise learned about coincidental teaching at a time in her career when she was more motivated to change her teaching style. Evidence to support this speculation can be found in Gliessman and Pugh (1989), who noted differential effects of training between experienced and inexperienced teachers. Gliessman and Pugh reviewed the literature on predictors of change in teaching skills and described a study

that suggested that inexperienced teachers were more likely to benefit from instruction that helped them learn the "meaning" of the teaching skill without the use of accompanying practice (p. 9).

### Teacher Motivation to Use Coincidental Teaching

Teachers participating in this investigation were under no motivation to change their teaching behavior. They did receive money for their participation in the study, but that participation simply centered on completing written assignments on time and allowing a videotape technician into their classrooms for the length of the study. Anecdotal comments made by both Erin and Susan suggest that participating in the study was aversive and while they were both cooperative, they both indicated throughout the investigation that they would be glad when it was over. Additionally, Susan was eager for the investigation to end so she would not be videotaped every day. Perhaps if there had been contingencies in place for using coincidental teaching in the classroom, the results would have been different. For example, if teachers had to reach a certain rate of coincidental teaching episodes observed during free play and snack time, they might have been more motivated to use it. This issue is closely tied to that of providing feedback and is discussed below.

### Supporting Teacher Behavior Change in the Classroom

In examining literature on supporting changing classroom practices, the issue of providing teachers with feedback relative to their performance is central. If the

purpose of this study had been to examine ways to increase teachers' use of coincidental teaching instead of simply examining the effects of the self-study package, then feedback about classroom performance would have been included. Other studies in which teachers were successfully taught to use naturalistic interventions (e.g., Mudd & Wolery, 1987) provided specific feedback and consequences to teachers. Indeed, in reviewing the literature on staff performance management, Madle (1982, p. 77) argues that the inclusion of systematic performance consequences "has shown promise in human services management." Madle includes as performance consequences the use of informational feedback, self-recording, feedback plus social praise, and feedback plus incentives. Other studies have shown the positive effects of supervisory feedback on changing adult behavior (e.g., Mace, Cancelli, & Manos, 1983; Spreat et al., 1985). Additionally, in their review of the efficacy of teacher training methods, Allen and Forman (1984, p. 29) also described the feedback procedures as "[having] the most evidence of effectiveness...."

While teachers were provided feedback about their performance on the written and videotaped assignments, they were not given feedback about their use of coincidental teaching in daily videotaped sessions. This was done in order to more closely reflect traditional practice in inservice teaching--teachers are rarely provided with feedback about classroom behavior. It becomes apparent that the self-study package was not strong enough to translate knowledge into changes in classroom practices for two of the three teachers. For example, it may be that the behaviors required to successfully complete the package assignments did not correspond to



behaviors needed to implement coincidental teaching in the classroom. This could certainly be said for all written assignments. However, what of the culminating assignment, that of implementing written coincidental teaching plans in the classroom? How is that different from consistently using coincidental teaching? One difference lies in the nature of the activity. The assignment to implement the teaching plans simply required that teachers behave as they planned to behave. Additionally, they only had to behave as such once. (Even though they implemented three written plans, they were only videotaped once.) One might argue that acting according to a plan is not a natural way of teaching for many teachers. As such, teachers were not able to generalize skills (or even perform skills) they learned through the self-study package to daily classroom activities. Hart and Risley (1986) described the ability to recognize occasions for incidental teaching as one that is very difficult for many teachers. Hart and Risley argued that:

If teaching is not the teacher's "natural" style of interacting with children [i.e., if the teacher is not an actual or potential 'supermother'], the unstructured interactions of preschool free play do not present the cues necessary to shift the teacher into a teaching mode. She or he must be taught to recognize occasions rather than be taught how to teach. (p. 216)

### Limitations of the Present Research

There are some limitations in this investigation that may have affected the obtained results. The most obvious limitation lies in the lack of experimental control introduced by failing to present the intervention sequentially across baselines. This limitation has been previously discussed. Other limitations center on (a) the degree of

experimental control achieved during the videotaped sessions, (b) the definition and measurement of coincidental teaching episodes and components, (c) the low degree of agreement percentages obtained during some videotaped settings, and (d) the use of the investigator as a reliability observer. Both limitations (a) and (b) have been previously discussed. The other limitations will be further described below.

The investigator as a reliability observer. A limitation of this research lies in the use of the investigator as a reliability observer. Two observers coded videotaped sessions of the participating teachers; the investigator coded a percentage of these videotaped sessions independently to assess the degree of agreement between two observers. By acting as a reliability observer, the investigator may have introduced bias into the study, thus affecting the results of the research. Readers should know that the investigator (a) chose videotape sessions to be recoded at random, (b) did not engage in any conversations with the observers about the recoded videotaped sessions, and (c) recoded videotapes that had been coded by each primary observer. Despite these precautions, it is possible that experimenter bias could have been introduced and could have resulted in excessively high degrees of agreement. However, given the agreement figures previously reported, this does not seem to be the case.

Low agreements between the two sources. The difficulty in observing and measuring naturalistic teaching has been discussed above, but must be noted again as a possible reason for low agreement scores between the primary and reliability observers. Naturalistic teaching is of necessity subtle, and consequently may be difficult to identify consistently. Difficulties in observing naturalistic teaching are not

unique to this investigation. In fact, Mudd and Wolery (1987) described some of the difficulties they encountered while measuring incidental teaching behavior:

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 are minimal, and the behaviors may occur in a rapid sequence. (p. 132)

### Implications for Future Research

This investigation provided little evidence that information presented in the self-study package resulted in behavior change across teachers. The results presented here, however, can guide future research in the following ways. First, the self-study package was a viable format for helping teachers increase their knowledge about coincidental teaching. As such, it can be an alternative to staff development for teachers in rural areas and should not be ignored. One modification to the package might be to include a feedback component. If researchers wish to focus on increasing teachers' use of coincidental teaching, participants could videotape themselves on a daily basis using coincidental teaching and could receive ongoing feedback based on their videotaped performances. Researchers might also wish to consider direct interventions in helping teachers to recognize situations in which coincidental teaching is appropriate in addition to direct procedures to teach teachers how to use coincidental teaching.

Future research efforts should continue to focus on designing a measurement system sensitive enough to capture the subtleties of naturalistic teaching. As previously described, the measurement system used in this investigation focused only

on goal-related interactions between teachers and target children. Perhaps teachers attempted to use coincidental teaching more with children unrelated to their instructional goals.

Finally, future research efforts on training teachers to use naturalistic teaching should be conducted only with those teachers who show a willingness and a desire to learn about naturalistic teaching. Of the three teachers included in this investigation, Louise appeared to be the most eager and willing to learn about coincidental teaching. This differentiated her from Erin and Susan and perhaps provided the motivation for her to incorporate information from the self-study package.

#### Implications for Teacher Educators

The issue of educational reform is at the forefront in the minds of many people. Central to the issue of educational reform is the need to provide quality, effective instruction, thus producing higher student outcomes. Educational researchers know a great deal about effective teaching strategies but often have difficulty persuading teachers to implement them. Teachers are often portrayed as a homogeneous group of people who are passive and resistant to change. How can educational research translate into educational practice? A number of researchers involved in teacher development offer some useful insights into this issue (Clark, 1992; Goldenberg & Gallimore, 1991; Hirsh & Ponder, 1991; Thiessen, 1992).

Classroom-based teacher development. Thiessen (1992) described the philosophy of classroom-based teacher development (CBTD) as one alternative to

traditional methods of staff development. Inherent within the philosophy of CBTD is the premise of teacher empowerment, i.e., that teachers should hold positions of power in teacher development efforts, instead of being passive recipients. Teachers should have the power to identify the areas in which they would like further assistance and should direct professional development efforts. Teacher development should occur within the context of the classroom. Providing assistance in the classroom would help teachers implement new knowledge easily in their classrooms. Thiessen argued that giving teachers power in their professional development would help ensure that development efforts are personally meaningful and relevant. Within the context of this investigation, it is possible that Erin and Susan did not change their teaching practices because coincidental teaching was not personally meaningful for them. Further investigations that focus on helping teachers learn to use naturalistic strategies such as coincidental teaching should be limited to only teachers who express an interest in learning more about coincidental teaching.

Providing on-going assistance. The self-study package as used in this study was a relatively short term intervention: Teachers were given a 2-week period of time to complete the package; they typically completed it in approximately 15 hours. Perhaps Erin and Susan needed a more intensive intervention to change their classroom practices (especially if Erin had difficulty conceptualizing coincidental teaching or if it did not match with Susan's teaching style).

While this investigation did not provide evidence that the self-study package promoted change in teacher practice, one of the research questions focused on linking

increases in knowledge to changing teacher practices. It is interesting that teacher implementation is generally not an outcome measured by inservice educators. However, the true measure of effectiveness is the degree to which educators use results of research to create better outcomes for students. Further research in inservice education and staff development must be guided by this principle.

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## APPENDICES

# Appendix A. Sample Informed Consent Letter to Parents

February 2, 1993

Dear Parents,

I am a graduate student in Special Education at Utah State University and am writing to request permission for your child to participate in an investigation designed to examine the ways teachers interact with children during routine preschool activities. Gathering this information will help me and other people who train teachers develop better ways of meeting the needs of young children.

This investigation will involve videotaping teachers and children during free play and snack time. Your child's teacher has agreed to participate, but videotaping cannot begin until you have granted your permission. I plan to start videotaping in February.

As a participant, your child's name and identity will be protected. Videotapes will only be viewed by myself and persons directly related with this investigation. Your child will not be videotaped if you do not grant written permission. You may withdraw your permission to videotape at any time, without penalty. If you decide to withdraw permission, contact your child's teacher.

I also need permission to photograph your child in the classroom. This photograph will only be used to help observers identify target children during the coding process. During pilot research I found that observers had difficulty identifying all target children. No one else will see the photographs and I can return them to your child's teacher at the end of the project.

Finally, I need your written consent for your child's teacher to release information to me regarding your child's instructional goals. I need this information to help observers code the interactions between your child's teacher and the target children. I will not examine your child's file, I will simply ask your child's teacher to tell me what she is working on with your child.

Your child's participation in this investigation is very important. It will provide valuable information to develop new ways of training preschool teachers. If you agree to having your child videotaped, please complete the attached form and return it to your child's teacher. You may also call me at (801) 752-1992. If you wish, you can call me at home (801) 750-0954. You are also free to contact my advisor, Dr. Sarah Rule if you have any questions. Her telephone number is 750-1987. Thank you for your help.

Sincerely,

Laurie Dinnebeil

I hereby grant permission for my child \_\_\_\_\_  
(child's name)

to be videotaped in \_\_\_\_\_ preschool classroom during snack time and free play. I understand that my child's identity will be protected. The videotapes will be used for research purposes and will only be viewed by people directly related to Ms. Dinnebeil's investigation.

I also give my permission for my child's teacher to release information to Ms. Dinnebeil about my child's instructional needs. I understand that this information will only be used to help code interactions between my child and his or her teacher.

Finally, I give my consent for Ms. Dinnebeil to take a photograph of my child for the purpose of coding videotapes. I understand that the photograph will not be used for any other purpose and will be returned to me, upon request, at the end of the this investigation.

I understand that I may withdraw my permission for my child to participate in this investigation at any time, without penalty to myself or my child.

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Parent's Name and Date

## Appendix B. Pre- and Posttest Measure

## Pre/Posttest

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Who is a coincidental teaching episode initiated by?
  
  
  
  
  
  
  
  
  
  
2. Describe two ways a coincidental teaching episode can begin.
  
  
  
  
  
  
  
  
  
  
3. In one sentence, describe the following terms (in the context of coincidental teaching.)
  - a) Natural consequence: \_\_\_\_\_  
\_\_\_\_\_
  - b) Mand: \_\_\_\_\_  
\_\_\_\_\_
  
  
4. Name the four components of a coincidental teaching episode in the order in which they occur.
  
  
  
  
  
  
  
  
  
  
5. List five ways teachers can "set up" a coincidental teaching opportunity.

## Appendix C. Sample Goals for Target Children

# Sample Goals for Target Children

<u>Erin</u>	<u>Susan</u>	<u>Louise</u>
<p><u>Make appropriate requests for toys or materials from peers:</u> Code this as any prompt the teacher uses to help J.C. make appropriate requests from his peers. For example, the teacher may say "J.C., if you want that truck, ask Susie the right way."</p>	<p><u>Interacts with peers (plays games, engages in conversations):</u> Code this as any time the teacher prompts child to interact with her peers through playing games or engaging in conversations. The teacher can prompt child to interact with her peers ("Child, why don't you play with Tony?") or she may also prompt other children to initiate interactions with children ("Tony, ask Child what her favorite TV show is.")</p>	<p><u>Matches shapes (circle, square, and triangle):</u> Code this if the teacher prompts child to match objects of pictures of objects by shape (only circles, squares, and triangles). For example, the teacher could say "Find the one that is the same shape." Sorting objects by shape should also be coded as goal-related. For example, the teacher can say "Find all of them that are the same shape."</p>
<p><u>Full name and age:</u> Define this as any time the teacher prompts child to give his full name (first and last) and age. It is OK for the teacher to ask child to show how many fingers he is; he doesn't have to say the number. She must, however, ask child to say his full name--responding to his name when called doesn't count.</p>	<p><u>Prints first name:</u> Code this any time the teacher prompts child to print her first name using any kind of writing implement on any kind of medium (e.g., fingers and fingerpaint). Either upper or lower case letters are acceptable--the letters do not have to be on a line and do not all have to be facing the right way. The teacher may also prompt child to "write the letters in her name."</p>	<p><u>Say full name:</u> Code this if the teacher prompts child to say his full (first and last) name upon request. Prompts to identify himself when his full name is given (e.g., "Where is Homer Smith?") should not be included here. Child must be prompted to say his full name.</p>

(table continues)



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Erin

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Identifies colors and shapes: Define this as any prompt the teacher gives to help child point to (e.g., "Show me the red one.") any color or shape. Also included here is any time the teacher prompts child to name any color or any shape. Matching colors and shapes (e.g., "Which one is like this?") should not be included here.

Answer "wh" questions appropriately: Code this as any time the teacher asks child a "wh" question (what, where, when, which, or why) or prompts him to answer such a question. Code motor responses as responses.

Susan

Counting objects to 15: Code this any time the teacher prompts child to count objects or pictures of objects (regardless of the number of objects there are). The teacher must prompt child to count objects, neither rote counting or numeral identification should be coded as goal-related. Matching groups of objects to numbers is only acceptable if the teacher prompts child to count the objects.

Covers mouth/nose when sneezing/coughing: Code this whenever the teacher prompts child to cover his mouth or nose (with his hand or a tissue) when he sneezes or coughs.

Louise

Adding "ing" to verbs: Code this any time the teacher asks child to say an action by adding "ing" to the end of the word. This can be done with pictures (e.g., "What is the boy doing?") or by demonstrating actions for Lony to identify (e.g., "What is he doing?" or "What are you doing?"). Child need not use a full sentence when responding; simply giving the verb + ing is sufficient.

Takes turns with materials or toys or when playing a game with peers: Code this any time the teacher prompts child to share materials or toys with other children. This would include giving another child an opportunity to play with or use an object or materials (e.g., "Let J. have a turn." or "G. needs to use the glue too."). It would also include taking turns when playing a structured game.

#### Appendix D. Interview Questions to Teachers

## Post-Intervention Interview

Participant's Name: \_\_\_\_\_

The purpose of this interview is to find out your opinions and feelings about using coincidental teaching in the classroom and learning to use it through the instructional package you completed. I would also like to find out some information about your background and experience in education and teaching.

1. How effective do you think coincidental teaching is to address the instructional needs of children in your classroom?
2. Which component of coincidental teaching (e.g., setting up an opportunity, embedding a prompt within the context of the child's activity, or providing a natural consequence) do you think was the easiest to implement?
  - (a) Which component was the most difficult to implement? Why?
3. Will you continue to use coincidental teaching as an instructional strategy in your classroom during snack time or free play? Why? Why not?
4. During which setting (free play or snack) was coincidental teaching most easy to implement? Why?
5. What are some reasons that you might not use coincidental teaching during routine classroom activities?
6. Compared to traditional ways of learning (e.g., a university class taught on campus), do you think the instructional package you completed on coincidental teaching was an effective way to learn how to do it? Why or why not?

7. What activity in the instructional package (e.g., study questions, planning forms, videotape exercises) did you enjoy the most?
  - (a) Which activity did you least enjoy? Why?
8. What activity in the instructional package helped you learn the most about coincidental teaching? Why?
9. What activity was the least helpful in learning about coincidental teaching? Why?
10. Would you elect to take a class that used these methods of delivering instruction? Why? Why not?
11. What is your age?
12. What is the highest degree you have completed in school? What discipline does that represent (e.g., special education, elementary education, secondary education)?
13. How long have you been teaching and where have you taught?
14. Describe any inservice training programs you have attended during the last 12 months.
  - (a) Who offered the training?
  - (b) What was the topic of the inservice training?

Appendix E. Coding Conventions and Coding Sheet for Coding  
Rates of Coincidental Teaching Episodes and Components

### Rules for Coding Videotapes

#### 1. Coding pre-interaction set ups:

- a) Sabotage: Code sabotage if the teacher deliberately fails to provide all the materials needed by the child to complete the task (e.g., providing paint but not paintbrush when the child asks to paint), or otherwise prevents them from carrying out an activity or instruction (e.g., physically blocking access to materials). Sabotage can occur if the teacher sets out the inadequate materials before the interaction begins. To be coded as sabotage, the teacher must set out the materials no longer than five minutes before the interaction begins (e.g., teacher sets out inadequate number of cups on the table no longer than five minutes before the (a) child initiates an interaction with the teacher (e.g., "I don't have a cup.") or (b) the teacher prompts the child to respond (e.g., "Does everyone have something to drink?").
- b) Provides materials with which the child needs assistance: This occurs if the teacher directly gives the child objects or materials that require adult assistance to open or use (e.g., "Here Joe, you can play with the blocks in this can.") Excluded from this category will be those materials or objects in the classroom that the child can manipulate independently or objects in the room that might require adult assistance, but that the teacher does not directly give the child (e.g., The child might take something off of a shelf.) Also excluded from this category are instances when the child asks for materials that might require adult assistance. For example, if the child asks for the can of blocks and the teacher gives it to him, this would not be recorded as an instance of assistance. The child who asks for the blocks might request help from the adult and this should then be recorded as a child initiation.
- c) Can't tell: Code "can't tell" if you think a pre-interaction set up might have occurred but you are not sure. You should use this category if you can't understand what is being said by the teacher or if something is blocking your view (and you can't see what is happening.) Try to use this category sparingly. If you don't understand what is happening the first time through, watch the tape a few times before you code "can't tell."

Recording time codes for pre-interaction set ups: If you do see a pre-interaction set up, record the time in minutes and in seconds that the set up began. For example, if you see the teacher give the child a paintbrush but no

paint, record when the teacher began to give the child the paintbrush. If you mark a pre-interaction set up as "assistance" you should record the minute and second (e.g., 4:19) when the teacher gave the materials or object to the child.

2. Coding who initiated the interaction:

- a) Child: Code child if the child began the interaction with a request for help or information directed to the teacher. For example, a child might say "Teacher, I need your help." or "Guess what happened to me last night!" The initiation can also be nonverbal--a child might tap the teacher on the shoulder or try to gain her attention in some other way. Sometimes more than one child may try to talk to the teacher at the same time. If this happens, code the initiation of the child to whom the teacher responded. Watching to see to whom the teacher responded will help you determine who the interaction is between. Also, briefly describe what the child did to begin the interaction in the "Comments."
- b) Teacher mand: Code teacher (mand) if the teacher asks the child a direct question or directs the child to do something. For example, the teacher might say "What color is the egg?" or "Ask Jenny to help you carry the groceries." A mand is a direct question, request, or command. A teacher mand can also be coded if the teacher is speaking to a group of children, e.g., "Who knows what color the dog is?" Use the "Comments" to briefly describe the mand.

An indirect question such as, "I wonder who could help me build this block tower." should not be coded as a mand. Also excluded from this category are direct questions in which the teacher offers the child a choice of materials, or activities or presents an absurd situation. These should be coded under teacher set up as explained below.

- i) Is the mand embedded in the context of the child's activity?  
Many times teachers ask children questions or request responses from them that are not focused on what the child is doing. For example, a child may be playing with dolls when the teacher walks up to him. The teacher might say "Danny, what shape is the ball?" A teacher who does this is not embedding her mand within the context of the child's activity--her question is not focused on what the child is doing. Another teacher might approach Danny and ask him about the color of the doll's clothes--this question would be coded as embedded because it is focused on what Danny is playing with.

- c) Teacher set up: A teacher set up can be coded as either "Offer choices" or "Absurd situations." Briefly describe the set up in the "Comments" section. Explanations of each set up follow:
- i) Offer choices: Code a teacher initiation as offer choices if the teacher presents the child with more than one option for an activity (e.g., "Do you want to play catch or tag?") or materials (e.g., "Do you want the green crayon or the red one?" or "What color playdoh do you want?") To be coded as offer choices the teacher must present the options either verbally or nonverbally (e.g., holding the two crayons up and looking expectantly at the child). Also, the teacher must ask (either verbally or with an expectant look) to make a choice. A teacher who lays out a variety of materials on a table and lets children choose their own would not be offering a choice.
  - ii) Absurd situations: Code a teacher's actions as absurd situation if the teacher says or does something that violates conventional expectations. For example, a teacher might say "Brian, you're an old man, right?" or "I'm going to eat some of these green marshmallows" in the hopes that the child might then respond (e.g., "I'm not old" or "They're white!") However, a child does not have to respond to the teacher's statements for the statements to be coded as absurd. The teacher might also demonstrate an absurd action such as dressing the doll by placing the doll's socks on her hands. Some clues to look for is if the teacher says or does something absurd and then looks at the child, waiting for a comment.
- d) Can't tell: Sometimes it is difficult to tell who began the interaction. Someone might be in the way of the camera or the sound might not be adequate. If this happens, rewind the tape and watch the interaction a few times. If you still can't tell who began the interaction, code "Can't tell." Oftentimes watching the interaction through once or twice will help you understand who began it. If you use this category, make sure and say why you used it--e.g., "Couldn't see" or "Speech was unintelligible."
- e) Recording time codes: Record the time at which you saw either the child or the teacher initiate. You should record the time at which the initiation began in minutes and seconds.
3. Child's response to the teacher's initiation: If the teacher initiated the interaction with either a mand or a set up, you should use this box to code the child's response as follows:



- a) Response correct: Code this if the child responded correctly to the teacher's mand or set up. Responses should be coded as correct if there is a right/wrong answer (e.g., "The egg is white.") or if the child responds appropriately (e.g., Says "Rescue Rangers" if the teacher asks what his favorite cartoon is.) Sometimes you can use the teacher's reaction to the child's response to tell if it was correct or not. For example, the teacher might say "How many blocks are there?" You may or may not understand what the child says (especially if the child's speech is poor.) If the child says something unintelligible and the teacher says "That's right. There are three blocks." you can infer that the child's response was correct.

