

THE RELATIONSHIP OF PROGRAM PARTICIPATION AND PARENTAL
TEACHING BEHAVIOR WITH CHILDREN'S STANDARDIZED
ACHIEVEMENT MEASURES IN TWO PROGRAM SITES

By

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A large number of parent education programs operating in the United States have specified objectives for both parents and children. Although the objectives for parents often include the improvement of parental teaching skills, very few programs have included direct measurement of these behaviors in their program assessment. In this study the teaching behaviors of parents participating in the Florida Parent Education Follow Through Program were directly assessed and compared to the teaching behaviors of parents who had not participated in the program. Also, the relationship between the use of the particular teaching behaviors stressed by the program and child achievement behavior was examined.

Follow Through (FT) and non-Follow Through (NFT) families in two program sites served as subjects. In one community (A) all subjects were white, while in the other community (B) all subjects were black. All families in both communities were classified as low-income

according to federal guidelines. All children were currently in first grade. For the FT sample only children who had also been in FT kindergarten classrooms were considered while for the NFT sample no family had ever been involved in a home visitation program. The sample sizes for the four groups were A-FT = 34, A-NFT = 31, B-FT = 29, B-NFT = 15.

The parent and child were videotaped locally in two interaction situations: a matching-faces activity and a book-reading activity. In the matching-faces activity the parent was asked to teach the child how to find matching faces from an array of similar ones. In the book reading activity the parent and child read a book together any way they wished. Both interaction sessions were videotaped, and coding of the frequency of use by the parent of each of the ten desirable teaching behaviors (DTB's) stressed by the program was done at a later time. The Stanford Achievement Test was administered locally and scores were provided for all children.

A 2 x 2 factorial design analysis of variance was used to examine the teaching behaviors of FT and NFT parents from the two sites. Because of unequal cell sizes the classical experimental approach was used. The relationship between DTB use and child achievement (reading and mathematics separately) was assessed with multiple regression procedures also. Specific procedures to handle unequal cell sizes as well as a combination of continuous and categorical variables were used.

Regarding DTB use, significant main effects were found for both program participation and site. These results indicated that across the two communities FT parents used significantly more DTB's than did

NFT parents. Also, the two groups of parents in community A used significantly more DTB's than the two groups in community B.

Concerning the relationship between DTB use and child reading achievement, the F value narrowly missed reaching statistical significance. The result was still considered of practical significance since factors such as the restricted population and primitive measurement were present in this study. No significant relationship was found between DTB use and child mathematics achievement. This was not surprising as the DTB's are oriented toward language behavior.

The study demonstrated that a parent education program can effectively modify the teaching behavior of parents, even when paraprofessionals serve as home visitors. Site differences were also found which illustrate the importance of considering site as a variable in program assessment. The near significant relationship between use of teaching behaviors stressed by the program and child reading achievement was encouraging. With improvements in measurement techniques and better implementation of the program more striking results may be found.

CHAPTER I
INTRODUCTION

During the past ten years parent education programs have become one of the major vehicles of compensatory education. This increased attention to the home as a learning environment and to parents as teachers of their own children has developed for several reasons. First, there have been several research studies which have supported the hypothesis that parental teaching behavior influences the cognitive development of the child (e.g., Flood, 1975; Hess, Shipman, Brophy, & Bear, 1968; Streissguth & Bee, 1972). Second, parent education programs of various types have been shown to be feasible and successful in improving the cognitive performance of disadvantaged children (e.g., Gordon, 1972; Karnes, 1970; Levenstein, 1971). Third, there are data available which suggest that these effects are maintained for several years (e.g., Gordon & Guinagh, 1974; Levenstein, 1975; Weikart, 1975).

In most parent education programs the evaluation of the program consists solely of administering intelligence or achievement tests to children who are participants (e.g., Hahn & Dunstan, 1975; Karnes, Studley, Wright, & Hodgins, 1968). Thus, the evaluation of the program is based solely on data obtained from children. Other programs have included parent attitude questionnaires, home environment questionnaires, and/or parent interviews as assessment instruments (e.g., Radin, 1972; Stern, Marshall, & Edwards, 1971; Strom, 1974). These programs have gone beyond looking

at program effects which might have occurred in the children to look at changes which might also have occurred in the reported home environment or in the attitudes of the parents. Of the over one hundred parent education programs in which the participating child is at least three years old, only five have used observation procedures to assess the teaching behavior of the parents involved in the program (Barbrack, 1970; Boger, Kuipers, Cunningham, & Andrews, 1974; Kuipers, Boger, & Beery, 1969; Olmsted & Ware, 1975; Wiegerink & Weikart, 1967). The results of these studies provide little support for the hypothesis that parental teaching behavior can be modified through a parent education program. However, there are problems with both the implementation and evaluation of these programs.

There are several reasons why it is important to include assessment of parental teaching behaviors in the evaluation of a parent education program. First, it is likely that changes in parental teaching behaviors may appear before changes in child measures. Second, assessing parent-child interaction will allow for a more detailed analysis of the parent education program evaluation data. That is, it may be possible to determine if certain parental teaching behaviors are more highly related to child outcomes.

One parent education program which assesses both parental teaching behavior and child achievement is the Florida Parent Education Follow Through Program. This program has its roots in parent-infant home visit programs conducted by Dr. Ira J. Gordon and his associates during the 1960's (Gordon, 1967, 1969, 1971). In these infant programs, paraprofessionals (parent educators) made weekly home visits and demonstrated various learning activities to the mother. The mother was then asked to

engage in these activities with her infant during the next week. The foci of the program included the instructional behavior of the mother as well as her general orientation toward childrearing and life.

In 1968 the Florida Parent Education Program became one of the Follow Through Models. The Florida Parent Education Follow Through Program was basically a modification of the earlier parent-infant programs. Mothers from the community were employed as paraprofessionals and served as the major link between home and school. These mothers, also called parent educators, spent half of their time working in the classroom and half of their time making home visits. Weekly home visits were scheduled for each child with the major activity of this home visit being the teaching of a home learning activity. Other aspects of the home visit included providing information regarding comprehensive services, obtaining feedback from the mother about last week's learning activity, and discussing various parent activities.

Specific teaching behaviors have been stressed by the Florida Follow Through Program. These particular behaviors were selected because they were found to relate to child growth in studies of either parent-child interaction or classroom situation (e.g., Hess et al., 1968; Soar, 1970). Each home learning activity stresses one or more of these specific teaching behaviors and during the home visit these teaching behaviors are demonstrated, discussed, and integrated into the task.

The Florida Parent Education Follow Through Model attempts to improve a child's chances for success in school and in later life by enriching the educational experiences of both the home and the school. Through its activities the model endeavors to assist parents in becoming better teachers of their own children and to increase their self-esteem

and feelings of control over their own lives and those of their children. If the program is successful one would expect to see changes in the teaching behaviors of parents as they interact with their children during a learning activity. Furthermore, these changes in parental teaching behavior should be related to changes in the child's school achievement behavior.