If the child's response is unintelligible and the teacher does not react to the child's response or you cannot see or hear her reaction, code the child's response as "Don't know."

- b) Response incorrect: Code this if the child responded incorrectly to the teacher's mand or set up. Responses should be coded as incorrect if there is a definite right or wrong answer and the child provides the wrong answer (e.g., "The egg is green.") or if the child responds inappropriately (e.g., Says "I'm going to Grandma's" if the teacher asks what his favorite cartoon is.) Again, you can use the teacher's reaction to the child's response to help you understand if the response is correct or incorrect.
- c) No response: Code this if the child does not respond to the teacher's mand or set up. A child's behavior should be coded as no response if he does nothing or if he does something nonrelated to the teacher's mand or set up (e.g., A child who comes up and hugs the teacher when she asks a question.)
- d) Don't know: Code this if the child's response was unintelligible. Again, watch the videotape several times before you use this category. You may also use this category if several children respond to the teacher's mand or set up and you don't know what the target child's response is. For example, a teacher may ask one child a question and several will call out the answer. If they do this you may not be able to tell the response of the child to whom the mand or set up was directed.
- e) Time codes: Record the time in minutes and seconds at which the child began her response.

4. Coding the consequence of the child's behavior: In this box you should code what the teacher did after the child's response (either to the teacher's mand or set up or the child's initiation). For all prompting levels, record the type of prompt the teacher provided in sequence. If the teacher provides more than two verbal prompts, cross out one that says model and write "verbal" instead. Also, if the teacher provides more than six prompts within any one episode, use the next available blank box to continue coding prompts.

- a) Expectant Look: Code an expectant look if the teacher looks directly at the child and waits for the child's response. Expectant looks are characterized by raised eyebrows and head cocked to one side. For an expectant look to be coded the teacher should refrain from speaking for a minimum of two seconds.
- b) Verbal prompt: Code a verbal prompt if the teacher either questions or directs the child to do something. A verbal prompt can be an indirect question directed to either one child or a group of children (e.g., "I wonder who will help me make a block tower!"). A verbal prompt is like a cue to a child. For a cue or direction to be coded as a verbal prompt, the teacher must wait at least two seconds to give the child an opportunity to respond. For example, a teacher might give a verbal prompt and then something else right after giving the prompt. If this happens, do not code the direction or cue as a verbal prompt. For example, a teacher might say "Show me the red one." "Which one is red?" "Where's the red block Leon?" without giving the child a chance to respond. If this happens, code as a verbal prompt the last prompt ("Where's the red block Leon?") if the teacher then waited a minimum of two seconds for the child to respond.

Do not code as a verbal prompt any question that is used conversationally to comment on a child's activity or is used out of habit. Phrases such as "How's that?" "Does that look good?" or "What do you think?" are all questions but usually are not used as a way to prompt a child's response. This is apparent when a teacher says "How's that?" and proceeds with the activity without expecting a reply. If a teacher does use one of these phrases and waits expectantly for the child's response code it as a verbal prompt, but otherwise do not.

- c) Model/Gestural prompt: Code a model as a demonstration (either complete or incomplete) of the desired response provided by the teacher (sometimes other children will call out an answer--this is not a model provided by the teacher). Included in this category are partial or full visual representations of the target response (e.g., providing the

child with a model of an art project either partially or fully completed). If the teacher does provide a physical model of a project and says "Make yours like this one." still code it as a model and not a verbal prompt.

Also included here are verbal models provided by teachers (e.g., "That apple is red.") with or without directions to repeat the model (e.g., "You say red.") and teachers' gestures such as pointing (e.g., pointing to where a puzzle piece belongs). Any gesture that involves physical contact between the student and teacher should be coded as a physical prompt (e.g., if the teacher guides the child's hand to the next block in a patterned sequence.)

- d) Physical prompt: Code a physical prompt if the teacher provides physical guidance or assistance in completing the target response. A physical prompt can be either partial (e.g., touching the child's hand) or full physical assistance (e.g., placing the teacher's hand over the child's hand to grasp and turn the screwdriver.) Sometimes adults help children do things without ever providing lesser degrees of assistance. For example, a teacher may simply come over to a child and help him zip his coat without ever telling the child to zip his coat. If this happens, do not code it as a physical prompt. For a physical prompt to be coded, it must be preceded by a gesture or verbal cue that the child should put the coat on, or if other children were putting on their coats, or the child must have attempted to put on his coat prior to the physical prompt (e.g., the child could have tried to put on his coat by himself and failed).
- e) Time codes: Record the time in minutes and seconds when the prompt began. Remember if the teacher presents a series of prompts consecutively without giving the child an opportunity to respond, record the time when the last prompt was given.
- f) Child's response: Code the child's response to the teacher's prompt as + for correct, - for incorrect, and 0 for no response. Use the parameters for correct and incorrect responses described under "#3: Child's response to teacher's initiation" to guide your coding.

5. What did the teacher do when the child responded to the prompt? Code in this box the teacher's use of praise and natural consequence described below:

- a) Praise: Code as praise teachers' comments or statements that indicate

approval to the child. Praise can be either general (e.g., "Good job!") or descriptive (e.g., "Great!! You knew that was red!"). Praise can also be physical gestures such as a pat on the back, a "high five" or a thumbs up signal.

Sometimes praise statements don't directly convey approval, but simply confirm or reflect on what the child did (e.g., "Yes, that's red" or "You knew where the red one was!")

- b) Natural consequence: Code as a natural consequence what would naturally happen at the end of the interaction. A natural consequence can be access to either materials (e.g., receiving the paintbrush when requested) or an activity (e.g., going out to the playground after a coat is zipped). A natural consequence is also coded as continued conversation between the child and adult or feedback from the adult. For example, a child might respond correctly to a question the teacher is asking while engaged in a conversation during snack time. The natural consequence of the correct response might simply be continued conversation between the child and teacher. It also might be a statement containing information about the child's correct or incorrect response, such as "That's right." or "No, it's the blue one."

- 6. Teacher records level of prompt necessary: Check this category if the teacher records information about the child's response on a data sheet within 1 minute of observing the response. The data sheet can be any piece of paper and you do not have to see the actual mark the teacher makes on the paper.

Who initiated the interaction? (check one):

Can't tell	<input type="checkbox"/> Child	<input type="checkbox"/> Teacher
Time: _____	Time: _____	Embedded: Yes No Time: _____

If teacher initiated, what was child's response?:

Don't know	Correct:	Incorrect:	Attempted:	None:
Time _____	Time: _____	Time: _____	Time: _____	

Teacher prompts for elaboration:

<input type="checkbox"/> Verbal	<input type="checkbox"/> Model	<input type="checkbox"/> Physical	<input type="checkbox"/> None
Consequence provided?      Yes      No			

☐ Teacher records level of prompt necessary. Time code: \_\_\_\_\_

Appendix F. Coding Conventions and Coding Sheets for Coding  
Proportion of Teacher's Instructional Time with Students

## **Coding Conventions**

### **Coding Initiations**

- 1) Code only those interactions between the teacher and selected target children.
- 2) Code only those interactions between the teacher and target children that are related to children's instructional goals.
- 3) Code all interactions as teacher-initiated. That is, begin coding an interaction when the teacher delivers the first goal-related response.
- 4) Record the time of the teacher response as beginning when the teacher first started to speak or offer assistance.
- 5) The teacher's prompt must be followed by a more than 3 second opportunity for the child to respond. If the teacher does not give the child an opportunity to respond (of more than 3 seconds) before delivering another prompt, do not code a separate prompt. You should begin counting 3 seconds when the teacher stops talking or providing physical assistance.
- 6) Sometimes it is difficult to tell who the teacher is talking to. If this happens, follow these guidelines:
  - a) If the teacher asks initiates an interaction with a specific target child ("Johnny, what color is this block?") code that as an initiation.
  - b) If the teacher directs a question to a group of children ("What color is this block?") and then responds to Johnny (a target child) code that as an initiation. If the teacher directs a question to a group of children and doesn't respond to Johnny, do not code it as an initiation.

- c) If the teacher directs a question to a group of children ("What color is this block?") and looks directly at the target child, code this as an initiation.
- d) If the teacher directs a question to a group of children without looking directly at the target child and you cannot be sure who the question is directed to, do not code the initiation.

### **Child Responses**

- 1) Sometimes a child will jump in with a response while the teacher is still prompting. If this happens, record the child's response and proceed coding the interaction.
- 2) If a child needs assistance completing the response, the teacher may help the child respond immediately after the initiation. For example, the teacher may say "Bud, pour some water for a drink." as she is helping Bud lift the pitcher and begin to pour. Code the time of the child's response as beginning when he began to respond (assisted or unassisted).

### **Prompting**

- 1) If the teacher is providing two types of prompts simultaneously, code the highest level of prompt as occurring. For example, if the teacher is telling the child "Pull down the cracker wrapper" as she is physically helping him pull it down, code this as a physical prompt.
- 2) Code the sequence in which the teacher prompted the child through responding. For example, if the teacher first gave a verbal prompt ("What color is this block?"), then a model ("This block is red. Say red.") code the



prompt sequence as VM. The teacher may then go back to a verbal prompt if needed; however, you do not have to code it--we are only interested in the initial sequence of prompting.

- 3) A teacher may ask for multiple responses from a child during an interaction. These should all be coded as occurring with the same interaction if they are all related to the same goal. For example, the child may need to work on naming colors and the teacher could ask her to name multiple colors during a single episode.

### **Consequating**

- 1) Follow the definition described above to determine if the child is consequated for his/her response.
- 2) A consequence, such as verbal praise or feedback must be given at the end of an "initiation-response" or an "initiation-response-prompt" sequence, but it need not be given at the very end of the episode. Using the example above with the color names, you would code a consequence as occurring if the teacher provided verbal praise for the child's response at least once during the end of a sequence. The teacher may not, however, provide verbal praise for the child's last response. If that happened, you should still code it as occurring.

### Coding Non-Goal Related Interactions

**Summary of Goal-Related Interactions**

Teacher: \_\_\_\_\_ Videotape Date: \_\_\_\_\_

Coder: \_\_\_\_\_ Free Play                      Snack

Child: \_\_\_\_\_ Goal: \_\_\_\_\_

Began: \_\_\_\_\_ Ended: \_\_\_\_\_ CT Episode?: \_\_\_\_\_

Child: \_\_\_\_\_ Goal: \_\_\_\_\_

Began: \_\_\_\_\_ Ended: \_\_\_\_\_ CT Episode?: \_\_\_\_\_

Child: \_\_\_\_\_ Goal: \_\_\_\_\_

Began: \_\_\_\_\_ Ended: \_\_\_\_\_ CT Episode?: \_\_\_\_\_

Child: \_\_\_\_\_ Goal: \_\_\_\_\_

Began: \_\_\_\_\_ Ended: \_\_\_\_\_ CT Episode?: \_\_\_\_\_

Child: \_\_\_\_\_ Goal: \_\_\_\_\_

Began: \_\_\_\_\_ Ended: \_\_\_\_\_ CT Episode?: \_\_\_\_\_

**Sample Coding Sheet: Coding Non-Goal Related Interactions  
between Teachers and Target Children**

Child: \_\_\_\_\_ Category: \_\_\_\_\_

Time Interaction Began: \_\_\_\_\_

Time Interaction Ended: \_\_\_\_\_

Child: \_\_\_\_\_ Category: \_\_\_\_\_

Time Interaction Began: \_\_\_\_\_

Time Interaction Ended: \_\_\_\_\_

Child: \_\_\_\_\_ Category: \_\_\_\_\_

Time Interaction Began: \_\_\_\_\_

Time Interaction Ended: \_\_\_\_\_

Child: \_\_\_\_\_ Category: \_\_\_\_\_

Time Interaction Began: \_\_\_\_\_

Time Interaction Ended: \_\_\_\_\_

Child: \_\_\_\_\_ Category: \_\_\_\_\_

Time Interaction Began: \_\_\_\_\_

Time Interaction Ended: \_\_\_\_\_

Appendix G. Coding Sheets for Coding Rates of Teachers' Set-ups

### Coding Set-Ups

Teacher's Name: \_\_\_\_\_

Free Play

Snack

Tape Date: \_\_\_\_\_

Coder: \_\_\_\_\_

Choices						
Sabotage						
Silly Situations						
Violate Expectations						
Assistance						

Teacher's Name: \_\_\_\_\_

Free Play

Snack

Tape Date: \_\_\_\_\_

Coder: \_\_\_\_\_

Choices						
Sabotage						
Silly Situations						
Violate Expectations						
Assistance						

Appendix H. Table 18: Teachers' Need for Remedial Training

Table 18. Teachers' Needs for Remedial Training

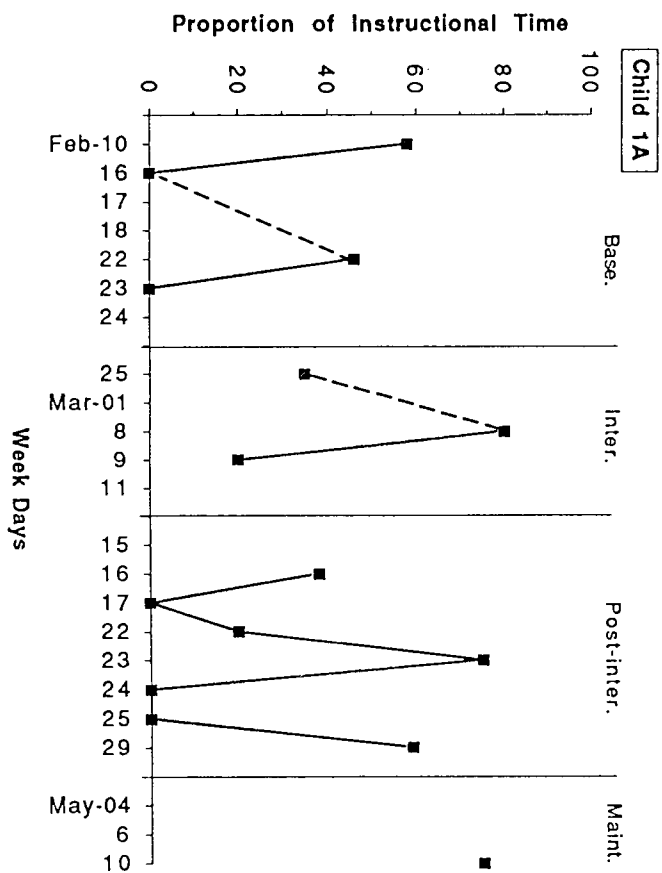
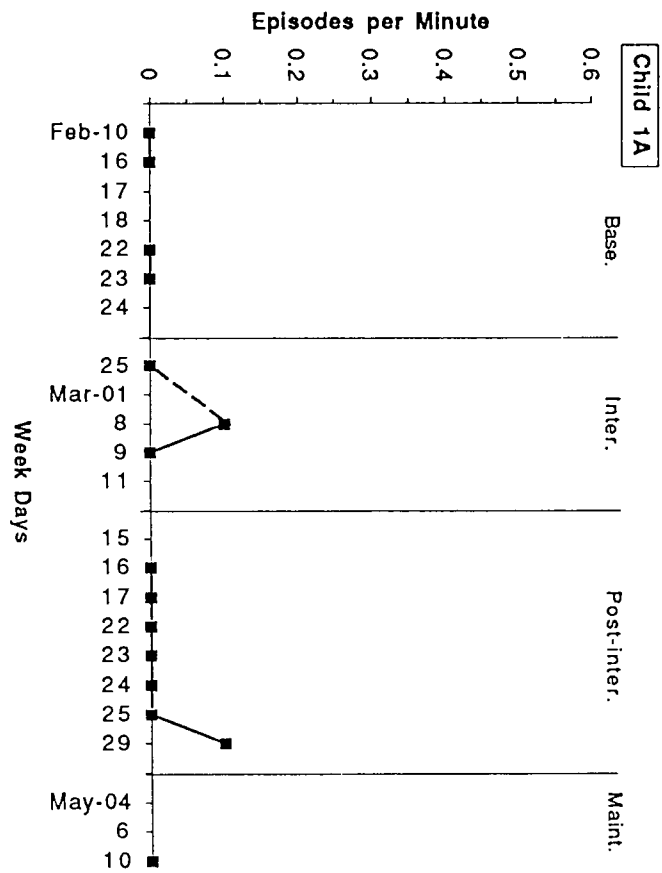
Teacher	Outside Reading Study Guides	Setting Up Opportunities	Identifying Functional Skills	Coincidental Teaching Planning Forms	Discrim. Training	Developing Coincidental Teaching Lesson Plans	CT Video tapes
Erin	<u>Hart &amp; Risley Question 2:</u> Failed to describe all conditions for training in natural environment  <u>Bricker &amp; Cripe Questions 1-3:</u>  1) Failed to include information on functionality of skills  2) Needed to include more complete description of teacher-directed and child-directed activities  3) Needed to describe child- versus teacher-directed approaches in terms of generalization versus acquisition	One set up did not address target skill	No remedial training	<u>Plan 1:</u> No remedial training  <u>Plans 2 &amp; 3:</u>  Needed to describe setting up opportunities or embedding initiations in terms of what teacher will do, not behavioral objective for child	<u>Prompting:</u> No remedial training  <u>Consequating:</u> No remedial training  <u>Coincidental Teaching Examples:</u> Did not correctly child's response to prompting for 6 vignettes, Did not correctly identify 1 vignette as an example of coincidental teaching	<u>Plans 1 &amp; 3:</u> Did not include evaluation criteria in behavioral objective  <u>Plan 2:</u> Did not describe target skill in behavioral terms	No remedial training needed

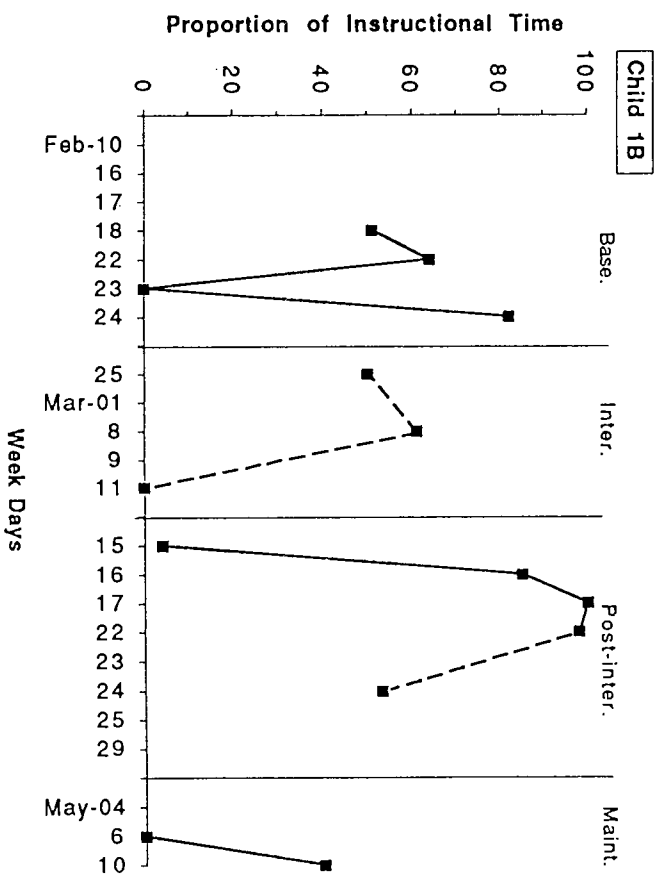
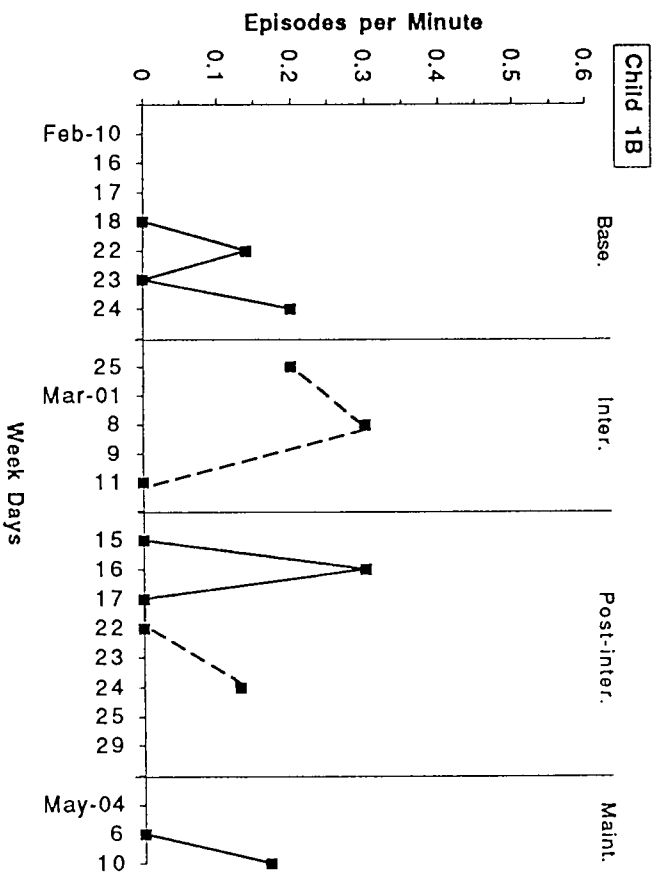
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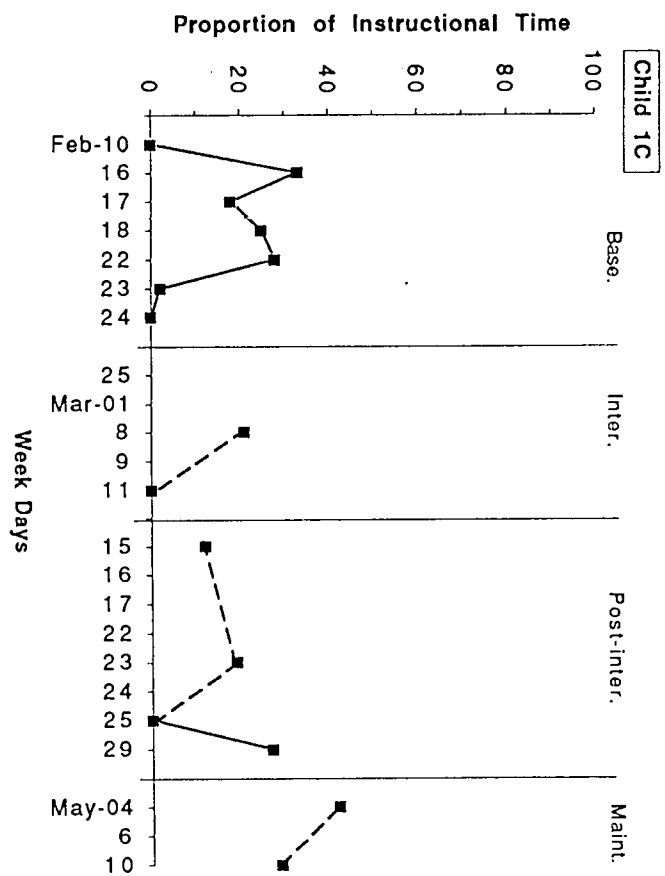
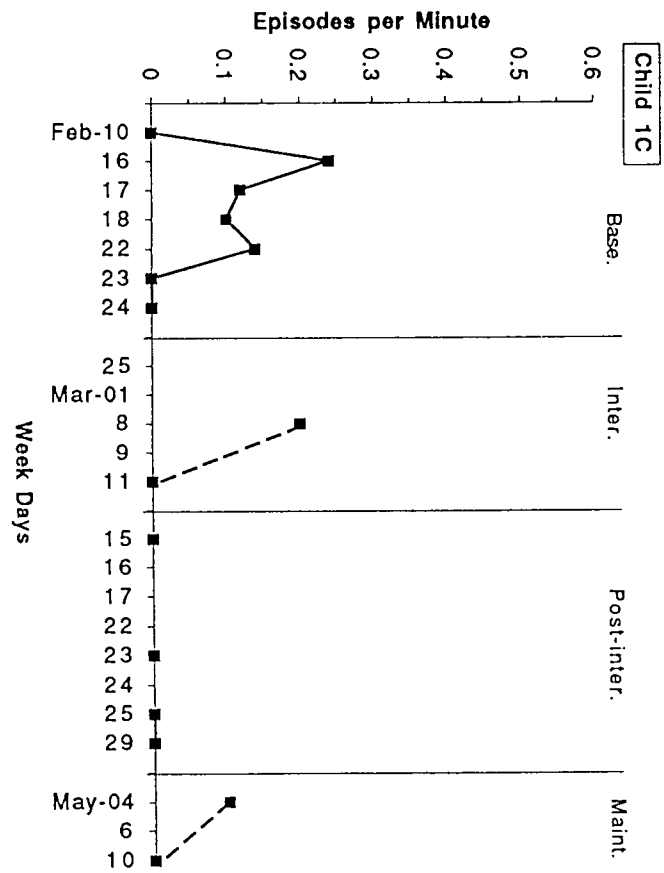
Teacher	Outside Reading Study Guides	Setting Up Opportunities	Identifying Functional Skills	Coincidental Teaching Planning Forms	Discrim. Training	Developing Coincidental Teaching Lesson Plans	CT Video tapes
Susan	No remedial training needed	No remedial training needed	No remedial training needed	No remedial training needed	No remedial training needed	<u>Plans 1-3:</u> Failed to include evaluation criteria in behavioral objectives	No remedial training needed
Louise	No remedial training needed	1 set up did not address target skill  2 set ups were not clear, needed more complete information	No remedial training needed	No remedial training needed	<u>Prompt:</u> For Vignettes 5 & 6, did not include all types of prompts provided to child. For Vignette 7, did not identify prompting sequence as correct  <u>Consequating:</u> For Vignettes 3 & 4, incorrectly recorded child's response. For Vignette 7, did not correctly identify type of praise given.  <u>Coincidental Teaching:</u> No remedial training needed	<u>Plans 1-3:</u> Failed to include evaluation criteria in behavioral objectives	<u>Tapes 1 &amp; 2:</u> No remedial training needed  <u>Tape 3:</u> Initial prompt not embedded in child's activity

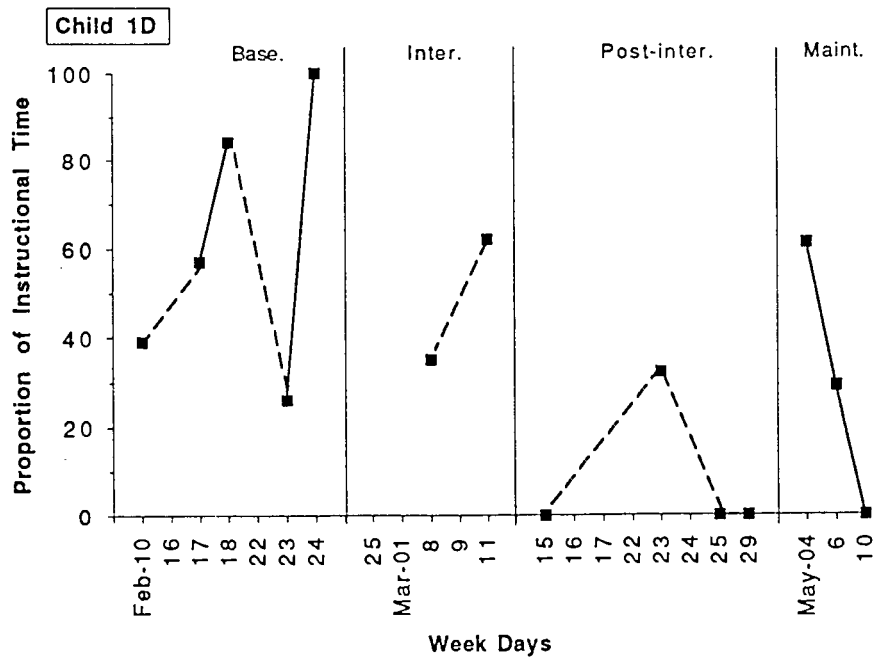
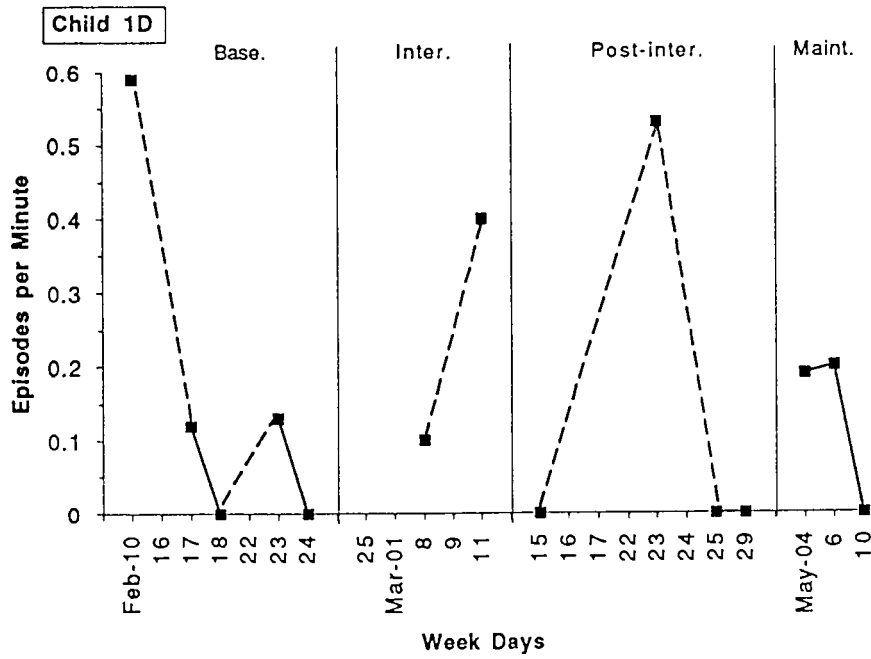


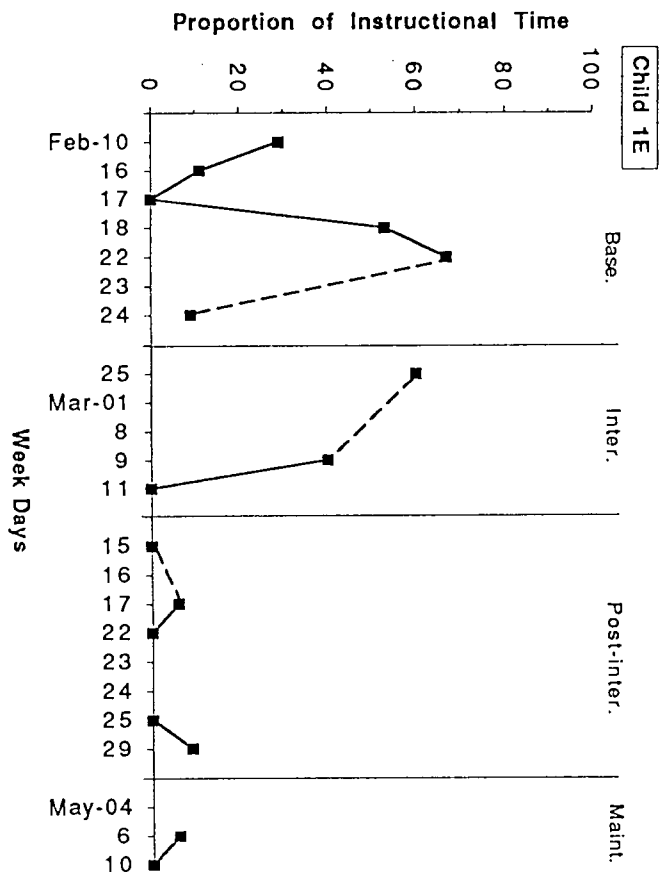
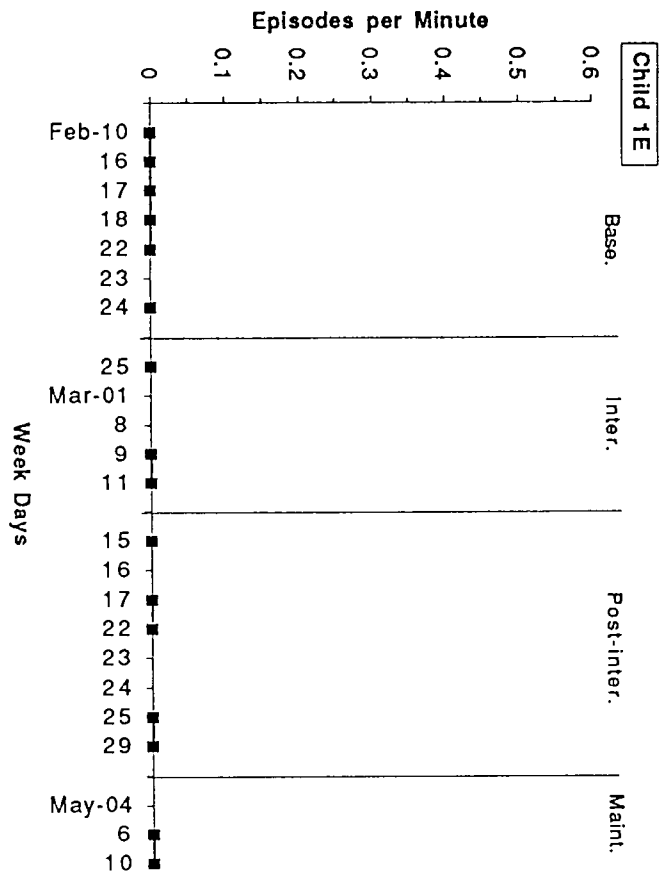
Appendix I. Graphed Data for Individual Target Children

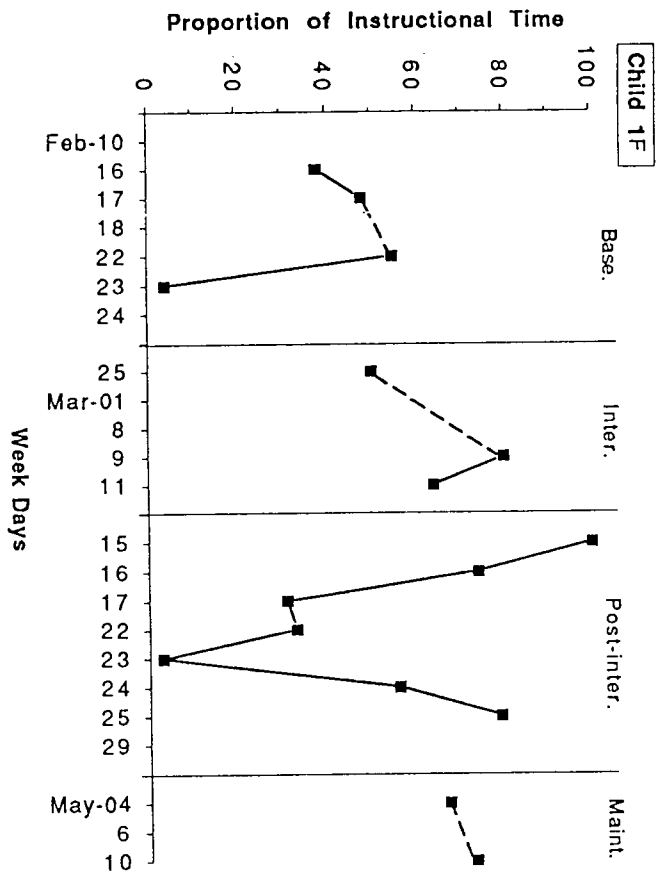
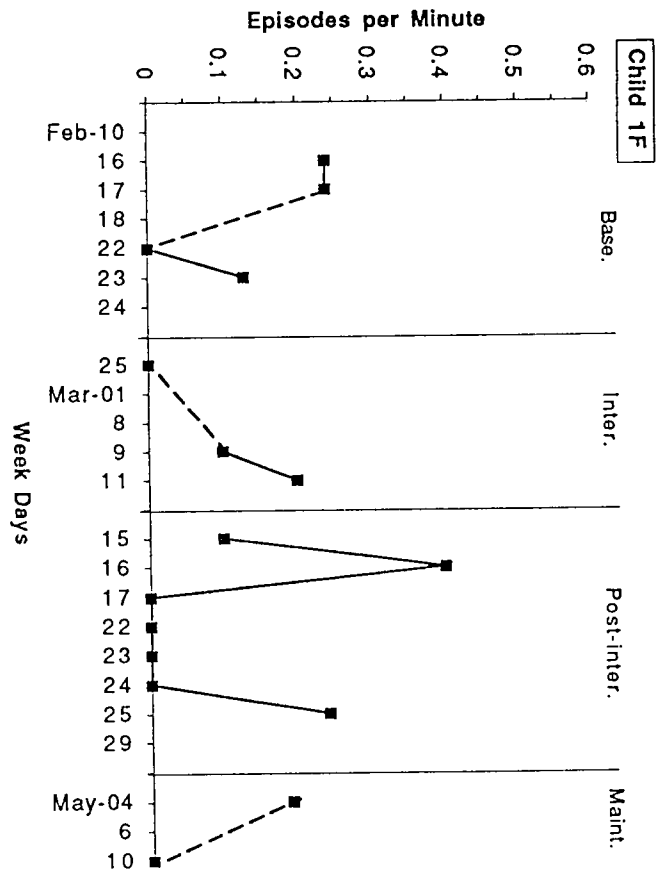


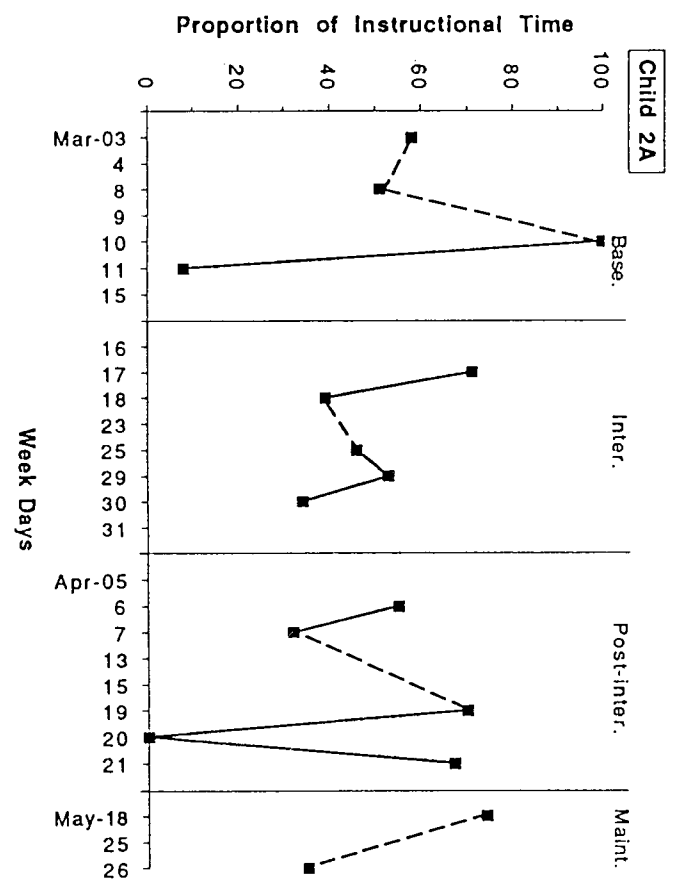
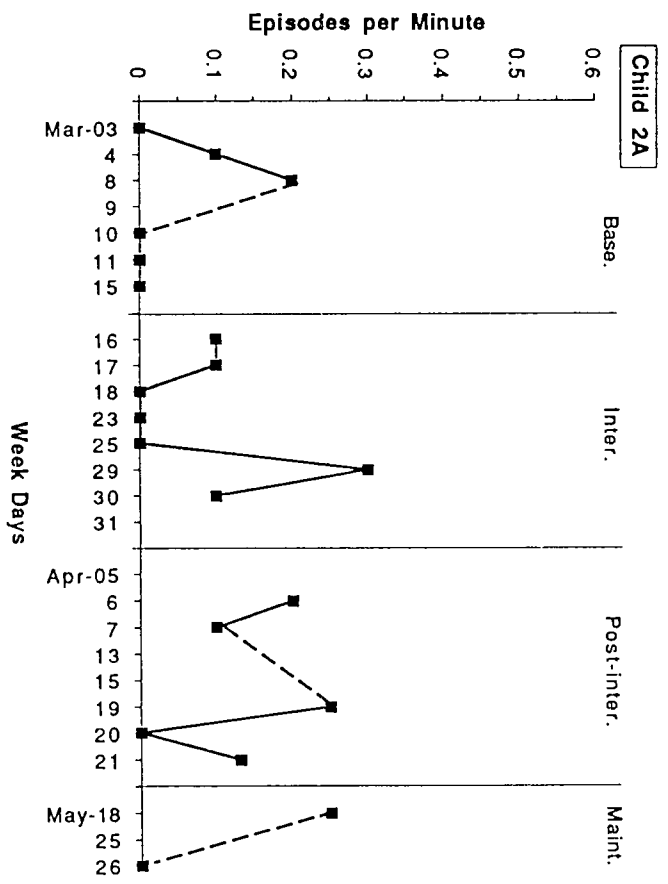




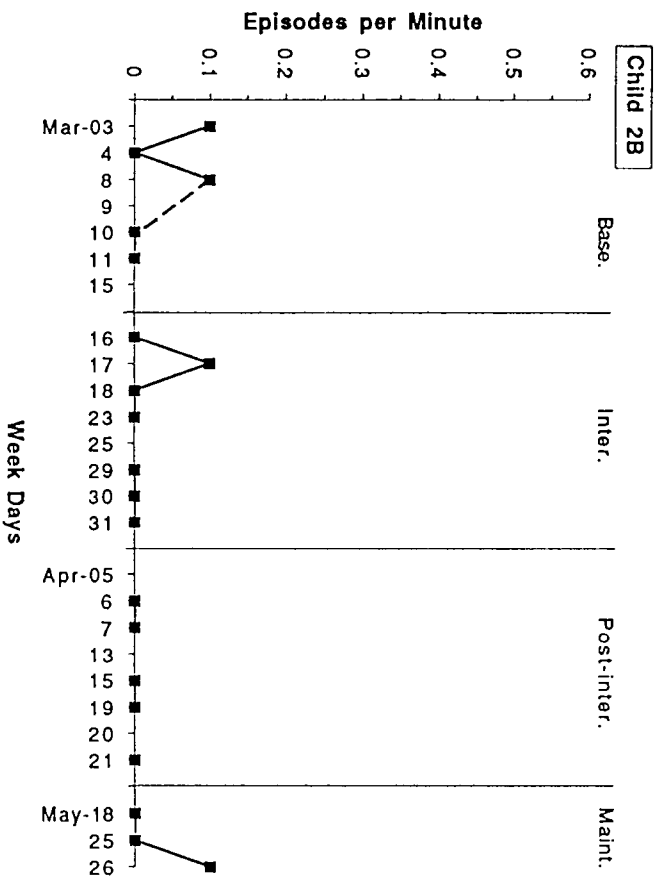
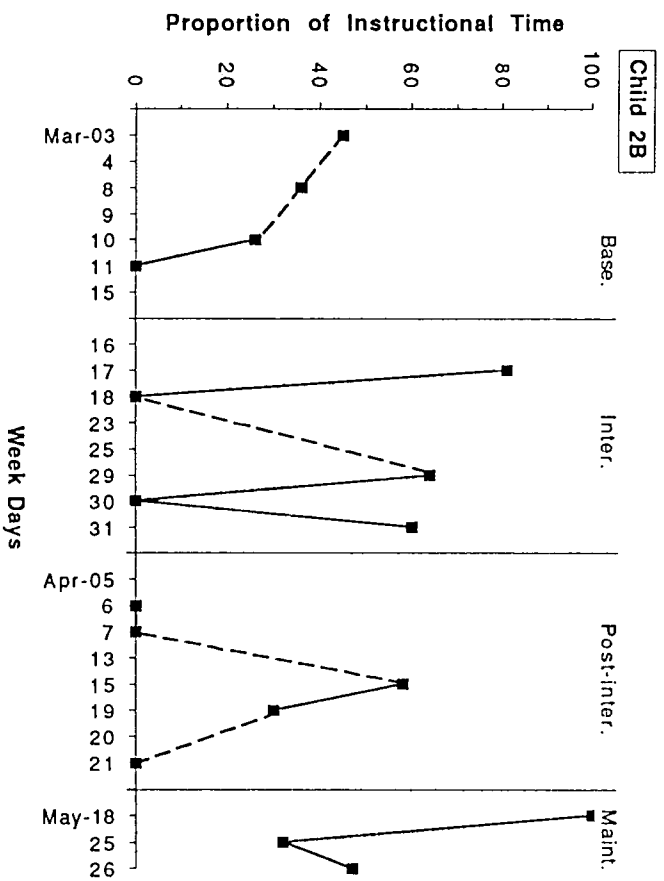