Statement of the Problem

In this study two aspects of the Florida Parent Education Follow Through Program will be examined. First, the teaching behavior of parents who have been participating in the program will be compared to that of parents who have not been participating to assess the effectiveness of the model in modifying parental teaching behavior. Second, the degree of parental usage of the specific teaching behaviors stressed by the model will be related to children's school achievement performance.

There are several reasons why this study is important. First, finding that it is possible to modify parental teaching behavior through a parent education program would be a notable addition to the research in this area, particularly because the key contact personnel are paraprofessionals. Second, having data on both parental teaching behaviors and child academic performance will allow for the examination of the relationship between these two variables. It is also possible to assess the amount of variation in achievement scores accounted for by the use of these particular teaching behaviors. Finally, investigations of this type may lead to future development of diagnostic and prescriptive techniques to individualize the activities for families participating in a parent education program.

Before conducting the study a search was made of the literature to locate related studies and to develop an overall view of research in the area.

CHAPTER II
REVIEW OF RELATED LITERATURE

The two major purposes of this study were (1) to compare the teaching behavior of parents who have participated the Florida Follow Through Program to that of parents who have not participated in the program, and, (2) to examine the relationship between the frequency of use of the particular parental teaching behaviors stressed by the model and child achievement behavior. The aim of this chapter is to provide a review of the relevant literature related to this particular study. First, research evidence for the relationship between parental teaching behavior and child performance will be discussed. Following this, parent education programs in which there have been attempts to modify the teaching behavior of parents will be discussed. Finally, a description of the Florida Parent Education Follow Through Program will be given.

Parental Teaching Behavior and Child Performance

The relationship between these two variables has been examined by many investigators using a variety of procedures. Much of the early work in this area used interviews or questionnaires to obtain data regarding the teaching behavior of parents (e.g., Almy, 1950; Milner, 1951). However, during the early sixties problems with the use of questionnaires and interviews were discussed in the literature (e.g., McCord & McCord, 1961; Mednick & Shaffer, 1963; Yarrow, 1963), and

since that time direct observation has been the major technique used to obtain parental teaching behavior data.

The review of literature was restricted by two variables, type of data collected and nature of the child. First, only studies which used direct observation of parent-child interaction in a structured situation were considered. Second, the children in the studies had to be between three and nine years of age and basically free from psychiatric problems. The first restriction was considered because of the problems with interviews and questionnaires noted above; and, because parental teaching behaviors are more likely to occur in structured than in unstructured situations. The age range of three to nine excluded parent-infant studies in which different types of parental behaviors are generally observed. The upper limit was used as it was the age of most children when they left Follow Through programs and also served to exclude studies in which preadolescent problems become manifest. The second restriction also eliminated studies in which parents were given instruction or training as "home therapists."

This literature search identified 22 studies which had examined the relationship between parental teaching style and child performance. Organized into subsets according to structured activity, these 22 studies will be described briefly. The section will close with a summary of the findings for the area as a whole.

Sorting Activities

One of the landmark studies of parent-child interaction using direct observation was done by Hess, Shipman, Brophy, & Bear (1968, 1969). In this comprehensive study a variety of situations and observation techniques were utilized. The study involved 163 black mother-child dyads from a

large urban community. Four different social class levels ranging from families at the welfare level to families at the professional level were studied. Although a variety of data collection procedures were used, the ones of immediate interest include three different structured situations: toy-sort, block-sort, and etch-a-sketch. In each of these situations the mother was asked to teach her four-year-old child specific activities. Live observations and audiotape recordings were done for each type of activity.

Twelve maternal teaching variables were developed from the block-sorting task and were related to two types of child variables: (1) process, referring to child behaviors during the task, and (2) product, referring to task performance scores and IQ scores. Most of the maternal teaching variables (e.g., orientation and specific feedback) correlated significantly with several child task performance variables, indicating that there was a relationship between maternal teaching behavior and child performance when measures of both are taken in the same situation.

Significant correlations were also found between most of the maternal teaching variables and the child's Stanford-Binet score. Finally, significant correlations were found between most of the maternal teaching variables and two measures of later school achievement, teacher's grades and standardized reading achievement test scores.

In another investigation Wiegerink and Weikart (1967) studied 21 mother-child dyads including both middle-class and lower-class subjects. The 21 dyads were partitioned three times for separate data analyses. These three partitions were not independent and included the following: (1) completely successful and completely unsuccessful mothers as determined by the child's block-sorting posttest score, (2) elementary school

teachers, and (3) mothers who had participated in Weikart's Perry Preschool Project. For the data analysis each mother's verbalizations were divided into units and coded into one of seven categories. The results indicated that the mother who was successful at teaching her child relied more on positive motivation, specific verbal feedback requests, and general verbal requests, while the mother who was unsuccessful relied more on direct information and negative feedback. Distinct social class differences were found, with the middle-class mothers (including elementary school teachers) relying more on positive feedback, specific verbal requests, and general verbal requests. Lower class parents relied more on information giving and negative feedback. The mothers who had participated in the Perry Preschool Program, although they were all low-income, taught in a style intermediate between that of the lower-class non-Perry Preschool mothers and that of the middle-income mothers.

Wiegerink (1969) also used the eight-block task in his doctoral dissertation. Sixty mothers and their four-year-old children comprised the sample which was equally divided among the following three categories: (1) economically advantaged, (2) economically disadvantaged with average IQ child, and, (3) economically disadvantaged with retarded child.

The mother's block-sorting behaviors were divided into units and each unit was coded into one of six categories. A single rating was also assigned to each mother which represented the "expansiveness" of her teaching. This rating was developed by assigning positive or negative scores to each of the six categories and summing across all behaviors.

A high value indicated an "expansive" teaching style while a low value indicated a "restrictive" teaching style.

The relationship between maternal teaching style and child performance was examined by correlating the seven teaching variables with four child measures: Stanford-Binet score, Peabody Picture Vocabulary Test score, block task test verbal score, and block task test performance score. For the total group 19 of the 28 correlations were significant at the .05 level, while for the disadvantaged group only, 13 of the 28 were significant. Since the maternal variables are intercorrelated as are the child variables one has to interpret these findings with some caution. However, there seems to be sufficient evidence to support the idea of a relationship between maternal teaching style and child behavior.

Relationships among parental teaching behavior, parental categorization style, and child performance were explored by Romaine (1969). A categorization test was administered to the parents and observations were made of parent-child interaction in structured situations. Thirty-three middle-class two-parent families comprised the sample. Each parent interacted with the child in both a block-sorting task and a story-telling task. Task structure was identical but the content differed from one parent to the other. After performing several univariate analyses to test various hypotheses and finding little evidence of significant relationships among parental teaching behavior, parental cognitive style, and child performance, Romaine turned to step-wise multiple regression procedures. Using child scores on the block-sorting posttest as the dependent variable, he regressed 22 different teaching and categorization variables to those scores. A significant relationship was found between child performance and a cluster of six

parental behaviors, but these results need to be interpreted with caution due to the large number of variables included and the comparatively small number of subjects. This cluster of six variables accounted for 50% of the variance in block-sorting scores and was characterized by variables denoting task-orientation and positive emotion.