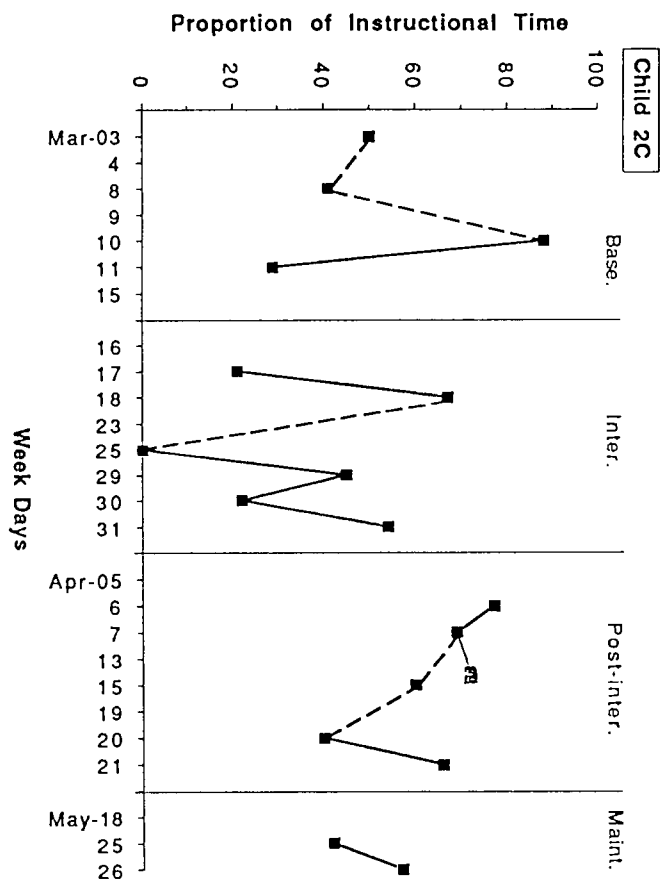
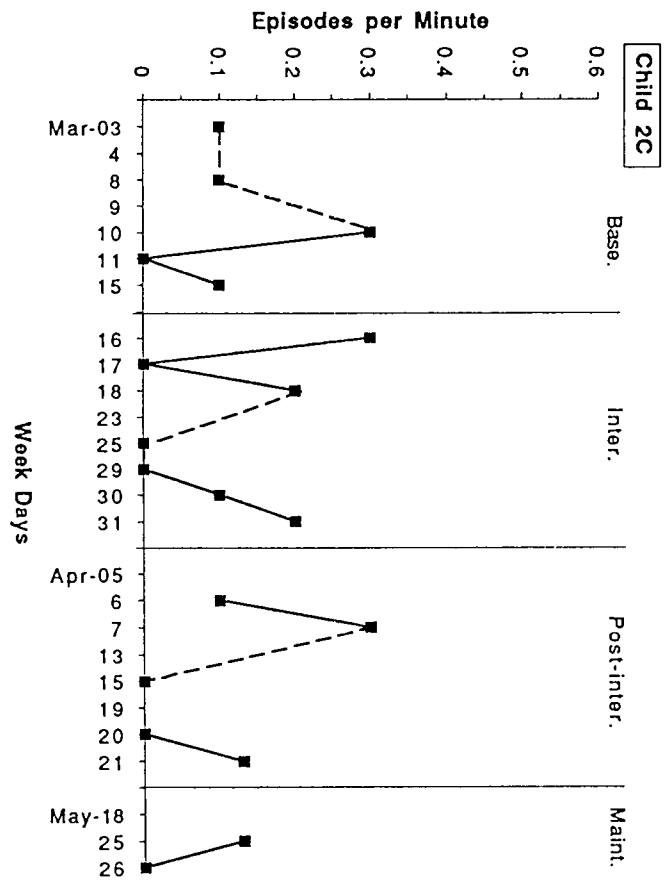


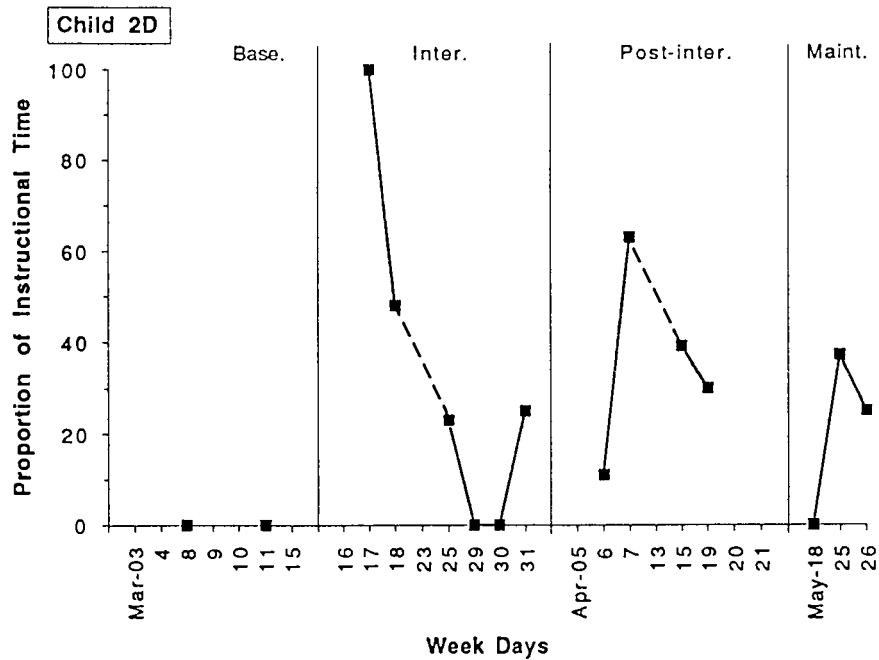
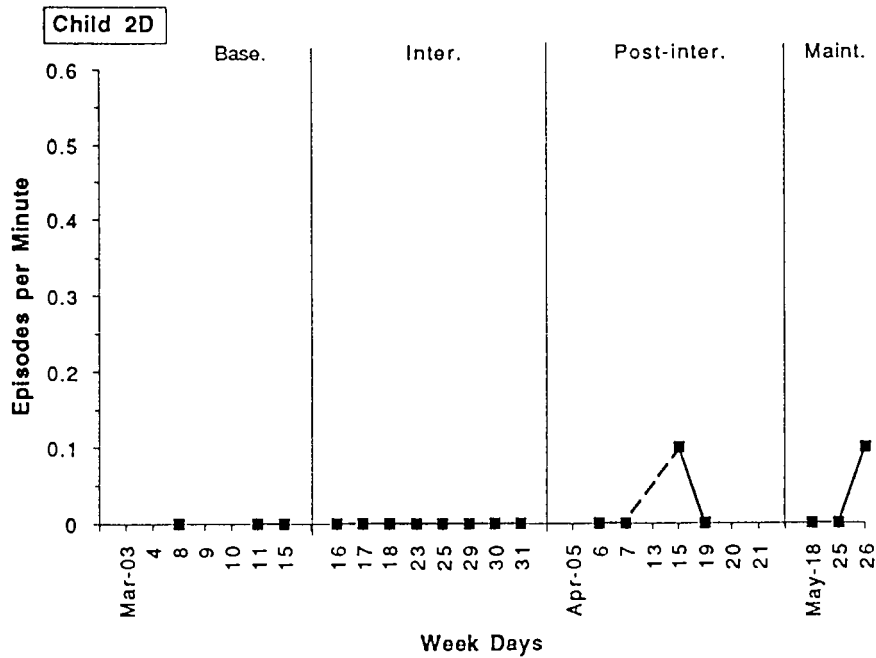


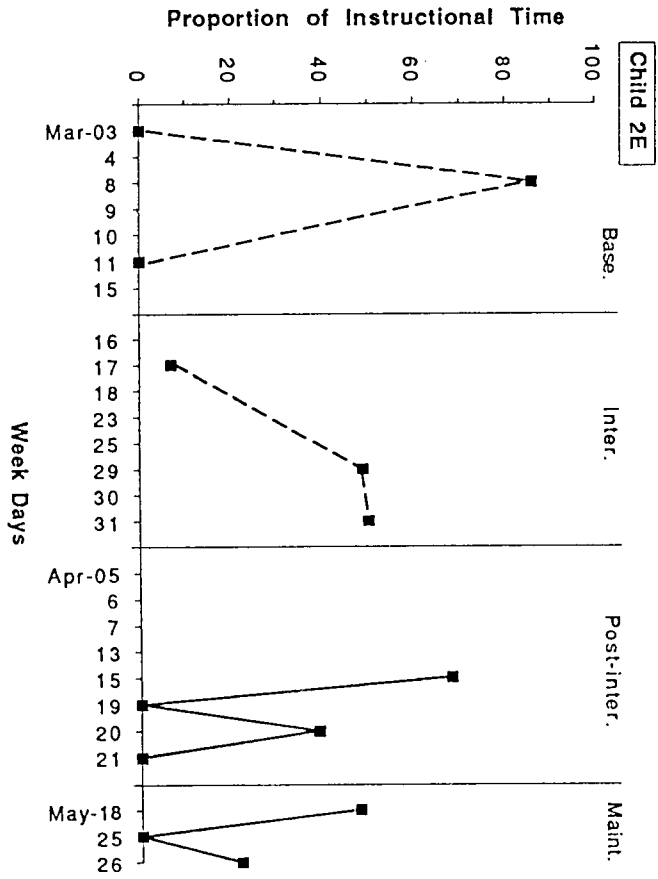
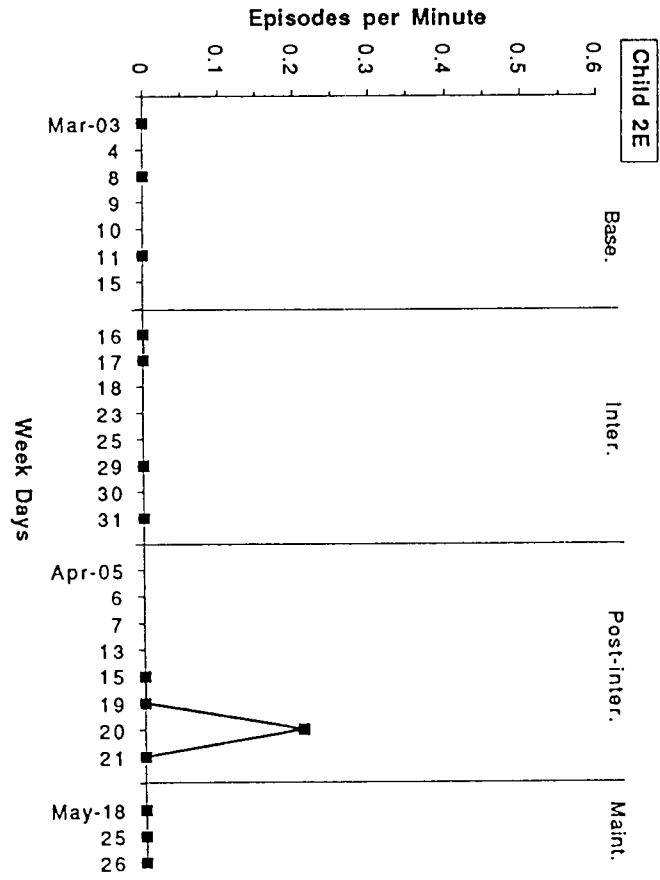


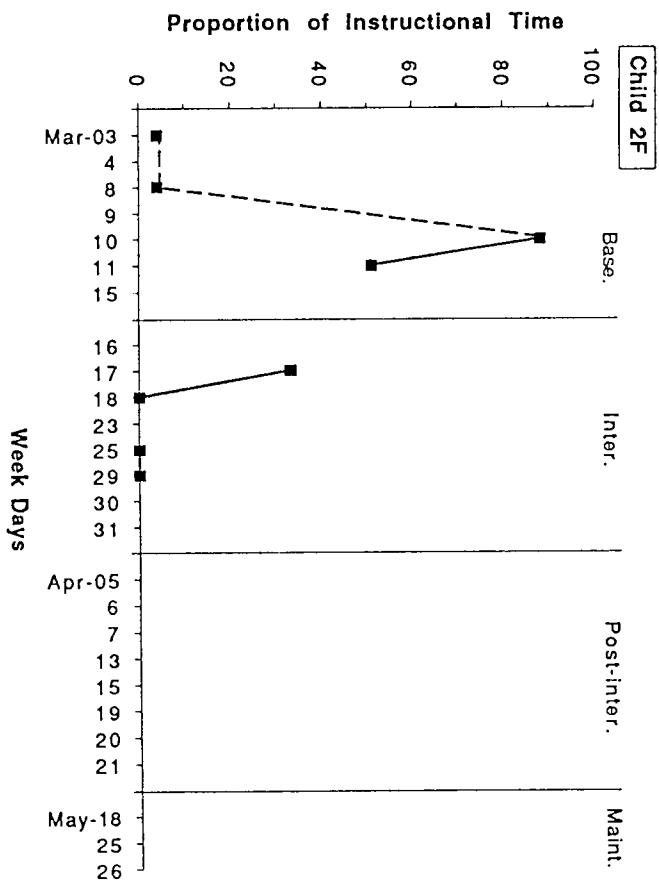
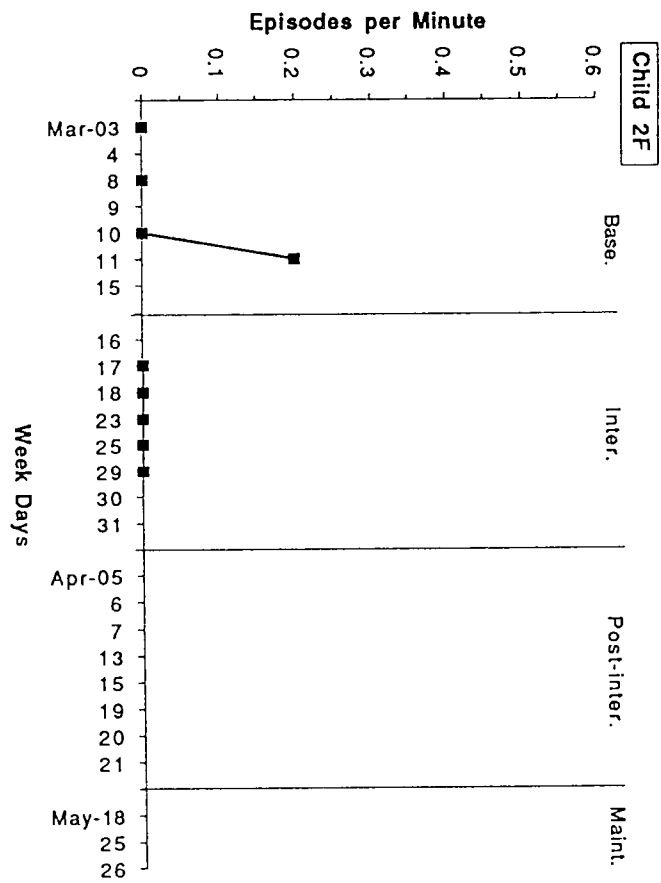


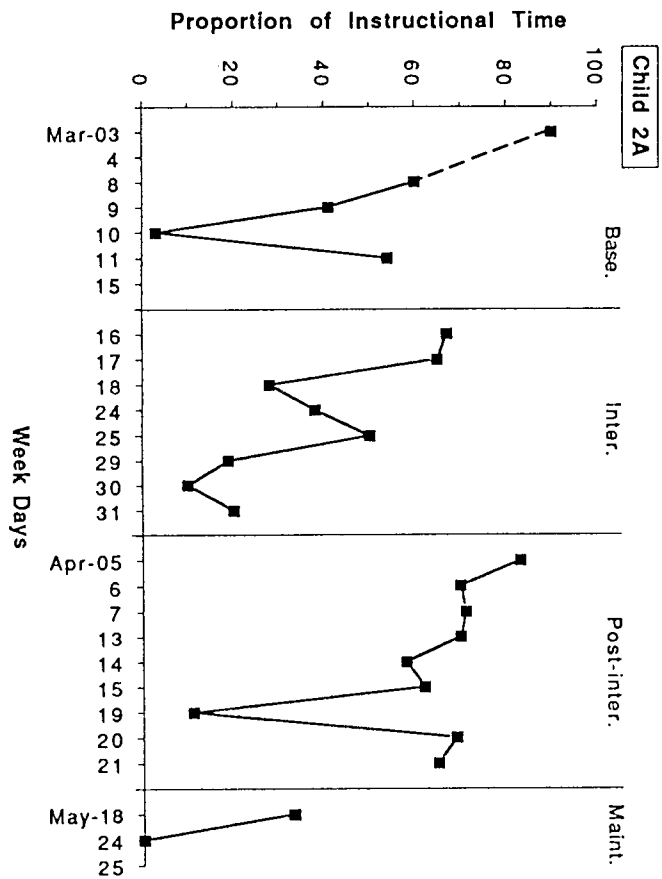
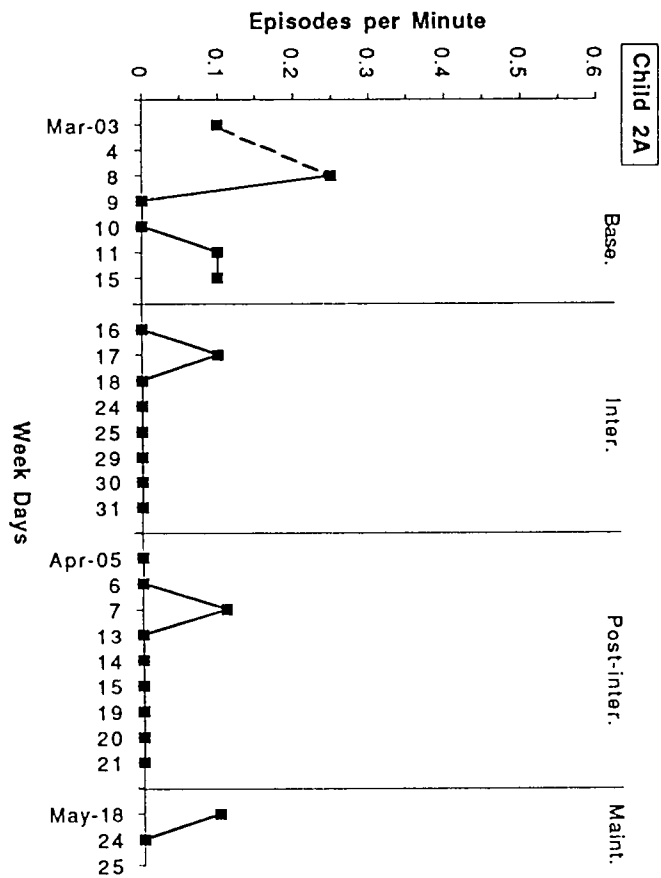


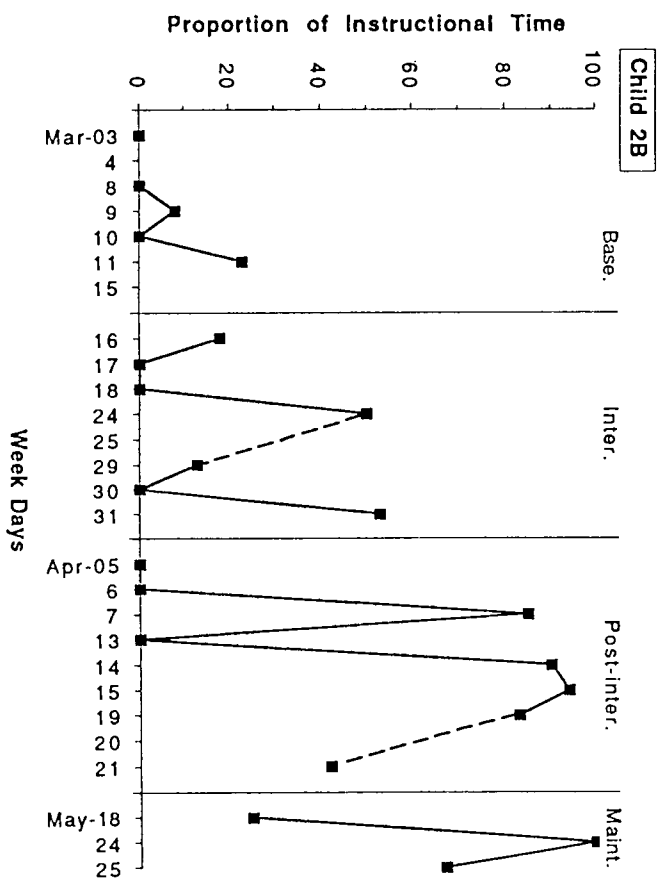
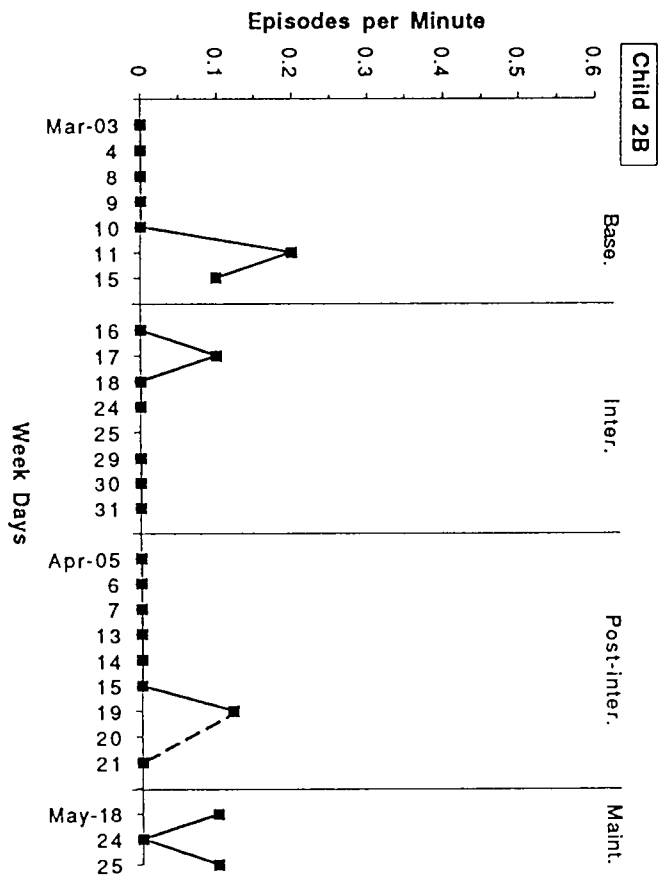