A second study examining parental teaching behavior, cognitive style, and child performance was conducted by Davis and Lange (1973). Cognitive style as defined by Sigel (Sigel, Jarman, & Hanesian, 1967) was assessed in four-year-old children and the relationship between this variable and parental task communication was examined. Sigel's Styles of Categorization Test (SCT) identifies three basic styles: descriptive (D), relational-contextual (RC), and categorical-inferential (CI). The sample consisted of 28 middle-class two-parent families with observations made of both father-child and mother-child interactions. Each parent did a block-sorting and a story-telling task with the child, with the content differing for the two situations. The parents' statements during the interaction sessions were divided into "message units" consisting usually of a single statement or question. Each statement was then coded as D, RC, or CI according to the same criteria used in scoring the SCT with the children.

Both parents used predominantly RC messages in both tasks. For the other two categories, significantly more D messages were used in the block-sorting task and significantly more CI were used during story-telling. These results would be expected due to the nature of the various tasks. Correlational analyses indicated no significant relationships between the child's categorization style and the style of message units used by the separate parents. For the parents combined, there was a

significant relationship found between the parents' use of D messages in each task and the child's style of categorization. This was explained by the author's saying that the D category was a particularly salient one for children of this age.

Four ratings of maternal teaching behavior were used by Hubner (1970) in a study with low-income Spanish-speaking families utilizing an adaptation of the Hess et al. (1968) toy sort. Twenty-nine mother-child dyads comprised the sample. The children were approximately five years old and were enrolled in a compensatory preschool program. Instructions were given in either English or Spanish, whichever the mother preferred.

Ratings were made for four areas: orientation, ordering and sequencing, verbal specificity, and, demand for feedback. Each rating had a scale of four points. The children were tested on the task after the mother taught it and were given a score ranging from zero to six for their performance. The group of children was then split into two groups -- high scorers and low scorers -- and the maternal ratings were related to child performance. Of the four ratings only demand for feedback was found to be significantly related to child performance.

An examination of the relationship between parental teaching behavior on an adaptation of the Hess et al. (1968) block sort and child performance was done by Santin and Garber in Toronto (Santin & Garber, 1974). The Peabody Picture Vocabulary Test (PPVT) was administered to the children in the study. The sample consisted of 33 parent-child dyads from low-income housing projects with the children ranging in age from 53 to 76 months. A stepwise multiple regression analysis was done using 19 parental teaching variables to predict PPVT scores. Five of

the 19 contributed significantly with these five accounting for 59% of the variance in PPVT scores. The five included amount of praising, non-directive teaching strategies, amount of open questions, specificity of introduction, and use of an advance organizer. These results must be interpreted with caution due to the large number of variables and the small number of subjects in the data analysis.

The last sorting-task study to be discussed was conducted by Donovan (1975). In this study the relationship between parental teaching behaviors and representational competence in children was examined. Sixty white middle-class boys ages 3 and 4 were administered three tasks assessing representational skills, a physical anticipation task, a social anticipation task, and a spatial memory task. The parent-child dyad was observed during the block-sort task and during a book reading situation. Seven parental teaching behaviors were selected by the author as the best measures of representational skill production, five promoting development of this skill and two inhibiting development.

The set of seven parental teaching behaviors accounted for a significant proportion of the variance in the composite representational score (41%) ($p < .01$). The same set of behaviors also accounted for a significant proportion of the variance for each of the three tasks separately. Further examination of the data indicated that the two teaching behaviors hypothesized to be inhibitory to the development of representational skill were the most powerful predictors out of the original seven. These two teaching behaviors were focusing on physical attributes and using commands without explanations.

A total of nine sorting activity studies were reviewed. Of this number, seven indicated a significant relationship between parental

teaching behavior and child performance, one had mixed results, and one found no relationship between the two variables of interest.

Puzzles

Puzzles have been the task selected by two different investigators, one conducting a series of cross-nationality studies (Feshbach, 1973a; Feshbach, 1973b), and one conducting a series of longitudinal studies (Miller, 1969; Miller, 1975).

In the former set of studies Feshbach examined the feedback styles of mothers and their four-year-olds in three different countries: United States, Israel, and England. In each study the author sought to examine relationships between feedback used by the mother and that used by the child in a teaching situation. In each study the first phase involved the four-year-old teaching a puzzle to a three-year-old. About an hour later the mother was asked to teach her own four-year-old a similar but more complex puzzle. The same categories for feedback were used during each setting.

In the American study, 109 mother-child pairs were studied, being approximately evenly distributed between lower-class and middle-class, and between black and white ethnic groups. The findings indicated that "In general, middle-class white children and their mothers used relatively more positive than negative reinforcement, lower-class black children and their mothers used more negative than positive reinforcement, with the other two groups falling between these two extremes " (1973b, p. 90).

When the relationship between the mother's and child's use of feedback was examined, small but significant correlations were found for the total sample for use of both positive and negative feedback. Feshbach, however, felt these correlations were not interpretable due

to the social class and ethnic differences in use of feedback. When similar correlations were computed within social class and ethnic groups, the resulting values were all small and seven out of eight were nonsignificant. Since the sample sizes of these separate groups were much smaller, however, a higher correlation value would have been needed to reach significance than that needed for the total population.

The Israeli sample consisted of 60 mother-child pairs, equally divided into two social classes and containing equal numbers of boys and girls. The same procedures developed for the American study were followed in this study. As in the American study, correlations between the mother's and the child's use of positive and negative feedback were generally small and nonsignificant.

The third Feshbach study was conducted in England where the sample consisted of 50 middle-class and lower-class white mothers and children. None of the correlations between the mother's and child's use of positive and negative feedback was found to be significant.

Two studies using puzzle solving as a task, but using a single rating of maternal teaching behavior have been conducted by Miller (1969; 1975). In the first study 55 mother-child dyads were observed working a jigsaw puzzle. The dyads were nearly equally distributed among three socioeconomic levels: middle-class, upper-lower-class, and lower-lower-class. Although not stated, it might be assumed that the sample was Caucasian since the study took place in medium-sized towns and rural areas in Wisconsin. The mother-child observation sessions occurred near the end of the kindergarten year for all children. Reading readiness test scores were obtained for the sample at the end of kindergarten and reading achievement scores were obtained at the end of first grade.

Social class differences in teaching style were found among the three socioeconomic levels. The middle-class mothers were significantly more precise and specific in their teaching than were the lower-lower-class mothers. The upper-lower-class mothers as a group fell between the other two groups (not significantly different from either one).