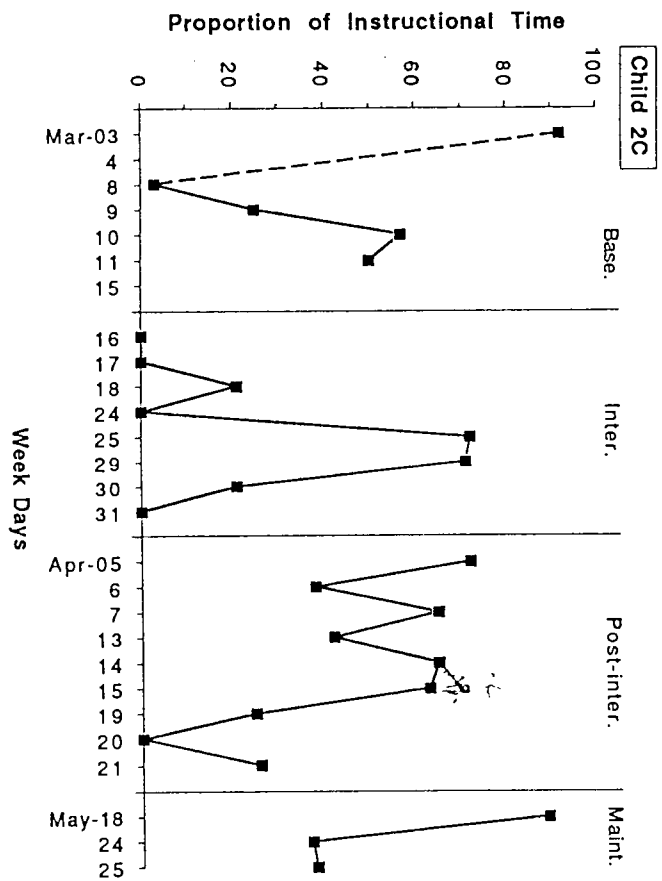
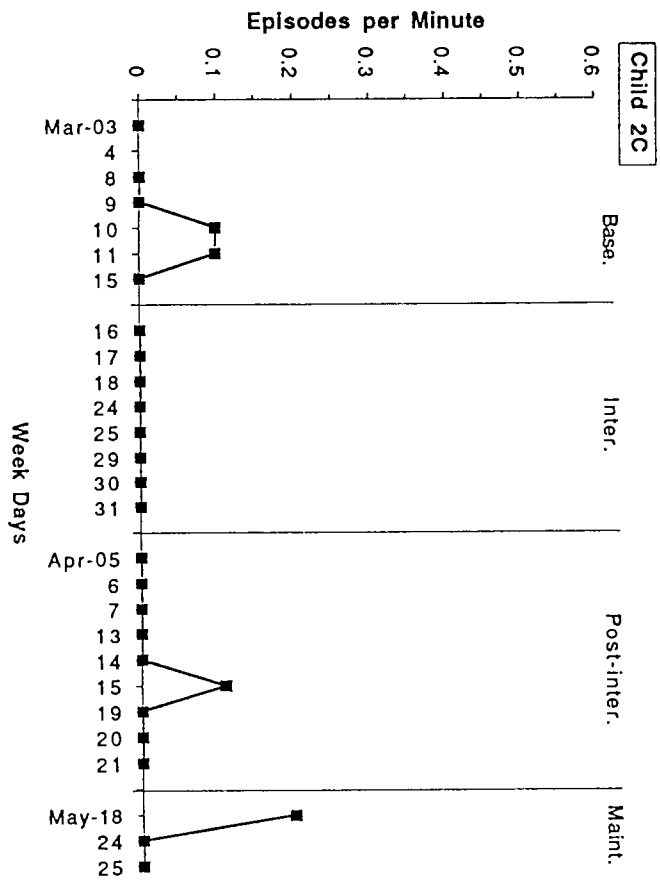




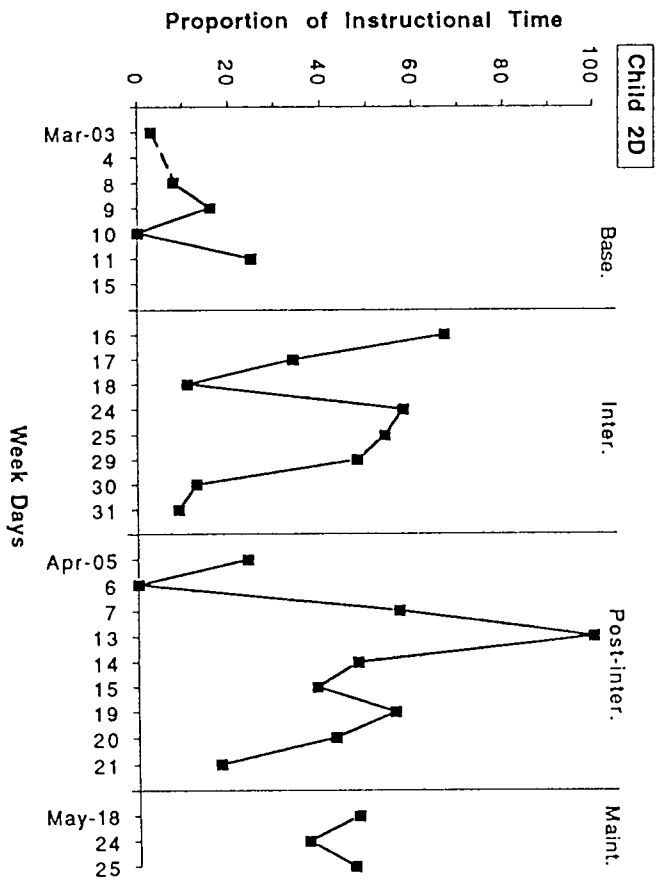
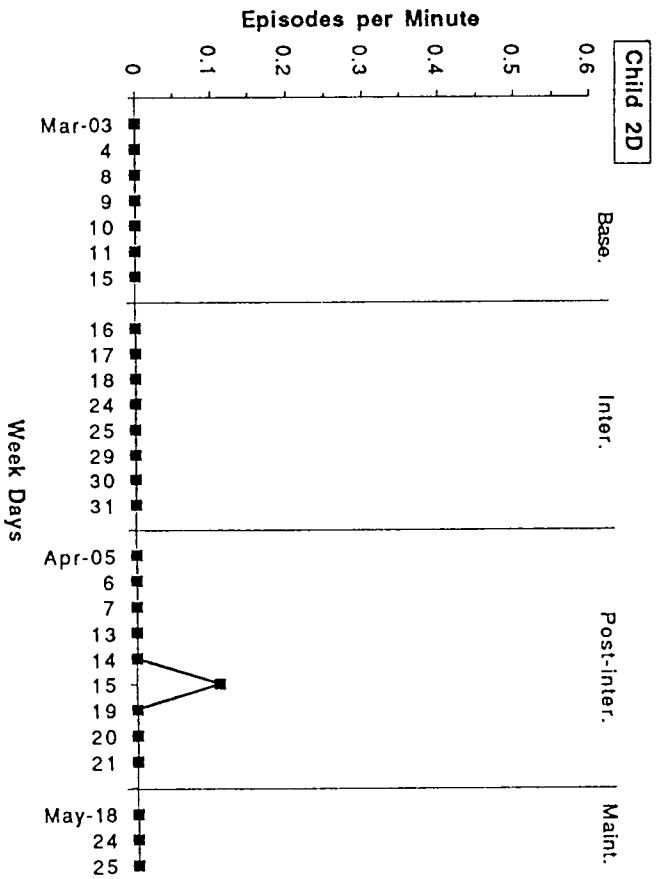


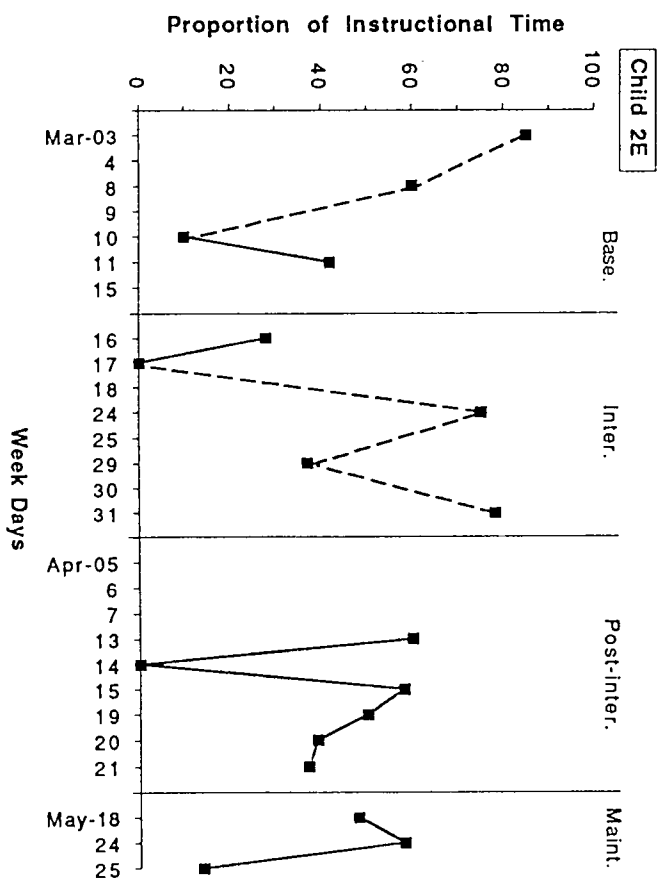
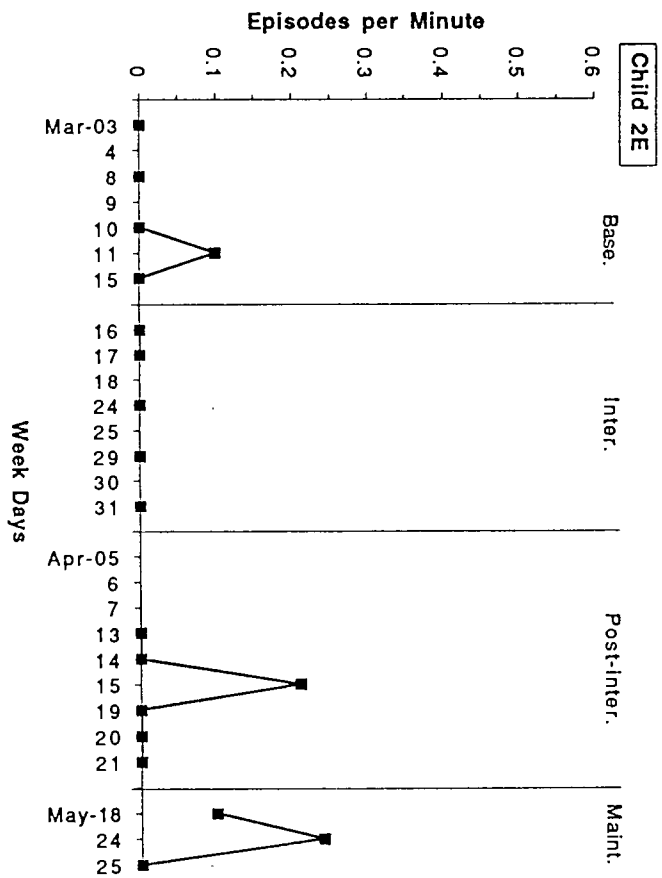


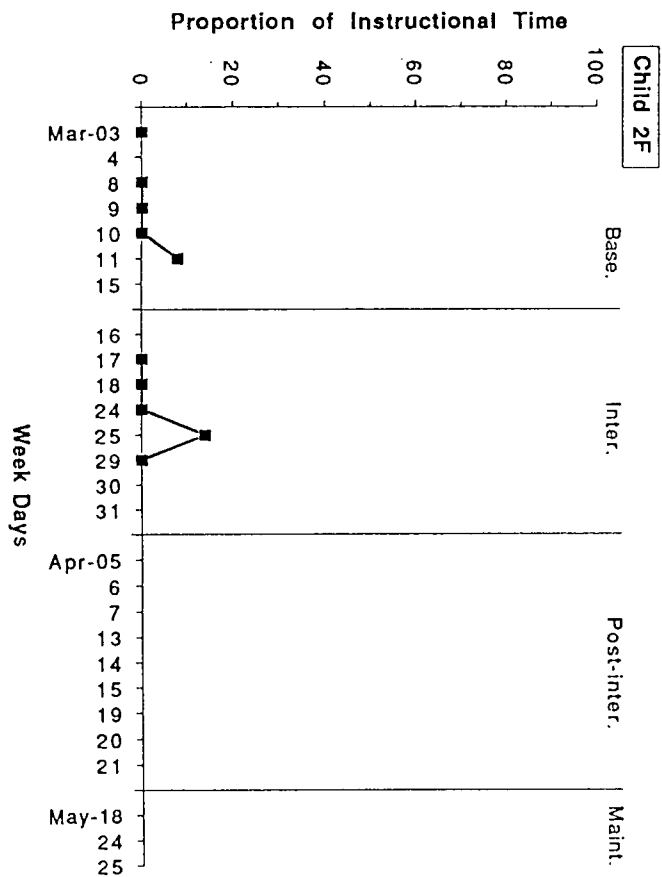
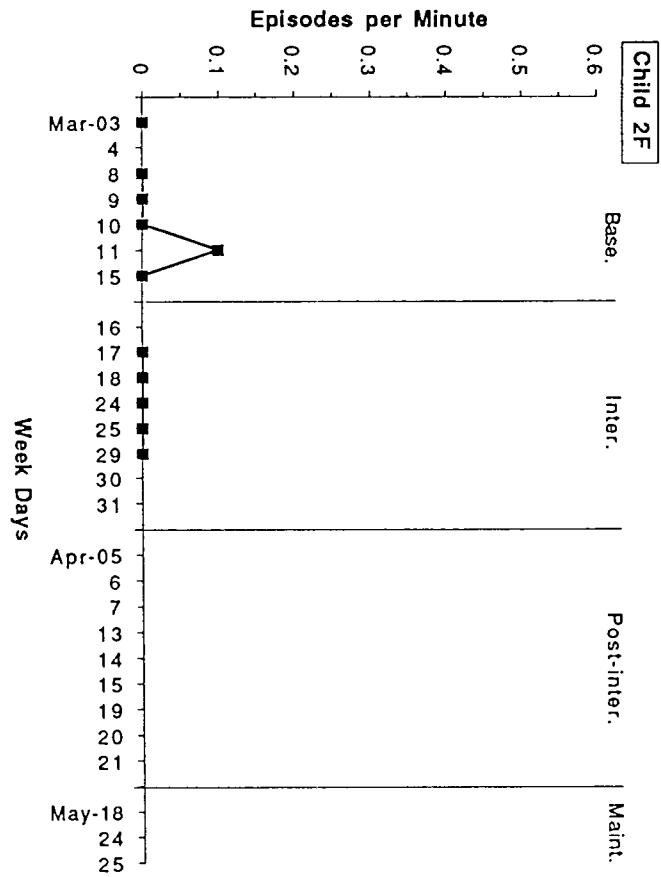


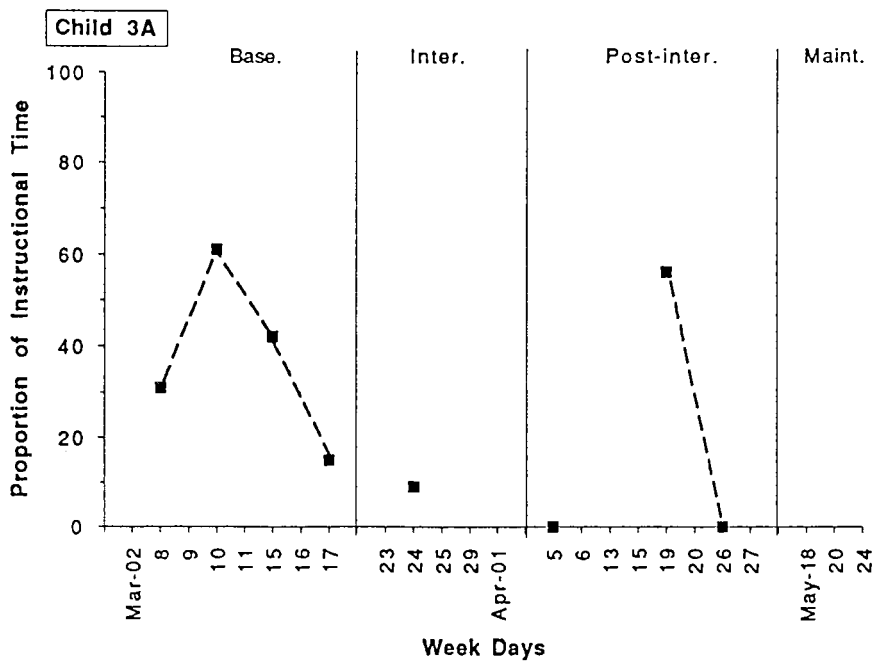
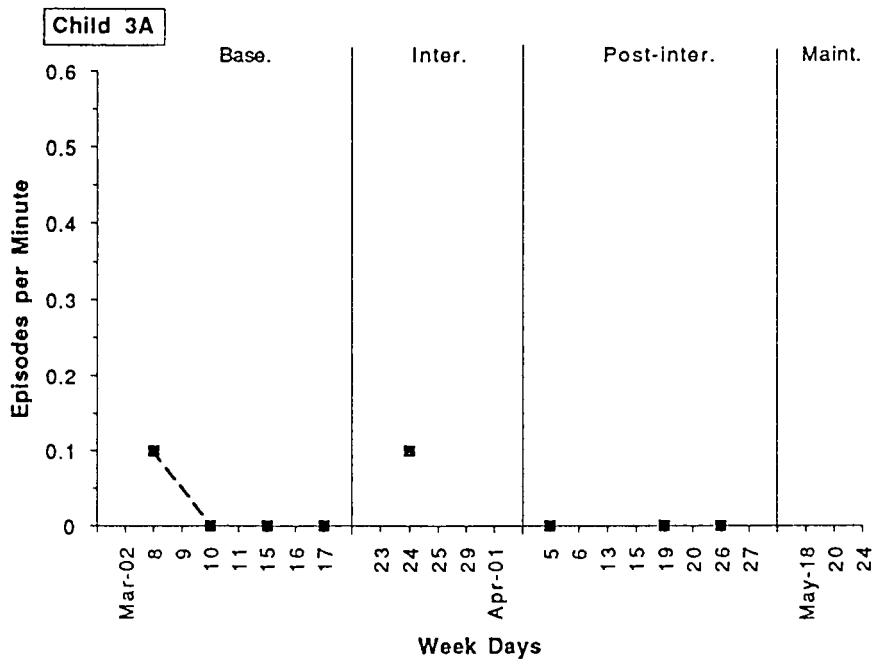


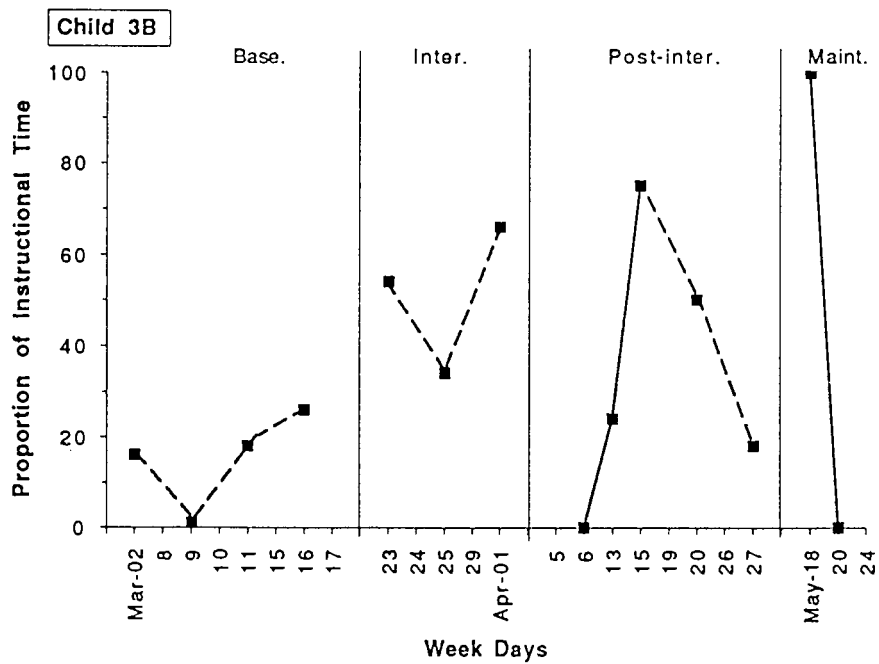
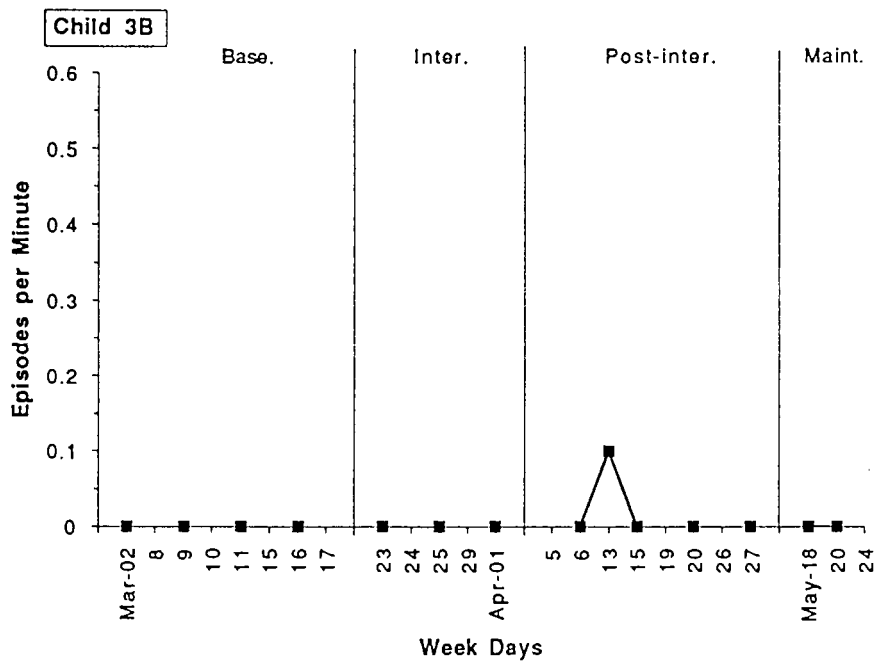


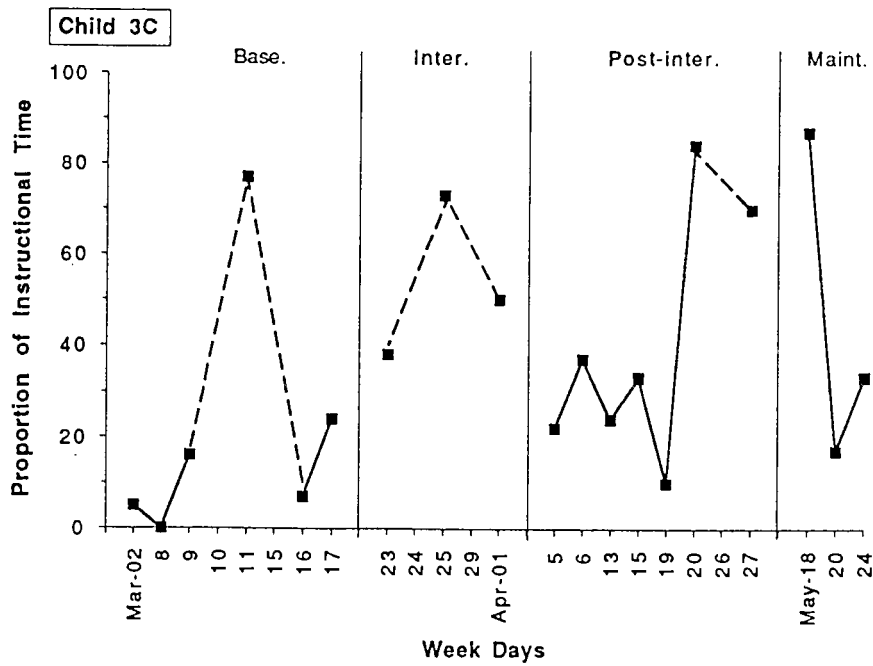
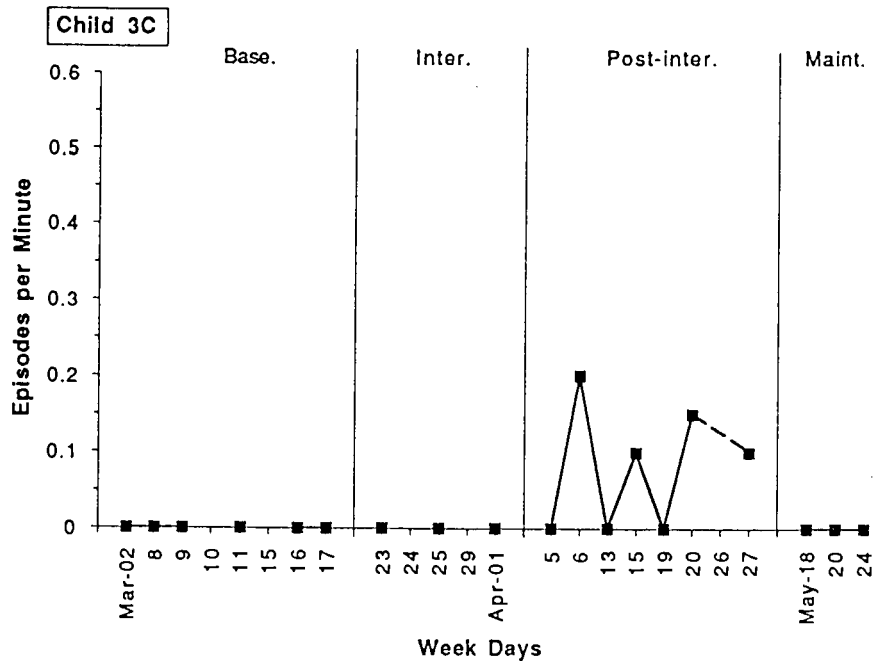