The results relating maternal teaching style and child reading behavior were analyzed within socioeconomic level. For the two higher levels there was a significant correlation between maternal teaching style and reading readiness at the end of kindergarten. Only for the middle-class sample was a significant correlation found between maternal teaching style and child reading behavior at the end of first grade.

In a replication done in Illinois, Miller (1975) obtained reading scores on the children for kindergarten, second grade, and third grade. Within social class level no significant correlations were found between maternal teaching style and child reading behavior in either kindergarten or second grade. For the third grade three reading achievement scores and the maternal teaching behavior for three socioeconomic levels were correlated. Two of the nine correlations were significant, providing little evidence of a relationship.

The results for the puzzle-solving studies were much less positive than those for studies involving sorting activities. Of the four studies reviewed, three resulted in mixed findings and one indicated a nonsignificant relationship between parental teaching behavior and child performance.

Building Activities

House building (with blocks) and pyramid construction are the two specific activities which fit into this category. Bee and her associates at the University of Washington observed parent-child interaction in both a structured teaching situation and an unstructured situation (Bee, Van Egeren, Pytkowicz, Nyman, & Leckie, 1969; Bee & Streissguth, 1973; Streissguth & Bee, 1972). Only the former part of the study will be discussed here. Social class differences were explored in this study with a sample consisting of 76 lower-class mothers and 38 middle-class mothers, all with four- to five-year-old children. The instructional situation was a house building task. After a model house was displayed, the child and mother were given an identical set of blocks to those used in the model and asked to copy the model. The mother was allowed to help as much or as little as she wished. The mother's teaching behavior was divided into units and then coded into one of several categories. Maternal categories used in the data analysis consisted of such behaviors as question suggestions, nonquestion suggestions, positive feedback, negative feedback, and nonverbal intrusion. Patterns of maternal behavior were found to be related to child performance on a battery of cognitive tests, but no specific details were given concerning these patterns of behavior.

The second study in this group was conducted in England by Wood and Middleton (1975). Twelve three-year-old children and their mothers were observed building a pyramid from 21 blocks containing pegs and holes. Each mother was instructed to assist her child in any way she wished. After she had instructed the child, the mother was asked to

dismantle the pyramid and ask the child to reconstruct it on his own.

Five measures were analyzed from the videotapes, three maternal instructional measures (level of intervention, activity in the region of sensitivity, sensitivity of the mother to feedback from the child's activities), and two child postinstructional behaviors (probability of a task appropriate construction, probability of an error). Level of intervention was defined by five levels ranging from general verbal instruction to demonstrating an operation. For activity in the region of sensitivity, within each level of intervention the proportion leading to success on the child's part was calculated and then the region of sensitivity was defined as that level at which the child failed to follow the most helpful instructions. As a measure of the sensitivity of the mother to feedback from the child's activities the level of intervention used following each success and failure of the child was noted, and the combined total of success followed by less help and failure followed by more help was considered as a proportion of all interventions.

The authors stated: "Those mothers who systematically changed their instructions on the basis of the child's response to earlier interventions were most likely to see their child perform effectively after instruction. They were also the most likely to determine and concentrate upon the child's 'region of sensitivity to instruction' - a hypothetical measure of the child's current task ability and his readiness for different types of instruction." (p. 181).

The authors view effective instruction as a dynamic, problem-solving activity on the part of the teacher (mother). The teacher must be alert

to the learner's behavior following each instruction or suggestion and then decide on his/her next instruction based on the learner's performance. Both of the studies using building activities as a structured activity found significant relationship between child performance and the teaching behavior of the parent.

Book Reading

Two studies which utilized book reading as the parent-child activity were located. Hertzman (1973) videotaped mothers and their three-year-old sons reading a book together with the sample consisting of eleven middle-class dyads and eleven lower-class dyads. Both verbal and nonverbal behaviors were observed. Scores on intelligence tests of the children did not differ significantly across social class. Data analysis indicated that certain behaviors of the mothers, such as length of interaction sequence and use of explanation, were significantly related to higher intelligence scores for the children across class.

Flood (1975) observed parent-child reading behavior in 36 mother-child dyads. Although four ethnic groups and three socioeconomic levels were represented in the sample, the major data analysis was done with the total sample. Ten prereading tasks were administered to the sample of three- and four-year old children and a single prereading score was obtained for each child using factor analysis and factor score coefficients. Fourteen different behaviors were tallied during the book reading situation. A stepwise regression analysis indicated that four of the behaviors in combination predicted a significant proportion of the total variance in the child's prereading score. These four were: number of words spoken by the child, questions asked by the parent after the story was read, positive feedback during the story, and questions asked by the parent before the story was read.

Other Structured Activities

The final five studies were all one-of-a-kind studies. Done by different investigators in different locations each observed different teaching behaviors in different situations. Bernhardt and Forehand (1975) investigated the use and effectiveness of labeled and unlabeled praise, with labeled praise defined as pointing out an aspect of behavior in addition to a generally favorable comment and unlabeled praise being only the favorable comment. Twenty lower-class and 20 middle-class white mothers with their five-year-old children constituted the sample. During an initial ten minute unstructured observation period the frequency of the mother's use of labeled and unlabeled praise was recorded. No significant differences were found in the frequency of use of each kind of praise between the two groups of mothers. The middle portion of the session consisted of the child choosing the picture he liked best from each of forty sets of two pictures, with the mother praising his selection. Again no significant differences were found between the two groups of mothers in their use of labeled and unlabeled praise. The final situation used a marble-in-the-hole game and bug-in-the-ear apparatus. Through the apparatus 50% of the mothers in each group were given labeled praise statements and 50% were given unlabeled praise statements to use when their child dropped a marble in a particular hole. The results indicated that labeled praise statements were more effective in changing the child's behavior than unlabeled praise. These results can be related to those of Hess et al. (1968), who found that specificity was an important dimension of teaching behavior. However, the previous study focused mainly on preresponse teaching behaviors, and Bernhardt and Forehand (1975)

state "The finding that labeled praise was more effective in producing 'correct' behavior than unlabeled praise suggests that postresponse labeling of behavior is also important in producing behavior change " (p. 542).

An examination of the relationship between maternal behavior and the motor performance of their three-year-old children was studied in a sample of twenty lower-class families (Chreitzberg, 1969). The mothers were asked to assist their children in four relatively difficult motor tasks. A significant relationship was found between the level of motor skill of the child and the frequency with which the mother provided feedback concerning the quality of attempts. Since the total number of variables examined was not given in the report, it is difficult to evaluate the importance of this finding. However, the fact that it agrees in general with the results of other studies lends support for its consideration.

Feshbach, whose work was discussed earlier, had a student who completed a study of the teaching styles of mothers whose children were successful and mothers whose children were problem readers (Bercovici, 1973; Bercovici & Feshbach, 1973). Each mother taught her own child two tasks, matching pairs of faces and fitting pegs into holes of varying depth, and also taught the same tasks to two other children, one a successful reader and one a problem reader. The sample consisted of forty middle-class white first grade children and their mothers, with half of the children being readers and half being non-readers. To complete the design an additional eighty first grade children were used. Although there were problems with the study, the major finding is still worth reporting. It was found that the mothers

of problem readers were significantly more intrusive and controlling and used significantly more negative feedback than mothers of successful readers.

The Maternal Teaching Style Instrument (MTSI) was developed at the Demonstration and Research Center for Early Education (DARCEE) and has been used in a series of studies conducted by personnel at the center. The MTSI consists of ten cards containing pictures of geometric forms. A set of rubber geometric forms matching the ones pictured, accompanies each card. Generally the mother was given a card with various geometric forms pictured in certain positions while the child was given a card with some or all of the geometric form pictures missing. The task was for the child to add the rubber forms in such a way as to make his card look exactly like his mother's card. The mother could help the child in any way, except by showing him her card. A study examining relationships between the MTSI and ethnicity and IQ of the child was undertaken in 1973 (Sandler, Stewart, & Dokecki, 1973). Differences relating to IQ indicated that mothers of high IQ children used more cue labels, more positive feedback, more gestures, less negative feedback, and less physical contact than did mothers of low IQ children. However, it was not indicated whether or not these findings were significant.

The final study to be discussed was conducted as part of a larger cross-cultural study in Japan and United States concerning the development of school readiness. Dickson and Hess (1975) developed a new situation in which to observe maternal teaching behavior called the "Picture Book Communication Game." In the task two notebooks containing identical sets of four pictures on each page were used.

In the first half of the session the mother described one of the set of four pictures on each page of the notebook and the child tried to select the correct picture from the corresponding page of his notebook. In the second half of the session the roles were reversed, with the child describing and the mother selecting. The sets of pictures ranged from ones of simple objects to ones of complex patterns.

The sample consisted of 64 white mother-child pairs from a range of socioeconomic backgrounds. The children were four years old at the time. The mother's teaching behavior was measured by the number of errors she made when she was describing the pictures. This measure was related to the number of errors made by the child while he was sending information and to twelve child cognitive measures. There was a significant correlation ($r=.38$, $p < .05$) between number of errors made by the mother and that made by the child. Of the twelve child performance measures, seven showed a significant relationship with the measure of maternal teaching behavior.

Summary

A list of the 22 studies just discussed and summaries of their findings are presented in Table 1. Of the 22 entries in the table, 14 indicate a significant relationship, 6 denote mixed results, and 2 indicate a nonsignificant relationship between parental teaching style and child performance. It is interesting to note that the two studies which found a nonsignificant relationship between the two variables of interest were two of the three studies using rating procedures to assess parental teaching behavior. The third study employing ratings had mixed results.

TABLE 1
 RELATIONSHIP BETWEEN CHILD PERFORMANCE AND
 PARENTAL TEACHING STYLE

<u>Structured Activity</u>	<u>Investigators</u>	<u>Year</u>	<u>Significant?</u>
Sorting Tasks	Hess, Shipman, Brophy, & Bear	1968	Yes*
	Hess, Shipman, Brophy, & Bear	1969	Yes
	Wiegerink & Weikart	1967	Yes
	Wiegerink	1969	Yes
	Romaine	1969	Yes
	Davis & Lange	1973	Yes-No**
	Hubner	1970	No
	Santin & Garber Donovan	1974 1975	Yes Yes
Puzzles	Feshbach	1975	Yes-No
	Feshbach	1974	Yes-No
	Miller	1969	Yes-No
	Miller	1975	No
Building Tasks	Streissguth & Bee	1972	Yes
	Wood & Middleton	1975	Yes
Book Reading	Hertzman	1973	Yes
	Flood	1975	Yes
Other	Bernhardt & Forehand	1975	Yes
	Chreitzberg	1969	Yes
	Bercovici	1973	Yes
	Sandler, Stewart, & Doeckki	1973	Yes-No
	Dickson & Hess	1975	Yes-No

* Yes = $p < .05$

** Yes-No = Mixed results

A variety of types of child data is reflected in Table 1. Some studies collected the child data separately from the parent-child interaction session and used such measures as intelligence tests, achievement tests, and child teaching behavior. In other studies the child was tested immediately after the session on the task taught by the parent. Finally, a few studies used measures of the child's behavior during the interaction session (e.g., performance on motor tasks). Even with the variety of child measures, as well as different ethnic groups, social classes, and parental teaching behaviors, a fairly clear picture emerges. The results in Table 1 provide strong evidence to support a significant relationship between parental teaching style and child performance.

Parent Education Programs and Parental Teaching Behavior

There have been a large number of parent education programs in operation in the United States during the last fifteen years. Most of these programs have specified objectives for parents generally falling into one of three categories: "(1) Improving parental skill in 'teaching' the child; (2) improving parents' responsiveness and sensitivity to the child; and (3) improving the home setting in relation to the nutritional and health arrangements for the child," (Gordon, Hanes, Lamme & Schlenker, 1975, p. II-2). It was noted that of the many parent education programs having the improvement of parental teaching behavior as an objective, few have included direct assessment of this behavior as part of their program evaluation.

There are several reasons why it is important to include the direct assessment of parental teaching behaviors in the evaluation of a parent education program. First, it is likely that changes in parental

teaching behaviors may appear before changes in child measures. Most parent education programs work directly with the parents and try to help them further develop or use more effectively certain interaction behaviors. The parent may then have to practice these particular behaviors with the child for a period of time before attendant changes will be noted in the child behaviors. A program which only uses child measures for evaluation may be discontinued because no changes have been found. There may, in fact, be changes occurring in the interaction behaviors of parents, but these new behavior patterns have not been in use long enough to bring about associated changes in the child's behavior. Unless assessment of parental teaching behaviors is included in program evaluation, programs which are actually having an impact may be erroneously terminated.

Second, assessing parent-child interaction may allow for a more detailed analysis of the parent education program data. That is, it may be possible to determine if certain parental teaching behaviors are more highly related than others to child performance. Also, it may be possible to relate changes in the teaching behavior of parents to changes in various measures of the children. Those children who show greater gains on the child measures may be from families in which greater changes in parental teaching behaviors are found.

Third, data resulting from this type of observation could be used as one component of the evaluation of the home visitors. It may be that certain home visitors are more skillful than others in helping parents to be more effective teachers of their own children. Also, some home visitors may be able to communicate effectively with the parent about some teaching behaviors, but not about others. Parental

teaching data would be useful both to evaluate home visitors and to identify those home visitors who may be able to serve as trainers of others.

Finally, the assessment of parent teaching behavior can be one type of process evaluation done in the program. Information can be obtained regarding which teaching behaviors different parents are currently using and this information can then be utilized to individualize the program to fit the needs of the various families. This individualization of the program would have two major benefits: (1) the program would be more efficient in terms of both time and money as only a portion of the total teaching behaviors would be stressed with most families, and, (2) the families would probably react more positively to the program since it would be tailored to their particular situation; they could see by talking with other families in the program that each family was having a different experience.