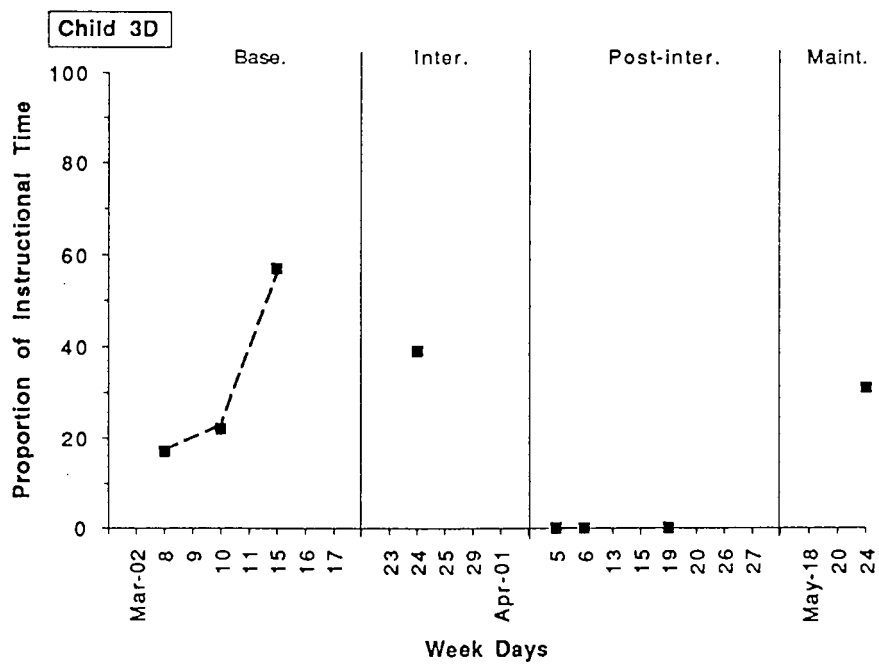
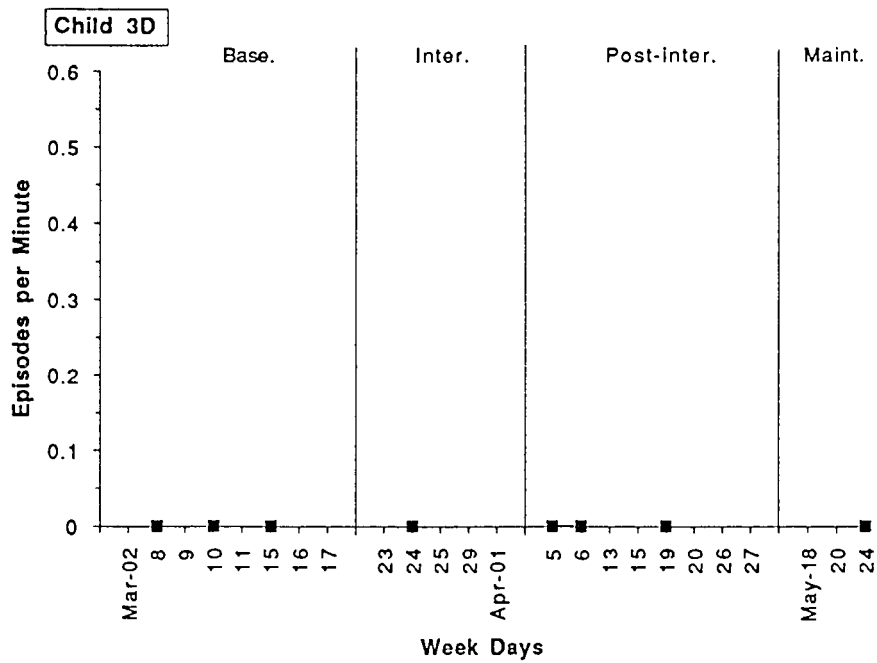


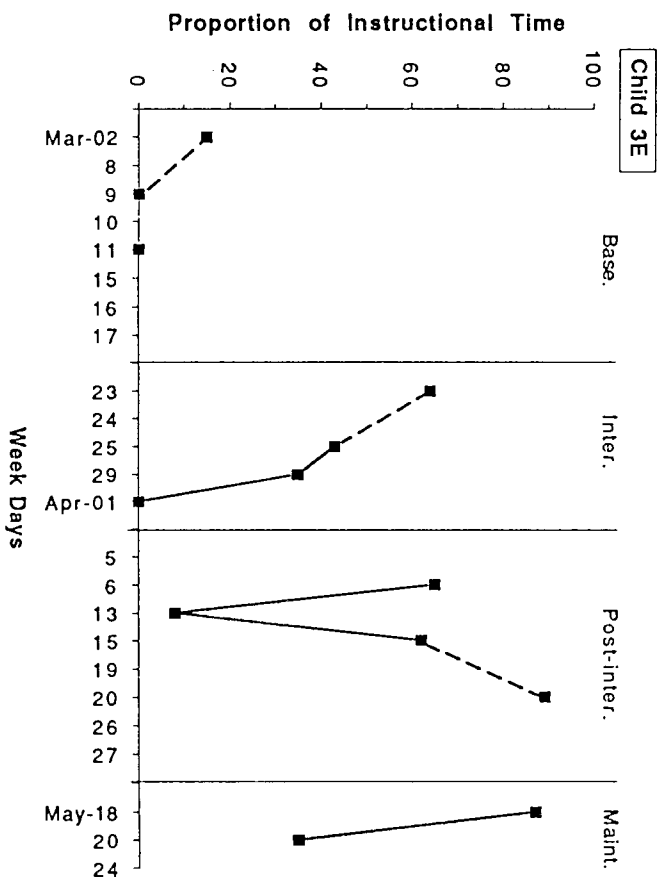
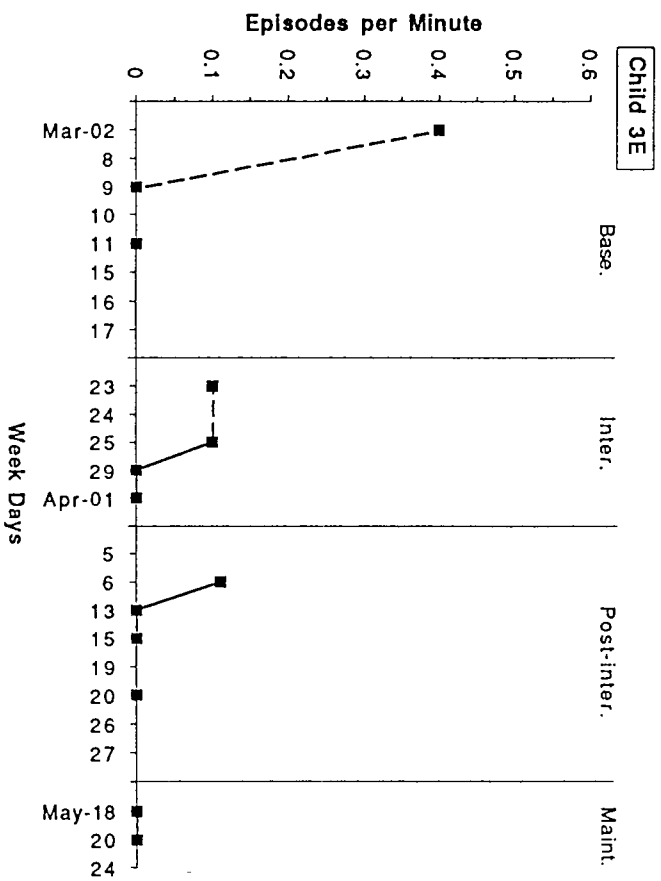




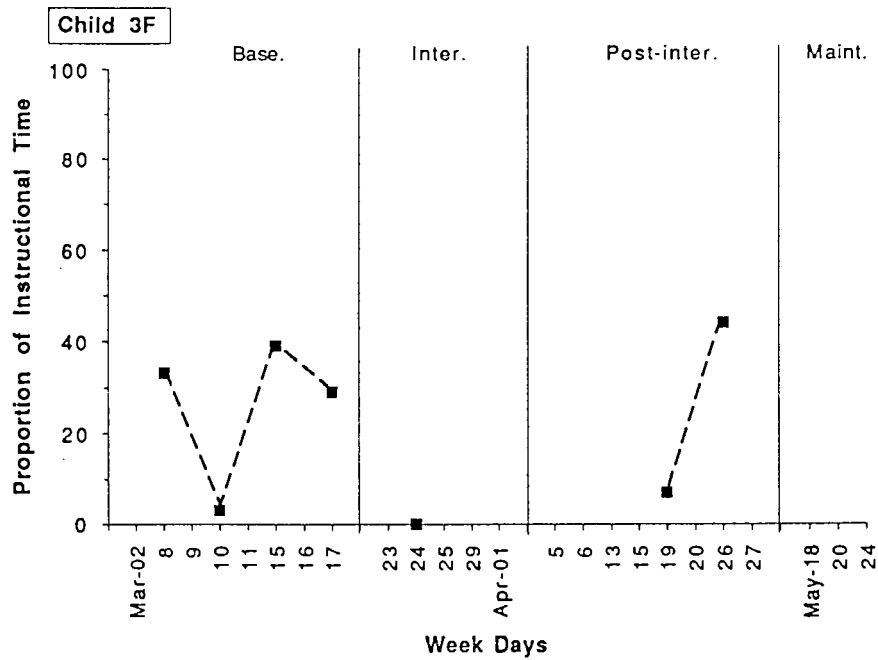
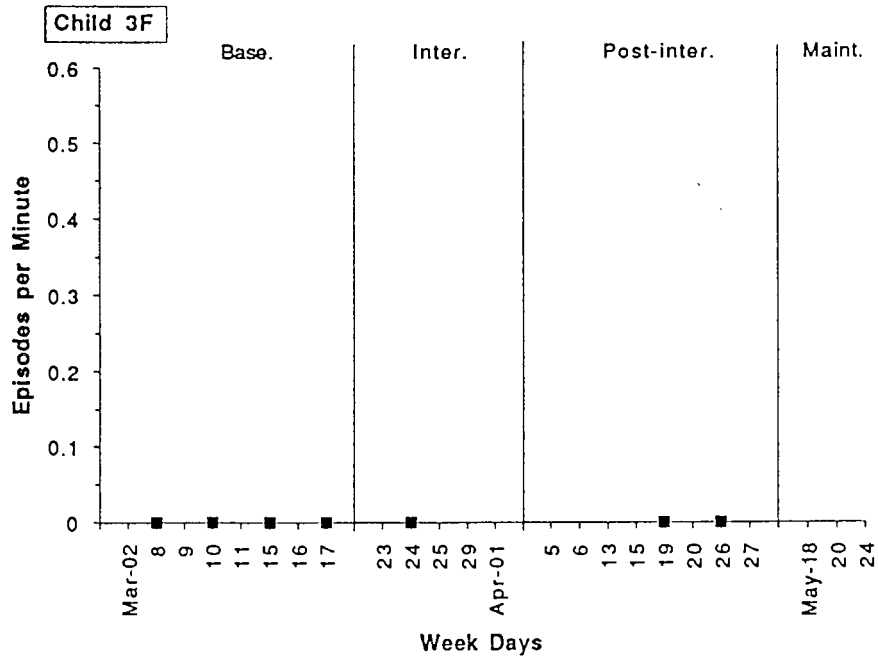


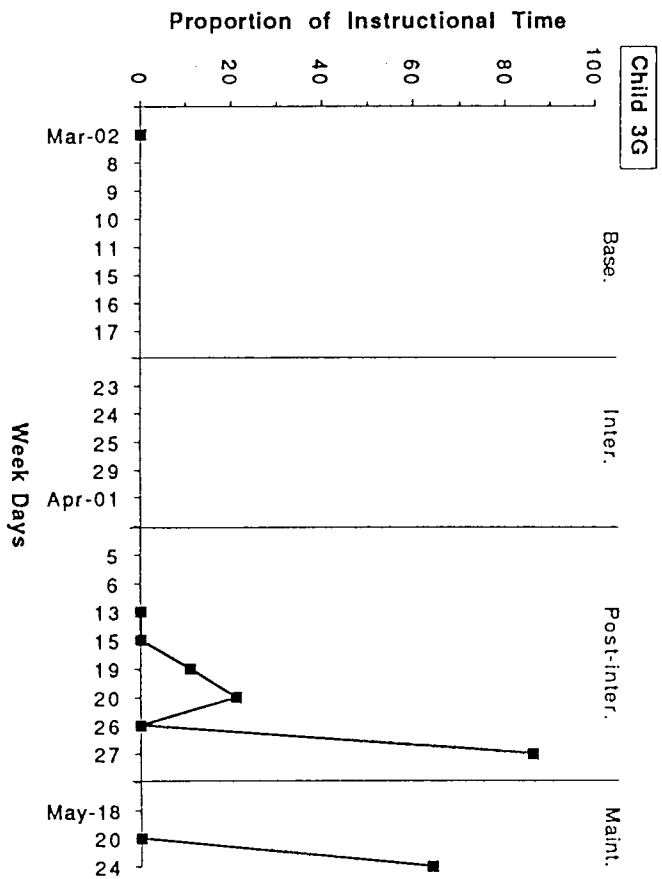
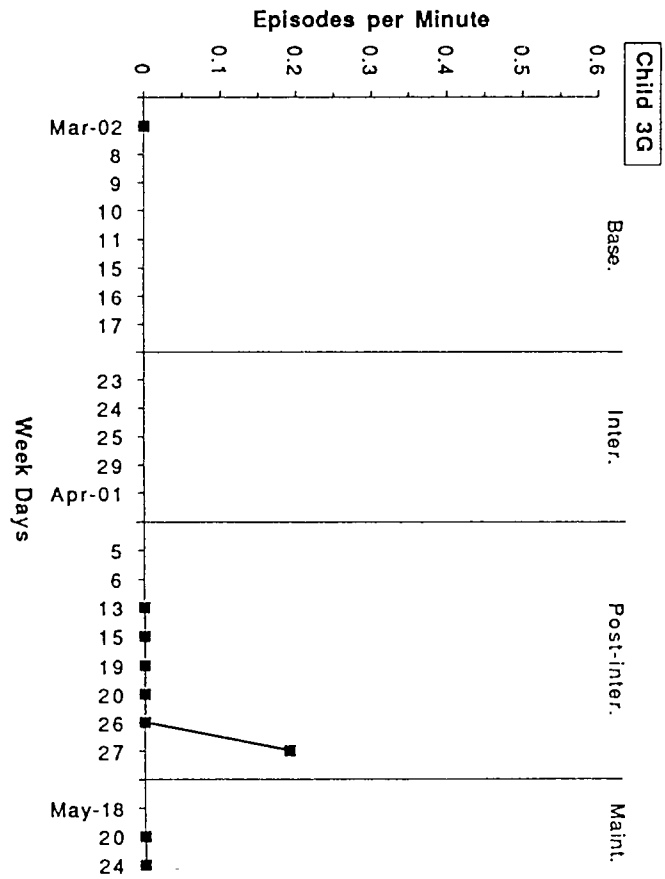


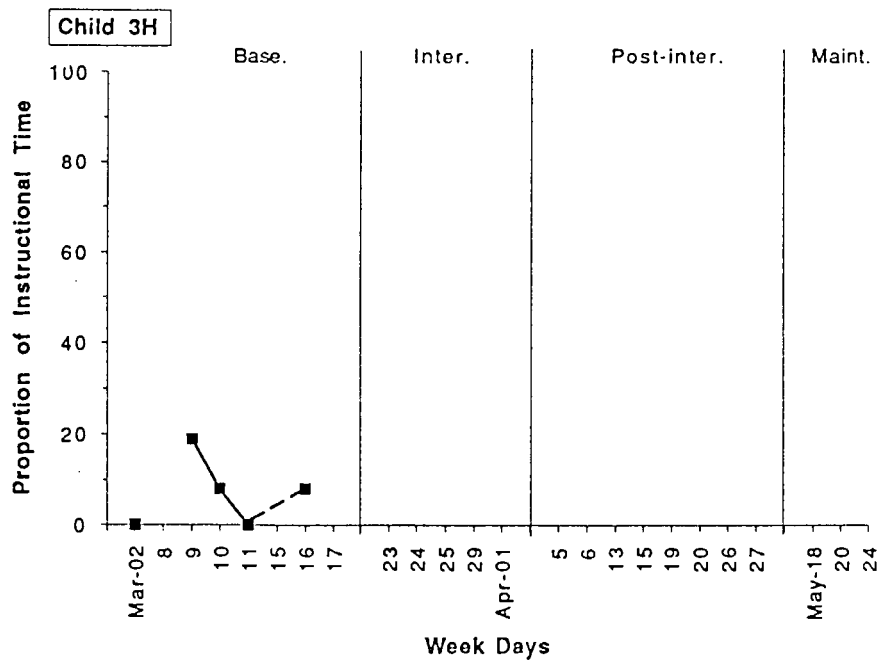
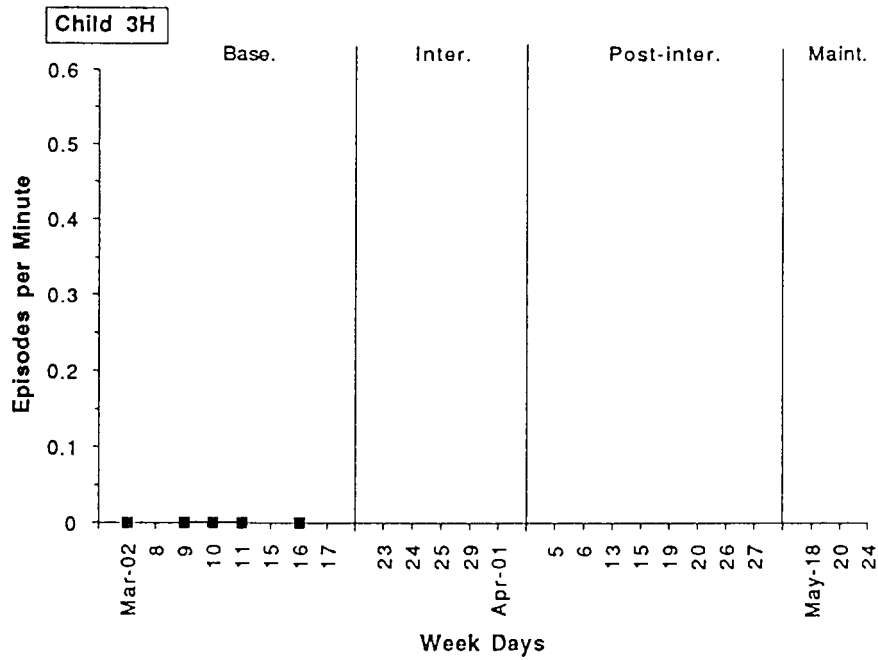


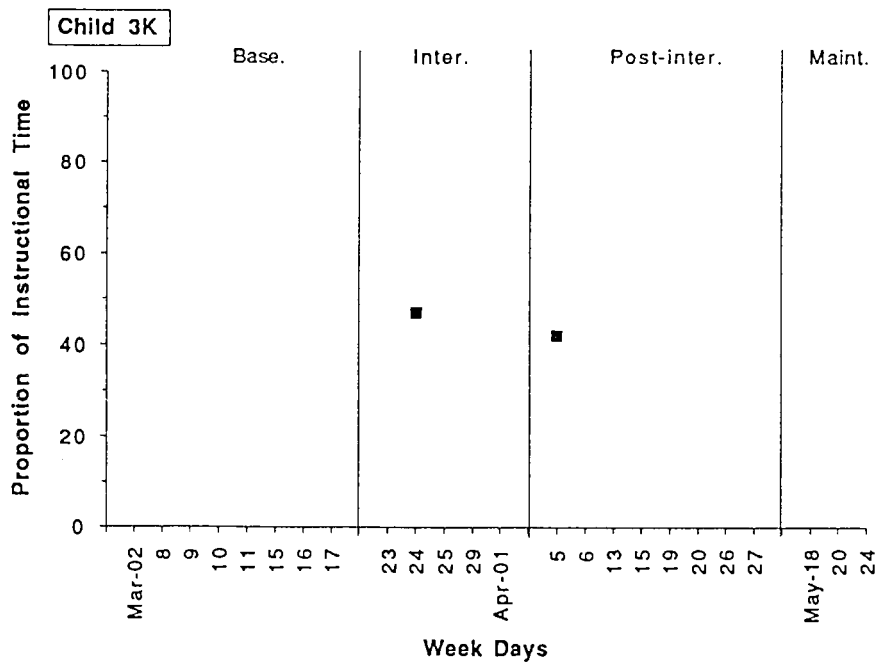
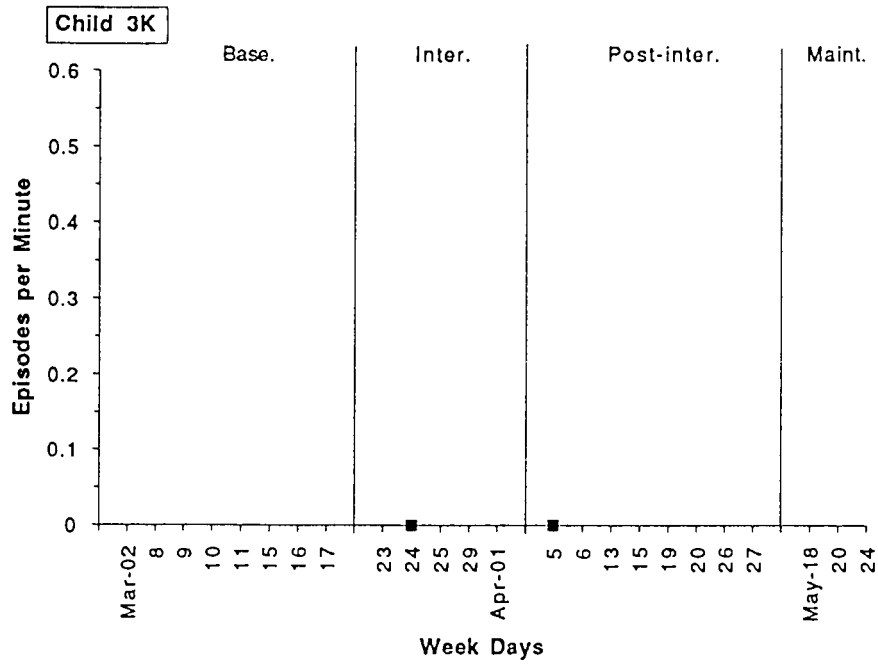