Although there are several reasons why it is important to directly assess parental teaching behavior in a parent education program, very few programs actually include assessment of this behavior as part of their program evaluation. Some programs administer intelligence or achievement tests to the children and then use these data as indirect evidence of the improvement in parental teaching behavior (e.g., Hahn & Dunstan, 1975; Karnes et al., 1968). Other programs use parent interviews or home environment questionnaires as assessment instruments for this area of the program (e.g., Radin, 1972; Strom, 1974; Weikart & Lambie, 1968). However, because of the problems inherent in the use of self-report and recall data, these procedures leave much to be desired.

In recent years some parent education programs involving families with infants have begun to use direct observation of parent-infant interactions as one means of evaluation (e.g., Gordon & Jester, 1972; Johnson, Leler, Rios, Brandt, Kahn, Mazeika, Frede, & Bissett, 1974). However, a similar trend has not been noted in parent education programs involving families with children three years of age or older. Only five such programs have used observation procedures to assess the teaching behaviors of parents involved in the program (Barbrack, 1970; Boger, Kuipers, Cunningham, & Andrews, 1974; Kuipers, Boger, & Beery, 1969; Olmsted & Ware, 1975; Wiegerink & Weikart, 1967).

One study in this set is that of Wiegerink and Weikart (1967), which was reported earlier. In this study it was found that mothers who had participated in the Perry Preschool Program, although they were all low-income, taught in a style intermediate between that of the lower-class non-Perry Preschool mothers and that of the middle-class mothers. It was not stated whether or not any of these differences was statistically significant. No discussion of this data could be found in any reports of the Perry Preschool Program.

Kuipers, Boger, and Beery (1969) used the Hess toy sort plus a puzzle and a story telling task to assess changes in maternal teaching behaviors related to three types of parent education programs. The sample was drawn from families whose children were enrolled in six different Head Start centers in a rural area. Each parent education program was carried out in two centers, with twelve families being tested at each site. The six centers differed in demographic variables which make the results difficult to interpret, even though the programs were assigned randomly to the centers. The parent education programs

lasted for twelve weeks with the dyads pre- and posttested on all tasks. The data analysis indicated very few differences among the three groups over the large number of variables which were examined.

Barbrack used both child measures and the MTSI to assess the effects of three home visiting strategies: mother-involved cognitive, child-centered cognitive, and mother involved physical training. The sample consisted of ninety black families all of whom had a child entering first grade after having completed a summer Head Start program. Five comparable groups were used in the study, the three treatment groups and two control groups. When the groups were compared on the two child measures, Stanford Binet and Metropolitan Achievement Test, the child-centered cognitive program was most effective. When the groups were compared on the MTSI, a different result was found. The mothers in the mother-involved cognitive group were statistically superior to all other groups in five of fifteen categories of teaching behavior. No report of a data analysis relating maternal teaching style to child measures could be found.

The fourth study in this area was conducted by Boger, Kuipers, Cunningham, and Andrews (1974). The Hess et al. (1968) toy sort task was used to assess changes in the quality of parent-child interactions for three different parent education program incentive conditions. The sample consisted of parents and children in six day care centers in different cities. No significant changes in parent-child interaction were found based on either incentive or attendance. Differences in parental teaching behavior between centers were found, but because the centers deviated from each other in multiple ways it was impossible to interpret these differences in a meaningful way.

The teaching behaviors of two groups of parents, a group which had participated in the Florida Parent Education Program and a group which had not participated in the program was assessed in two program sites by Olmsted and Ware (1975). In each site, 22 low-income parent-child dyads participating in the program and 22 low-income parent-child dyads who had never been involved in a home visitation program were videotaped reading a book together. Frequency counts of specific parental teaching behaviors stressed by the program were made. Significant parent education program effects and significant site effects were both found. Further data analysis indicated that the same four parental teaching behaviors were contributing to both the significant difference found between sites and that found between program and non-program parents. These four behaviors were asking questions which have more than one correct answer, asking questions which require more than one word as an answer, encouraging the child to enlarge upon his response, and, giving the learner time to think about the problem.

Two questions related to the findings just discussed are (1) how specifically defined were the teaching behaviors which were stressed by the program, and (2) how did the evaluation of parental teaching behavior relate to the behaviors stressed by the program? In the Perry Preschool Program and the Barbrack program parental teaching behaviors were defined only in general terms. In both cases the evaluation consisted of assessing the use of specific behaviors. In the two Head Start studies (Kuipers, et al., 1969; Boger et al., 1974) a large number of specific teaching behaviors were demonstrated to the mother in a short period of time. The evaluation of parental teaching behaviors entailed assessing the use of many of these specific behaviors. In the

final study (Olmsted & Ware, 1975) a small number of specific teaching behaviors were stressed for several months and the evaluation was focused on these same specific behaviors. Thus, various degrees of "match" are present in the five studies between the parental teaching behaviors stressed by the program and the evaluation of parental teaching style.

The data concerning the success of modifying parental teaching behavior through a parent education program are meager. Of the five studies discussed only one provided evidence of a change in parental teaching behavior and this study has not been replicated. In addition, none of the five studies examined the relationship between use of the teaching behaviors stressed by the program and child performance. There are two major questions to be explored: (1) Can parental teaching behavior be modified through a parent education program, and, (2) is the increased use of the specific teaching behaviors stressed by the program related to child performance? Answers to these questions were sought within the Florida Parent Education Program.

The Florida Parent Education Program

The Florida Parent Education Program had its beginnings in the parent-infant home visit programs conducted by Ira J. Gordon and his associates (1967; 1969; 1971). In these infant programs paraprofessionals called parent educators made weekly home visits and demonstrated various learning activities to mothers. The foci of the program included the instructional behavior of the mother as well as her general orientation toward childrearing and life.

In 1968 the Florida Program became one of the Follow Through Models. The Florida Parent Education Follow Through Program was basically a

modification of the earlier parent-infant programs. Mothers from the community were employed as parent educators and served as the major link between the school and the home. The three emphases of the program were "(1) the development of nonprofessionals as parent educators and as effective participants in the classroom teaching process; (2) the development of appropriate instructional tasks which can be carried from the school into the home to establish a more effective home learning environment; and, (3) development of parents as partners in the educational program for their children," (Gordon, Greenwood, Ware & Olmsted, 1974, p. 3).

Two major activities constituted the implementation of the Florida Parent Education Follow Through Program, the home visit and the development of the Policy Advisory Committee (PAC). Home visits were scheduled weekly to the home of every child in the program. During a home visit, a home learning activity was demonstrated and practiced by the parent educator and the mother. The mother was then asked to do the same activity with her child during the week. Other aspects of the home visit included providing information regarding comprehensive services, obtaining feedback from the mother about last week's learning activity, and discussing various parent activities.

Through the PAC parents shared in the decision making processes of the program. The PAC was composed mainly of parents in the program with at least 50% of the voting members coming from low-income backgrounds. The PAC participated actively in most areas of the program such as personnel selection, proposal writing, comprehensive services, and evaluation. The PAC members received regular consultant assistance to aid them in their development and to ensure that they truly shared in the decision making processes of the program.

The three general emphases stated above were reflected in a set of objectives which included all four groups of program participants: parents, children, teachers, and parent educators. The seven objectives for the parents covered areas such as teaching behavior, attendance at PAC meetings, classroom volunteering, and serving on PAC committees. The four child objectives included assessment in areas such as achievement, attendance, and self-concept. There were four objectives for teachers and four for parent educators which covered areas such as teaching behavior and self-concept.

The program objective relating to parental teaching behavior was central to this study. Associated with this objective were the Desirable Teaching Behaviors stressed by the Florida Parent Education Follow Through Program. These particular behaviors were selected because they were found to be related to child growth in research studies of either parent-child interaction or classroom situations (e.g., Hess et al., 1968; Soar, 1970). A listing of the ten Desirable Teaching Behaviors is presented in Table 2.

Various theories of learning are represented by one or more of the behaviors on the list. Each home learning activity stressed one or more of these specific teaching behaviors and during the home visit these behaviors were demonstrated, discussed, and integrated in the task.

The Florida Parent Education Follow Through Program has been implemented in eleven sites. The program itself has not had any standardized sets of curriculum materials, but has been incorporated into the ongoing curriculum at each site. Because of this and because the sites differed in such aspects as size, geographic location, ethnic

TABLE 2
DESIRABLE TEACHING BEHAVIORS

1. Get the learner to ask questions.
2. Ask questions which have more than one correct answer.
3. Ask questions which require multiple word answers.
4. Encourage the learner to enlarge upon his or her answer.
5. Praise the learner when he or she does well or takes small steps in the right direction.
6. Let the learner know when his or her answer or work is wrong, but do so in a positive or neutral manner.
7. Get the learner to make judgments on the basis of evidence rather than by guessing.
8. Give the learner time to think about the problem; don't be too quick to help.
9. Before starting an activity, give the learner time to familiarize himself or herself with the materials.
10. Before starting an activity, explain what you are going to do.

composition, and socioeconomic composition, the ongoing program has differed from one site to another. Due to the multiple aspects of the program many sites have found it difficult to implement all areas equally well. In some sites the major focus has been on the quality of the home visit with concurrent concern for the teaching behaviors of parents in the program. In other sites the development of the PAC has been stressed with other parts of the program receiving less attention. Thus, each site has its own profile of implementation, with some aspects of the model receiving more time and emphasis than others.

The Present Problem

The Florida Parent Education Follow Through Program endeavors to improve a child's chances for success in both school and later life by enriching the educational experience of both the school and the home. One major objective of the program is to assist parents in becoming more effective teachers of their own children. If the program is successful in this area one would expect to see changes in the teaching behaviors of program parents as they interact with their children in a structured learning situation.

In this study two aspects of the Florida Parent Education Follow Through Program will be examined. First, in two communities, one which has stressed improving parental teaching behavior and one which has not stressed this aspect of the model, the teaching behavior of parents who have been participating in the program will be compared to that of parents who have not been participating in the program. Second, the frequency of usage of the specific parental teaching behaviors stressed by the program will be related to child achievement performance.

CHAPTER III
DESIGN AND PROCEDURES

In the Florida Parent Education Follow Through Program (FT) the use of the desirable teaching behaviors (DTB's) by parents is only one of several objectives of the program. In each of the eleven communities in which the program is implemented, different emphases have been placed on the various program objectives.

For the present study two FT communities were selected; one in which considerable emphasis has been placed on the use of DTB's and one in which less emphasis has been placed on this specific objective. The two major purposes of the study were (1) to investigate the use of DTB's by FT parents in comparison to that of non-Follow Through (NFT) parents in each of the two communities, and, (2) to examine the relationship among community, program participation, parental use of DTB's, and two areas of child achievement, reading and mathematics. These two purposes were investigated through different types of data analysis. For the first purpose, frequency of DTB use was the dependent variable with program participation and site as independent variables in a 2 x 2 factorial design. For the second purpose, parallel analyses were done, one with reading achievement scores as the dependent variable and one with mathematics achievement scores as the dependent variable. In both of these latter analyses, parental use of DTB's, program participation, and site were the independent variables used in the multiple regression analysis.

The Hypotheses

The following hypotheses were formulated to be tested in the present study. These hypotheses were divided into subsets according to the dependent variable of interest.

Subset 1

The dependent variable for the hypotheses in this subset was the frequency of use of the DTB's.

Hypothesis 1: There is no difference between parents who have participated in the Follow Through program and those who have not participated in the program with respect to the frequency of use of DTB's.

Hypothesis 2: There is no difference between parents in one community and those in the other community with respect to the frequency of use of DTB's.

Hypothesis 3: There is no interaction between program participation and community with respect to the frequency of use of DTB's.

Subset 2

For this subset of hypotheses reading achievement was the dependent variable.

Hypothesis 4: There is no relationship between frequency of use of DTB's and reading achievement.

Hypothesis 5: The relationship between frequency of use of DTB's and reading achievement is similar for the four groups of subjects in terms of (a) slope and (b) intercept.

Subset 3

Mathematics achievement was the dependent variable for this subset of hypotheses.

Hypothesis 6: There is no relationship between frequency of use of DTB's and mathematics achievement.

Hypothesis 7: The relationship between frequency of use of DTB's and mathematics achievement is similar for the four groups of subjects in terms of (a) slope and (b) intercept.

The Design

The Subjects

The subjects for this study included FT and NFT families in two Florida Parent Education Follow Through Program sites. One site (A) is a medium-sized community in the Northwest (population approximately 50,000) which has been implementing the program in approximately 50 classrooms since 1968. The other site (B) is a large southern city (population over 500,000) which has been implementing the program since 1968 in approximately 55 classrooms.

In each community there is a large proportion of families from one ethnic group and the data collection was restricted to this group. In community A all families in both the FT and NFT groups were white, while in community B all families in both groups were black. All families in the study were classified as low-income based on the Poverty Index of the Office of Economic Opportunity.

At the time of data collection, all children were enrolled in the first grade. For the two FT groups only children who had also been in FT kindergarten classrooms were considered for data collection. This

restriction insured that the mother was currently receiving at least her second year of home visits. No family in the NFT groups had ever been involved in a home visitation program. Except for two FT children in community A, all FT and NFT children in both communities attended the same schools.