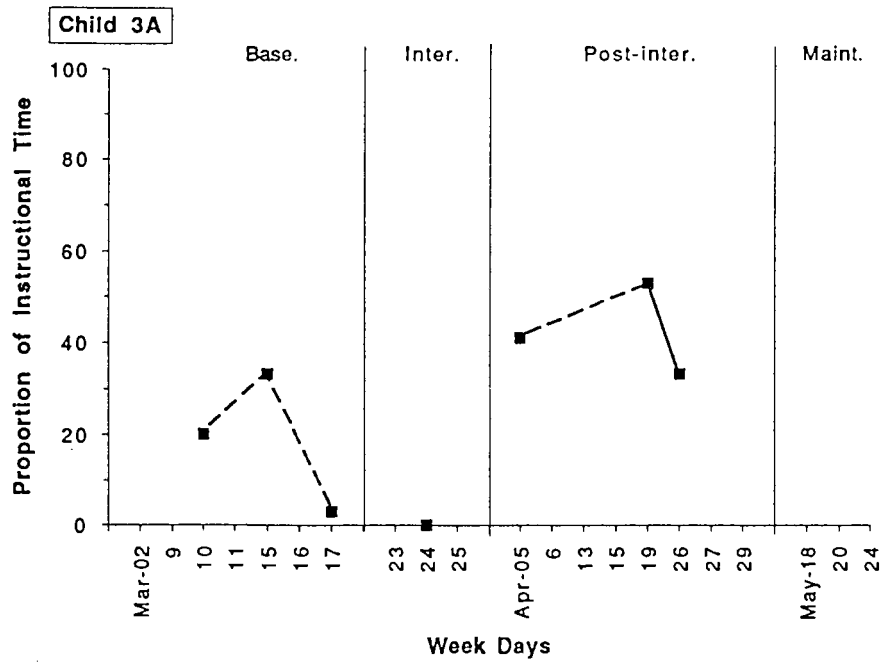
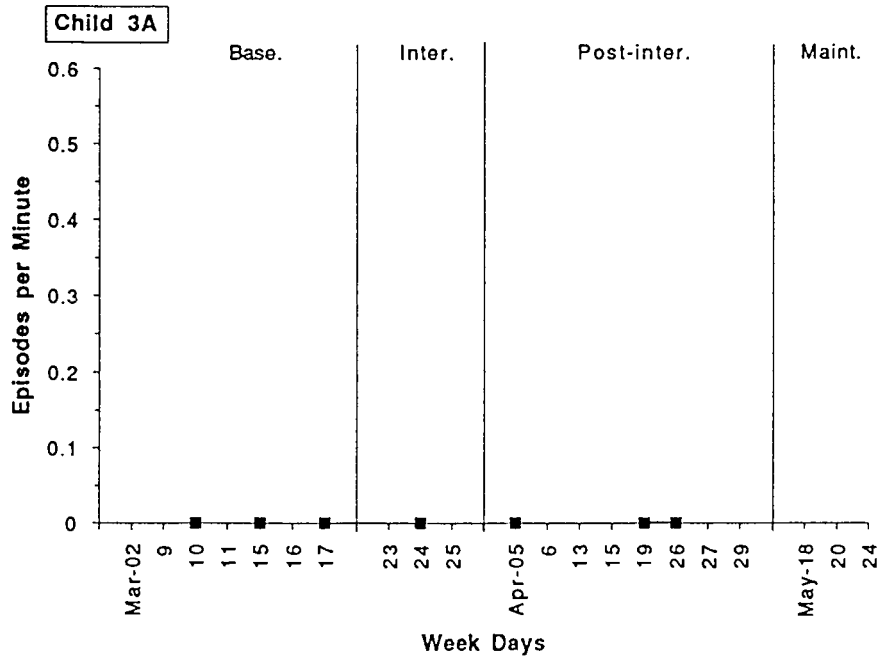


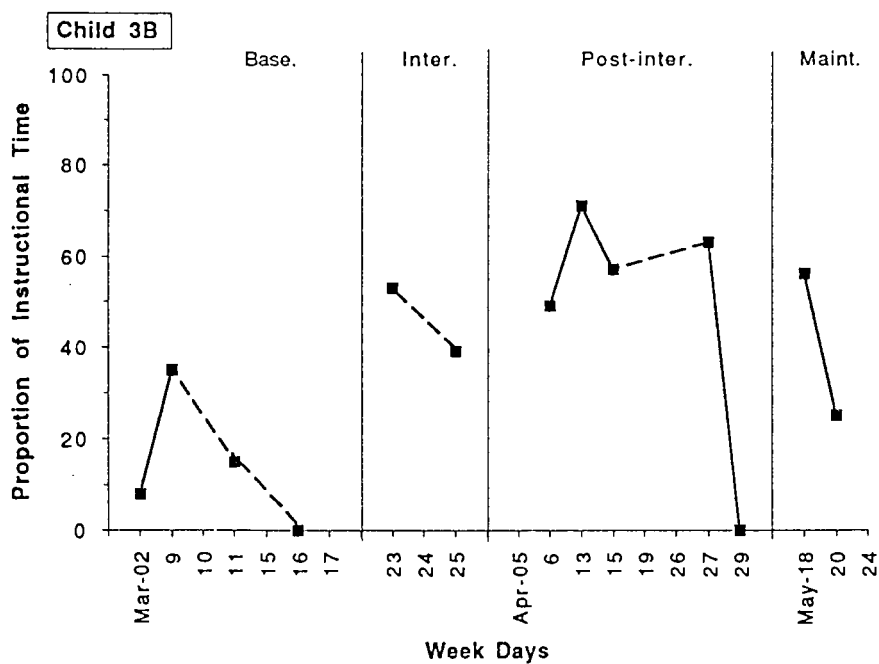
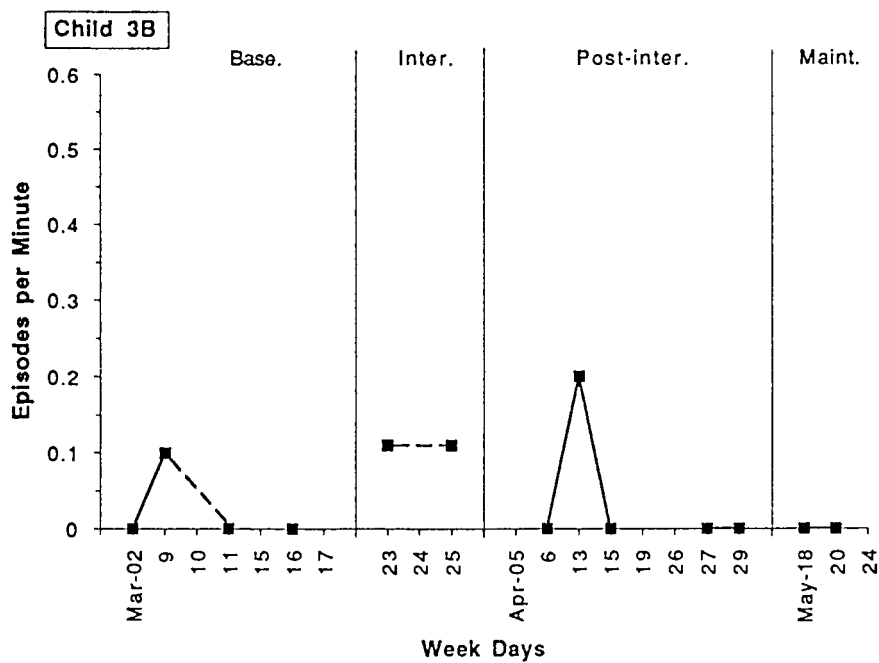


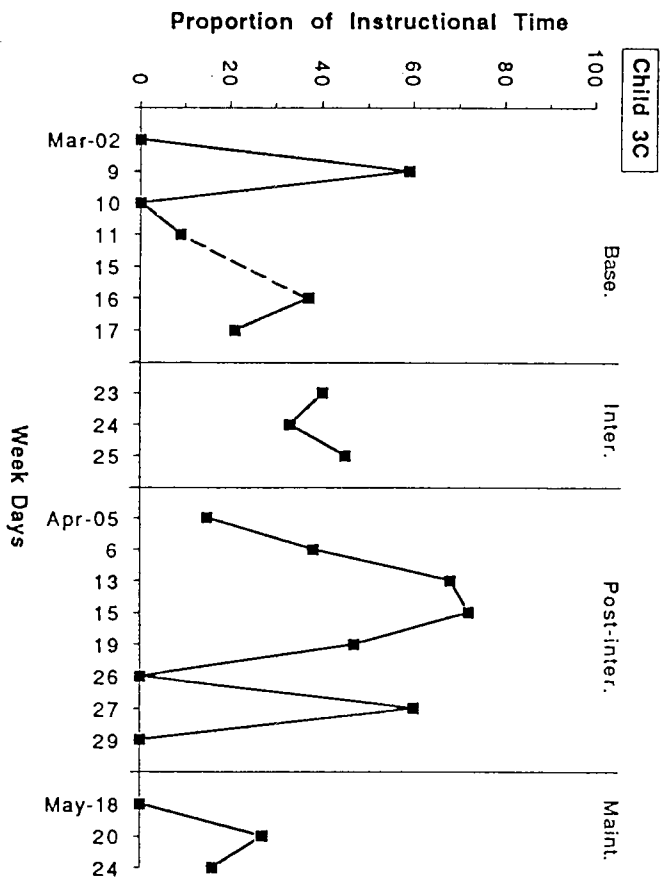
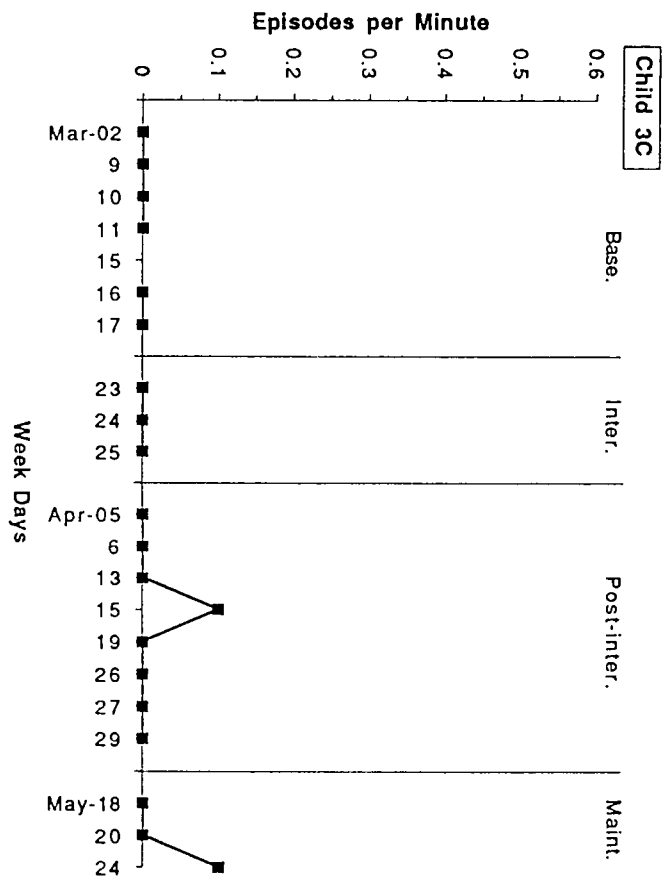


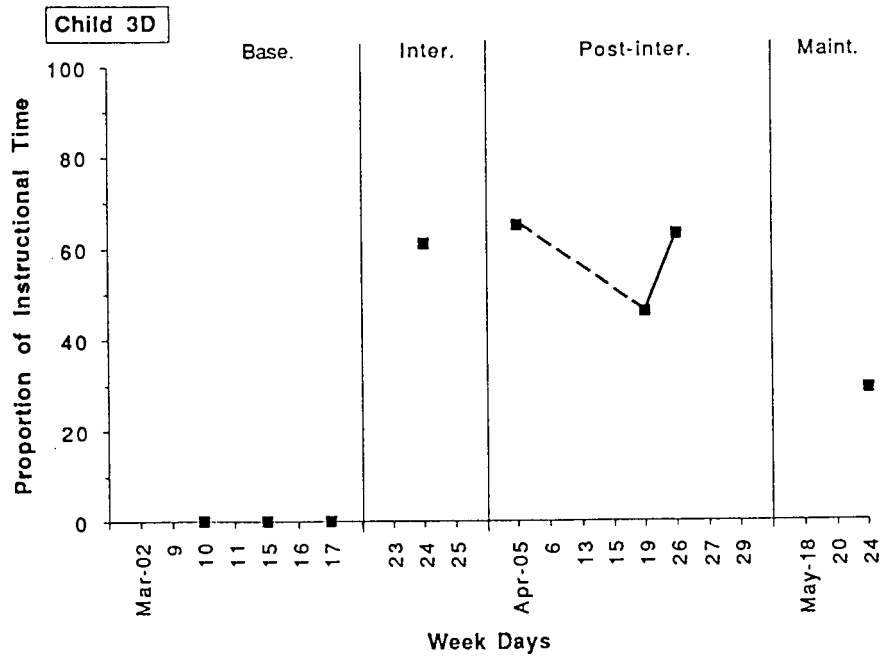
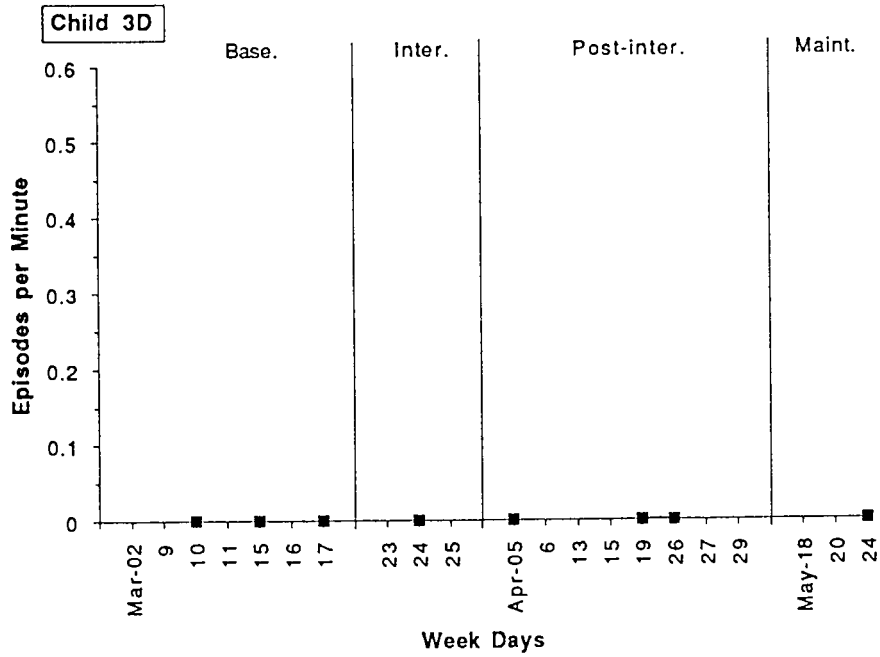




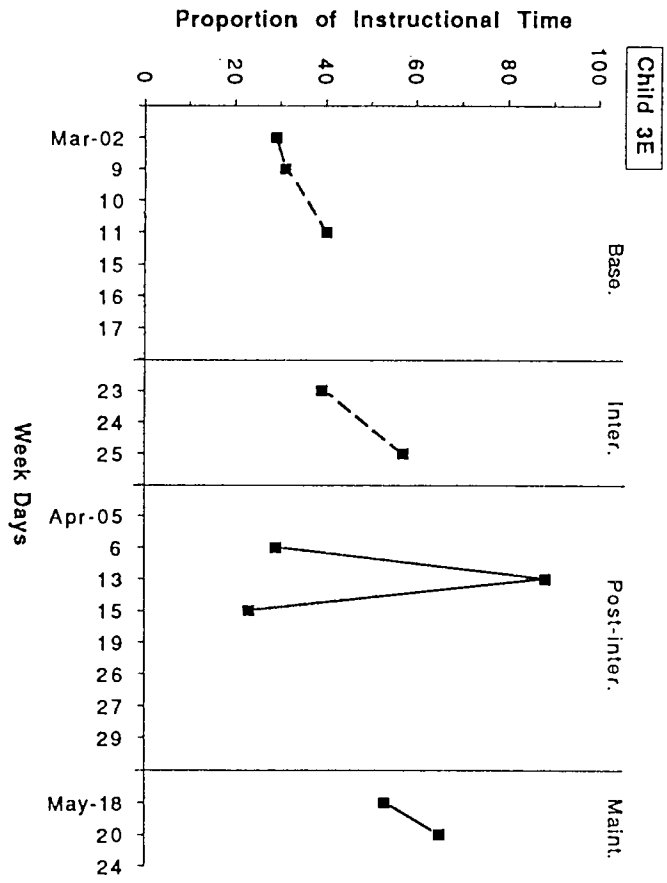
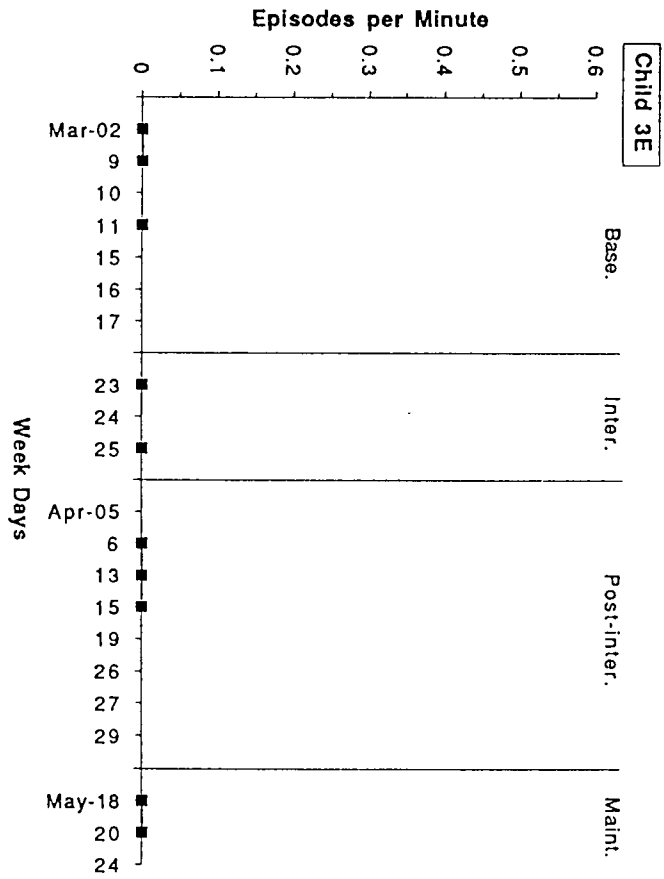


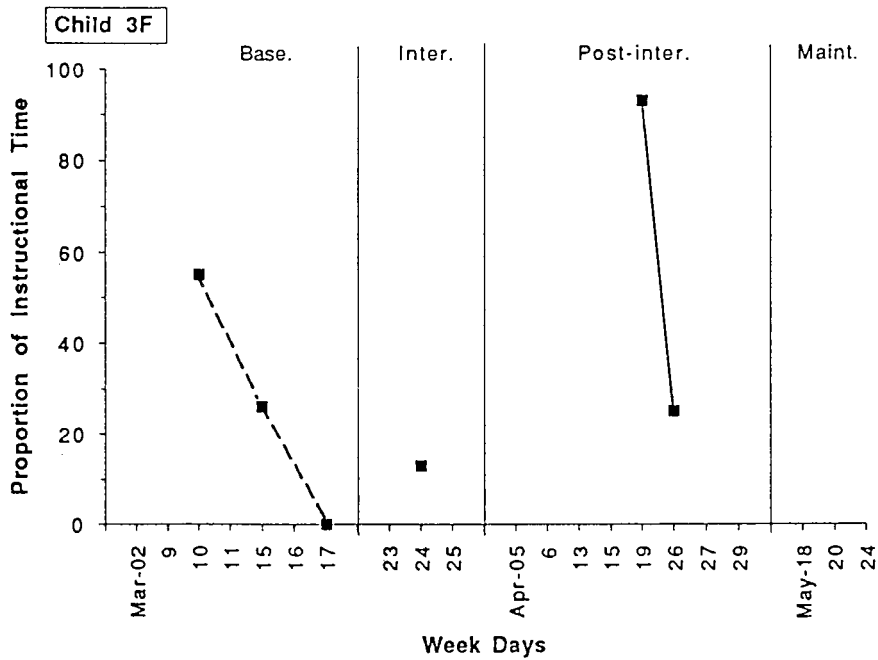
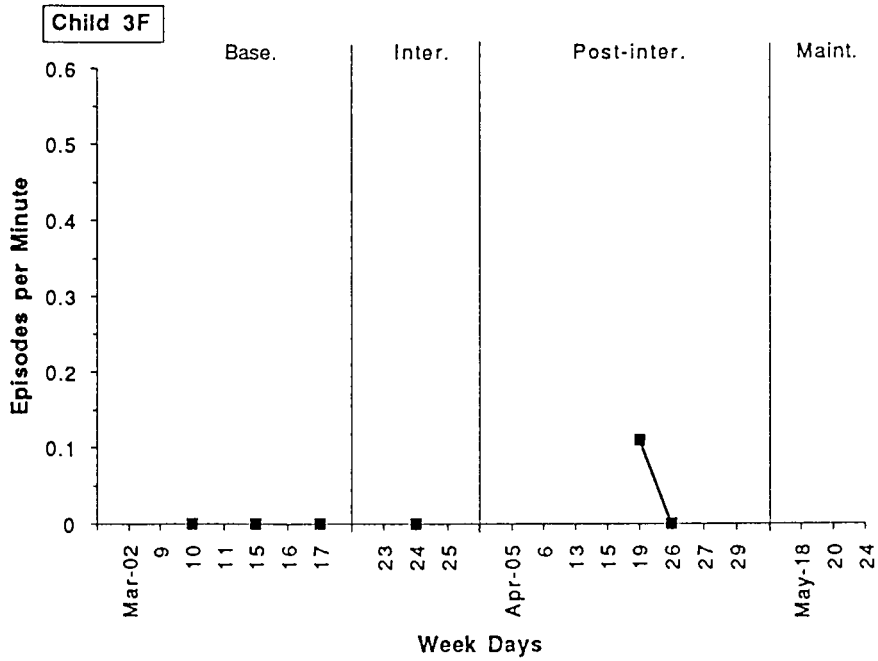


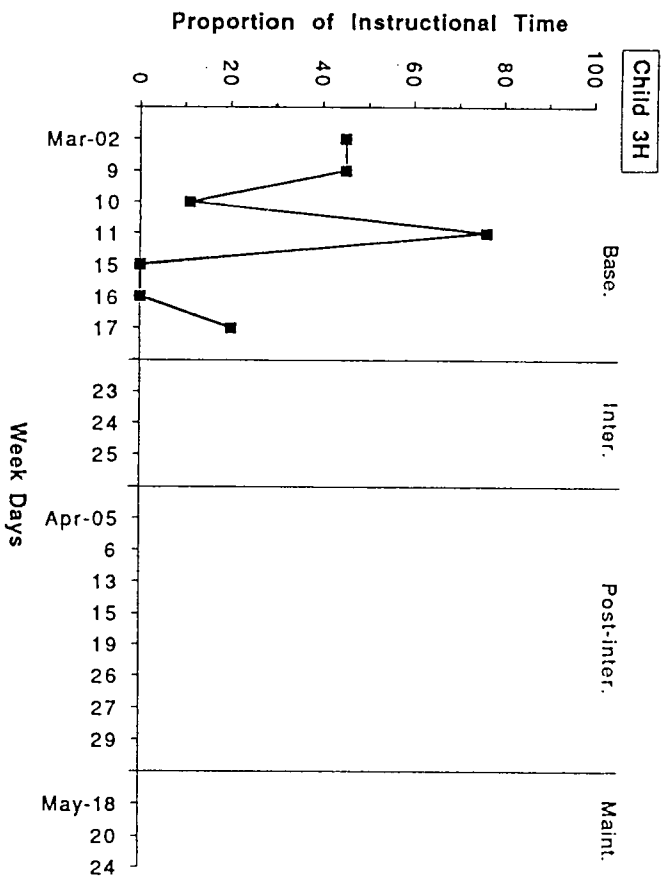
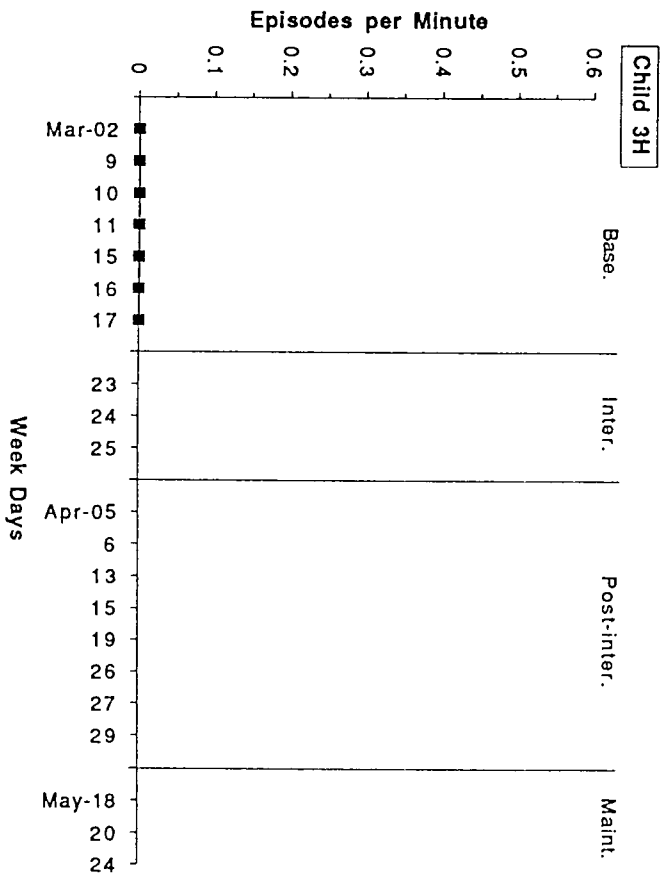


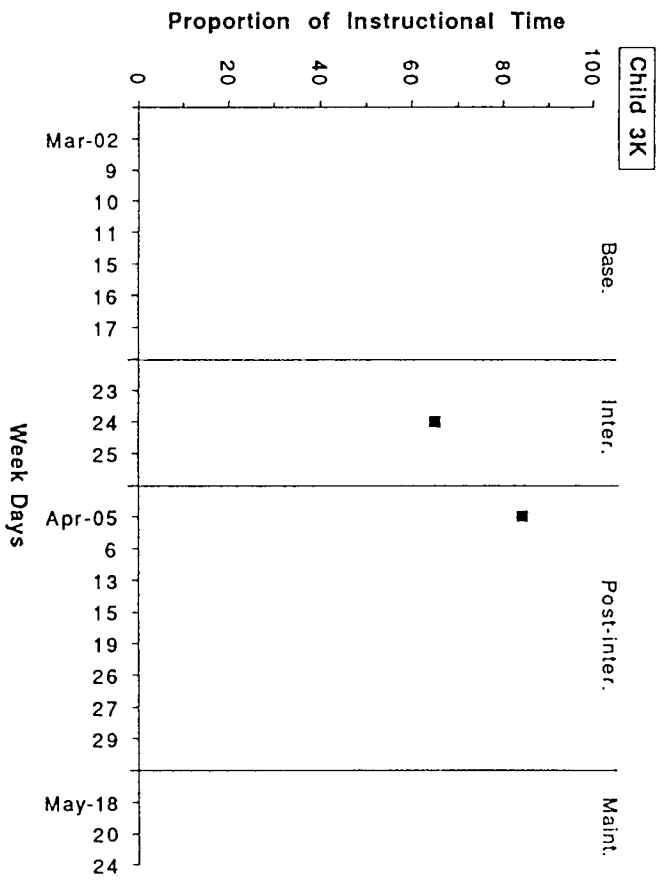
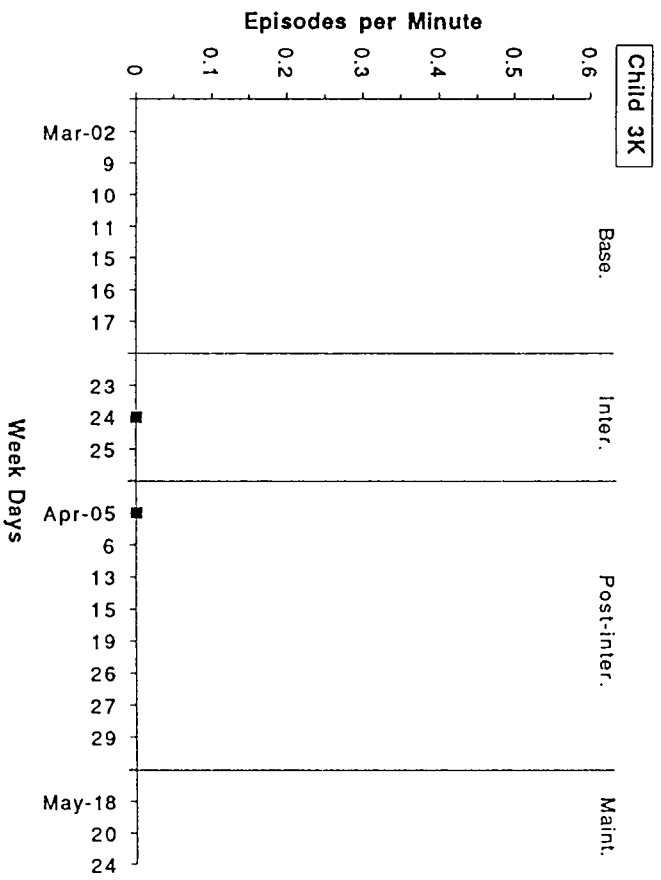












Appendix J. Tables 19-23:

Average Rates of Coincidental Teaching Episodes per Child.

Tables 24-28: Average Proportion of Instructional Time per Child.

Table 19: Average Rate of Coincidental Teaching Episodes Per Child for Erin/Free Play

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
1a	.00	.03	.014	.00	<b>.011</b>
1b	.05	.16	.09	.09	<b>.10</b>
1c	.09	.07	.00	.05	<b>.05</b>
1d	.17	.25	.13	.13	<b>.17</b>
1e	.00	.00	.00	.00	<b>.00</b>
1f	.15	.10	.11	.10	<b>.12</b>
<b>Average Rate per Experimental Condition</b>	<b>.08</b>	<b>.10</b>	<b>.06</b>	<b>.06</b>	<b>.08</b>

Table 20: Average Rate of Coincidental Teaching Episodes Per Child for Susan/Free Play

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
2a	.05	.09	.14	.13	.10
2b	.04	.01	.00	.03	.02
2c	.12	.11	.11	.07	.10
2d	.00	.00	.03	.03	.02
2e	.00	.00	.05	.00	.01
2f	.04	.00	---	---	.02
<b>Average Rate per Experimental Condition</b>	<b>.04</b>	<b>.04</b>	<b>.07</b>	<b>.05</b>	<b>.05</b>

Table 21: Average Rate of Coincidental Teaching Episodes Per Child for Susan/Breakfast

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
2a	.09	.01	.01	.05	<b>.04</b>
2b	.03	.01	.02	.07	<b>.03</b>
2c	.03	.00	.01	.07	<b>.03</b>
2d	.00	.00	.01	.00	<b>.00</b>
2e	.02	.00	.04	.11	<b>.04</b>
2f	.02	.00	---	---	<b>.01</b>
<b>Average Rate per Experimental Condition</b>	<b>.04</b>	<b>.04</b>	<b>.07</b>	<b>.05</b>	<b>.05</b>



Table 22

Average Rate of Coincidental Teaching Episodes Per Child for Louise/Free Play

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
3a	.03	.10	.00	---	<b>.01</b>
3b	.00	.00	.02	.00	<b>.00</b>
3c	.00	.00	.08	.00	<b>.02</b>
3d	.00	.00	.00	---	<b>.00</b>
3e	.13	.05	.03	.00	<b>.05</b>
3f	.00	.00	.00	.00	<b>.00</b>
3g	.00	---	.03	.00	<b>.01</b>
3h	.00	---	---	---	<b>.00</b>
3i	---	.00	.00	.00	<b>.00</b>
<b>Average Rate per Experimental Condition</b>	<b>.04</b>	<b>.04</b>	<b>.07</b>	<b>.05</b>	<b>.05</b>

Table 23

Average Rate of Coincidental Teaching Episodes Per Child for Louise/Breakfast

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
3a	.00	.00	.00	---	.00
3b	.03	.11	.04	.00	.05
3c	.00	.00	.01	.03	.01
3d	.00	.00	.00	.00	.00
3e	.00	.00	.00	.00	.00
3f	.00	.00	.06	---	.02
3g	---	---	---	---	---
3h	.00	---	---	---	.00
3i	---	.00	.00	---	.00
<b>Average Rate per Experimental Condition</b>	<b>.04</b>	<b>.04</b>	<b>.07</b>	<b>.05</b>	<b>.05</b>

Table 24

Average Proportion of Instructional Time Per Child for Erin/Free Play

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
1a	26%	43%	27%	25%	30%
1b	49%	37%	68%	20%	44%
1c	15%	11%	15%	36%	19%
1d	61%	49%	8%	30%	37%
1e	28%	33%	3%	3%	17%
1f	36%	65%	54%	70%	34%
<b>Average Proportion per Experimental Condition</b>	<b>36%</b>	<b>40%</b>	<b>29%</b>	<b>31%</b>	<b>34%</b>

Table 25

Average Proportion of Instructional Time Per Child for Susan/Free Play

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
2a	54%	49%	45%	55%	<b>51%</b>
2b	27%	41%	18%	60%	<b>37%</b>
2c	52%	35%	65%	51%	<b>50%</b>
2d	00%	33%	36%	21%	<b>25%</b>
2e	29%	35%	27%	23%	<b>29%</b>
2f	37%	8%	---	---	<b>23%</b>
<b>Average Proportion per Experimental Condition</b>	<b>33%</b>	<b>34%</b>	<b>38%</b>	<b>42%</b>	<b>38%</b>

Table 26

Average Proportion of Instructional Time Per Child for Susan/Breakfast

Child	Baseline	Intervention	Postintervention	Maintenance	Average Across Conditions
2a	50%	37%	62%	17%	<b>42%</b>
2b	6%	22%	49%	64%	<b>35%</b>
2c	45%	23%	44%	55%	<b>42%</b>
2d	10%	37%	43%	44%	<b>34%</b>
2e	39%	44%	41%	40%	<b>41%</b>
2f	2%	3%	---	---	<b>3%</b>
<b>Average Proportion per Experimental Condition</b>	<b>25%</b>	<b>28%</b>	<b>48%</b>	<b>44%</b>	<b>39%</b>

Table 27

Average Proportion of Instructional Time Per Child for Louise/Free Play

Child	Baseline	Intervention	Postintervention	Maintenance	Average Across Conditions
3a	37%	9%	19%	---	<b>25%</b>
3b	15%	51%	48%	50%	<b>41%</b>
3c	22%	54%	38%	35%	<b>37%</b>
3d	32%	39%	00%	00%	<b>18%</b>
3e	5%	36%	56%	61%	<b>40%</b>
3f	26%	00%	26%	---	<b>17%</b>
3g	00%	---		00%	<b>5%</b>
3h	7%	---	---	---	<b>7%</b>
3i	---	47%	42%	--	<b>45%</b>
<b>Average Proportion per Experimental Condition</b>	<b>18%</b>	<b>34%</b>	<b>31%</b>	<b>24%</b>	<b>26%</b>

Table 28

Average Proportion of Instructional Time Per Child for Louise/Snack

Child	Baseline	Intervention	Postintervention	Maintenance	Average per Child Across Experimental Conditions
3a	19%	00%	42%	---	<b>20%</b>
3b	15%	46%	48%	41%	<b>38%</b>
3c	21%	46%	48%	14%	<b>32%</b>
3d	00%	61%	58%	29%	<b>37%</b>
3e	33%	48%	47%	59%	<b>47%</b>
3f	27%	13%	59%	---	<b>33%</b>
3g	---	---	---	---	---
3h	28%	---	---	---	<b>28%</b>
3i	---	65%	84%	---	<b>75%</b>
<b>Average Proportion per Experimental Condition</b>	<b>20%</b>	<b>39%</b>	<b>54%</b>	<b>36%</b>	<b>39%</b>

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Toledo, OH 43606

**Telephone:** (419) 537-4330 (work) (419) 882-2284 (home)

**EDUCATION:**

Ph.D., Early Childhood Special Education, 1994  
Utah State University  
Logan, Utah

MAT, Special Education, 1983  
Augustana College  
Sioux Falls, South Dakota

B.A., Psychology 1978  
Dominican College of Blauvelt  
Orangeburg, New York

**PROFESSIONAL EXPERIENCE**

Assistant Professor; Department of Elementary & Early Childhood Education,  
University of Toledo (1993 to present)

Teaching early childhood education classes, including Introduction to Early Childhood Education, Preschool Curriculum, Infant/Toddler Curriculum, Language and Conceptualization, Play and Learning, Parent/Teacher/Child, and Home and School Relations (Special Education course)

Conducting a content analysis of 200 pages of comments from parents and service coordinators on issues related to collaboration between parents and professionals within early intervention

Advising graduate and undergraduate classes



Graduate Assistant; Department of Special Education, Utah State University (1989-1993)

***Teaching:***

SPED 574: Methods and Materials for Educating Preschool Children with Disabilities.

SPED 576 (Extension): Teaching Infants and Young Children with Disabilities. Responsibilities included development of course content and format for use through distance education, facilitating the course and supervising out-of-state students.

SPED 578 (Extension): Teaching Infants and Young Children with Disabilities in the Least Restrictive Environment. Responsibilities included adapting or producing curriculum materials for use in a distance education class (e.g., producing two videotapes and accompanying workbooks focusing on different instructional methods) and facilitating the class.

SPED 506: Consulting with Parents and Teachers. Responsibilities as a teaching assistant included preparing 3 lectures, developing weekly quizzes, and evaluating student performance on quizzes.

***Research:***

Conducting single-subject experimental design research examining the effects of an instructional package on teachers' use of coincidental teaching in the classroom.

Conducting qualitative research project examining variables related to successful collaboration between service coordinators and parents whose children are enrolled in early intervention.

Conducted a data analysis of ratings of maternal interactive behavior.

Conducted descriptive research on the effects of personal values on ratings of partnership success within an early intervention program.

Conducted data analysis on needs assessment survey for 120 parents.

***Supervision:***

Responsibilities included supervising preservice early childhood special education teachers through their student teaching experience.

***Internship:***

With the Community Family Partnership, a Comprehensive Child Development Project. Responsibilities included developing and coordinating parent education and support activities, temporary home visiting duties, interviewing family members, conducting an analysis of a needs assessment study, acting head of a Search Committee to hire a parent education/support specialist.

**Other Positions Held:**

- 1988-1989 Graduate Assistant at the University of Tennessee at Chattanooga. Responsibilities include preliminary research on the State's readiness to apply for Part H funds. Assisted in the following activities: Child find, Public awareness, Assessment, Definition of Developmental Delay.
- 1980-1984 Early Childhood Special Education Teacher, Sioux Falls School District, Sioux Falls, SD. Provided comprehensive classroom instruction to 4-6 year old students with disabilities. Other responsibilities included coordinated classroom instruction with regular classroom teachers, team member for IEP development, supervising paraprofessionals, conducting home visits with students' families, and supervising student teachers.

**GRANTS FUNDED**

- Dinnebeil, L.A. & Rule, S. (1992). Parent and professional variables that influence collaboration within early intervention service coordination. U.S. Department of Education, OSEP Grant # H023B20057-92. (\$15,000)
- Dinnebeil, L.A., McInerney, W., & Cooke, G. (1994). "Building Relationships with Families" Center for Teaching Excellence, University of Toledo. (\$1,800).

Dinnebeil, L.A., & McInerney, W. (1994). "Speaker Series on Unification of Early Childhood and Early Childhood Special Education" University of Toledo, Program Excellence Foundation. (\$2,500)

### **REFEREED PUBLICATIONS**

Dinnebeil, L.A. & Rule, S. (1994). Congruence between parents' and professionals' judgments about the development of young children with disabilities: A review of the literature. Topics in Early Childhood Special Education, 14(1), 1-25.

Dinnebeil, L.A., & Rule, S. (in press). Variables that influence collaboration between parents and service coordinators. Journal of Early Intervention.

### **OTHER PUBLICATIONS**

Dinnebeil, L.A., Rule, S., & Merrill, Z. (1992). Using coincidental teaching with young children (Available from the Outreach/Dissemination Division of the Center for Persons with Disabilities, Utah State University, Logan, UT 84322-6803.)

Dinnebeil, L.A., Rule, S., & Merrill, Z. (1992). Using coincidental teaching with young children. (Videotape) (Available from the Outreach/Dissemination Division of the Center for Persons with Disabilities, Utah State University, Logan, UT 84322-6803).

Dinnebeil, L.A., Rule, S., & Merrill, Z. (1992). Using microsessions with young children. (Videotape) (Available from the Outreach/Dissemination Division of the Center for Persons with Disabilities, Utah State University, Logan, UT 84322-6803).

Dinnebeil, L.A. (1994). Under contract with West Publishing Company to prepare an Instructor's Manual with Test Bank to accompany Graves, Gargiulo, & Sluder: Introduction to Early Childhood Education.

Dinnebeil, L.A., & Rule, S. (1994). Final report: Parent and professional variables that influence collaboration. Logan, UT: Center for Persons with Disabilities, Utah State University. (Grant # H023B20057-92)

### **AWARDS**

Second place in the Graduate Research Forum: Social Sciences and Education

Faculty development award to sponsor a conference presentation to the 1993 International DEC Conference in San Diego, CA (December, 1993) (\$495.00)

Faculty development award to sponsor eight preservice teachers' attendance at the Ohio Association for the Education of Young Children conference in Cleveland, Ohio (May 6 and 7, 1994) (\$595.00)

Faculty development award "Enhancing the Early Childhood Preservice Preparation Program through the Use of Videotaped Models" (March, 1994) (\$5,820.60)

### **PRESENTATIONS AT PROFESSIONAL CONFERENCES**

Dinnebeil, L.A. (1990, April). How to hook them in: Increasing parent involvement. Presentation at the Utah State Preschool Conference, Salt Lake City, UT.

Dinnebeil, L.A. & Glover, B. A. (1992, April). Using problem-solving skills within early intervention. Presentation at Utah Statewide Preschool Conference, Salt Lake City, UT.

Dinnebeil, L.A. (1993, April). Variables that influence collaboration between parents and service coordinators involved in early intervention. Presentation at the Utah Statewide Preschool Conference, Salt Lake City, UT.

Dinnebeil, L.A., & Rule, S. (1993, April). Variables that influence collaboration between parents and service coordinators involved in early intervention. Presentation at the Utah Chapter of the American Association on Mental Retardation, Park City, UT.

Dinnebeil, L.A., & Rule, S. (1993, September). Variables that influence collaboration between parents and service coordinators involved in early intervention. Presentation at the Magic Years Conference, Albuquerque, NM.

Rule, S., & Dinnebeil, L.A. (1993, October). Variables that influence collaboration between parents and service coordinators involved in early intervention. Poster presentation at the AAUAP 1993 Annual Meeting, Bethesda, MD.

Dinnebeil, L.A., & Rule, S. (1993, November). Variables that influence collaboration between parents and service coordinators involved in early intervention. Poster presentation at the National Head Start Research Conference, Washington, D. C.

Dinnebeil, L.A., Truhn, P., Aford, A., & Striefel, S. (1993, November). Measuring the success of partnerships between parents and service providers: The effects of value differences. Poster presentation at the National Head Start Research Conference, Washington, D. C.

Dinnebeil, L.A., & Rule, S. (1993, December). Variables that influence collaboration between parents and service coordinators involved in early intervention. Poster presentation at the National Conference for the Division for Early Childhood, San Diego, CA.

### **MEMBERSHIPS**

- Council for Exceptional Children, Division for Early Childhood
- National Association for the Education of Young Children
- Member Ohio Early Childhood Special Education Higher Education Consortium
- Steering Committee Member Lucas County Early Childhood Network

### **Professional Service**

Member DEC Task Force, Parent Involvement Strand: Developmentally Appropriate Practices (1992-1993)

Facilitator, "Professional Growth and Development" Sub-committee of the University of Toledo Early Childhood Academy (1994 to present)

Co-chairperson of "Service Coordination/Transition" committee for the Lucas County Early Intervention Network. (1994 to present)

Steering committee member for the Lucas County Early Intervention Network (1994 to present)

Member of DEC Strategic Planning committee, "Developing Linkages with National Organizations or Networks" (1994 to present)

Textbook reviewer for West Publishing Company (February, 1994)

Guest reviewer for Topics in Early Childhood Special Education (March, 1994)

Member of College of Education and Allied Professions Student Affairs Committee (1993 to present)

Member of Ada Stevens Early Childhood Center Advisory Committee (1993-1994)

Member of two search committees for Mathematics Educator and Early Childhood Educator positions (1994)

Shared membership of Personnel Preparation Committee of the Ohio Early Intervention Interagency Coordinating Council with William McInerney (February-June, 1994)