In community A a total of 98 FT children met the criteria for selection. Each child was assigned a number and a list of the names was developed using a table of random numbers. The families were contacted according to their position on the list. Within the data collection period 54 FT parent-child pairs served as subjects. Approximately 30% of the families contacted did not participate in the study. The main reasons for refusals included illness in the family or inability to set up appointment times due to multiple jobs. In community B a total of 70 FT children met the criteria for selection. The same procedures were followed and a total of 29 mother-child sets served as subjects. The percent of refusals was close to that in community A (32%) with the reasons for refusals being similar.

The total number of NFT children meeting the criteria for selection was 46 in community A and 27 in community B. The same procedures were followed and within the data collection time period 51 families in community A and 15 families in community B served as subjects. The percents of refusal were 26% and 29% respectively, with illness and multiple jobs being the major reasons for nonparticipation. In community A despite numerous attempts contact was never made with four of the NFT families while in community B the corresponding number was six. The refusal rate for both communities was calculated using the number of families which could be contacted as a total.

Demographic characteristics for the four groups of subjects are presented in Table 3.

TABLE 3
DEMOGRAPHIC CHARACTERISTICS OF THE FOUR GROUPS OF SUBJECTS

<u>Group Description</u>	<u>Group Size</u>	<u>Sex of Child</u>		<u>Ethnic Group</u>	
		<u>%M</u>	<u>%F</u>	<u>%W</u>	<u>%B</u>
A FT	34	44	56	100	
A NFT	31	52	48	100	
B FT	29	45	55		100
B NFT	15	33	67		100

The Measures

Two parent-child interaction situations were used, a matching-faces activity and a book-reading activity. In the first situation the mother was asked to teach the child how to find matching faces from the array of similar faces. Standard instructions and sample sets of faces were used with the mother to help her become familiar with the task before teaching it to her child (See APPENDIX A for the instructions and two sets of faces.)

Pilot testing was done with a large number of sets of faces and those with medium levels of difficulty were retained for the activity. This pilot testing was carried out with low-income black and white first-graders in Gainesville, Florida.

Four sets of faces were given to the mother to use while instructing the child. Each set included either boy's faces or girl's faces and the total number of faces in each set varied from four to eight.

Variations in the faces included such features as the eyes, ears, collars, hats, and hairbows. Each set of faces was placed in a separate envelope. Each face in each set had a number on the reverse side and on the inside flap of the envelope were written the numbers of the two faces which were identical. This allowed the parent and child to check the correctness of their choices. The mother was allowed to teach the child any way she wished and was allowed as much time as she wished. The matching-faces activity was videotaped by local personnel. Coding of the usage of the DTB's by the mother was done later from the videotape.

In the book-reading activity the mother and child read Tawny Scrawny Lion by Kathryn Jackson. Standard instructions were read to the mother before the book reading began which essentially indicated that the parent could read the book with the child any way she wished. (See APPENDIX B for instructions.) Videotapes were made of these book-reading sessions and were later coded for the usage of the DTB's by the mother.

The two different interaction activities were selected to provide settings for the occurrence of each of the ten DTB's. Each learning activity lends itself more to the occurrence of certain DTB's than to others and the particular combination of activities used in this study was selected to optimize the opportunity for the use of all ten DTB's. For example, DTB #4 (Encourage the learner to enlarge upon his or her answers.) is likely to occur during the book-reading activity, but is less likely to occur during the matching-faces activity. On the other hand, DTB #7 (Get the learner to make judgments on the basis of evidence rather than by guessing.) is more likely to occur during the matching-faces activity than during the book-reading activity.

Achievement test data for the children in both communities consisted of standardized scores for the Total Reading and Total Mathematics sub-tests on the Stanford Achievement Test Primary Level I Battery (1975). This test was administered in each community as one aspect of the local evaluation.

The Procedure

The Collection of the Data

During March and April, 1975, an appointment for the parent-child interaction session was made with each family which agreed to participate in the study. All sessions were held in a room at the school currently attended by the child at a time convenient for the mother and child. Most of the sessions occurred during weekdays with a few taking place in the evening or on weekends. The families received \$4.00 and a child's book for their participation. In addition, transportation and/or baby-sitting services were provided whenever necessary.

The parent-child interaction session began with a brief look at the videotape equipment. The participants saw themselves and the experimenter through the camera. During the parent-child activities the equipment was separated from the subjects by a large wooden room divider which contained a small hole for the camera. The microphone was placed on a piece of felt on the table in front of the participants. The parent and child sat near each other at a table during both activities.

The participants were first videotaped interacting on the matching-faces activity. Following this, they were videotaped reading the book together. At the conclusion of the second activity the parent and child were given the opportunity to view their own videotape. At that time the parent was asked for written permission to use the videotape. She

was also told that, if she requested, the videotape would be erased right then (but she would still receive the \$4.00 and the book). No mother asked to have her videotape erased. The mothers were assured that the data would be processed in a confidential manner, and that the videotapes would only be used for educational and research purposes. They were also assured that the videotapes would never be shown in the community in which they were made.

The Stanford Achievement Test Primary Level I Battery was locally administered in each community during March, 1975. Raw scores for all subtests were provided for all children in each of the four groups of subjects. These scores were converted into standardized scores for data analysis.

The Coding of the Videotapes

The videotapes were sent to the investigator in Gainesville, Florida, for observation and coding. The DTB observation system involved two independent viewings of each videotape with frequency counts for each DTB being made. (See APPENDIX C for the coding manual.) The two observers then compared their counts and resolved differences by observing the videotapes a third time. Five college students comprised the pool of DTB observers. The five students were given five days of intensive training by the investigator and one of her associates. Intercoder agreement was calculated for each pair of students following training and then at two other times during the actual coding of the videotapes. Several videotapes were used to establish intercoder agreement. On each tape each coder noted each instance of a DTB and also noted the footage reading at which the DTB occurred. Intercoder agreement was calculated

by dividing the number of agreements by the total number of observations. Inter-coder agreement exceeding .80 was maintained throughout the coding.

The Analyses of the Data

Hypotheses 1, 2, and 3 were tested statistically by the use of a 2 x 2 factorial design analysis of variance. Because of unequal cell sizes the classical experimental approach to analysis of variance was used (Overall & Spiegel, 1969). The actual analysis was done by multiple regression procedures (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The analysis of variance summary table was derived from the printout.

Multiple regression procedures were also used to test hypotheses 4, 5, 6, and 7. The dependent variable for the hypotheses in Subset 2 was reading achievement, while for the hypotheses in Subset 3 it was mathematics achievement. Parallel analyses were done for the two sets of data. Thus, the procedures for only one of these analyses will be described.

Since the data consisted of both categorical and continuous independent variables, the procedures outlined by Kerlinger and Pedhazur (1973) for this situation were followed. The full model was

$$\hat{Y} = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_2X_3 + b_5X_1X_2 + b_6X_1X_3 + b_7X_1X_2X_3.$$

Where Y = reading achievement score

X_1 = frequency of use of DTB's (continuous)

X_2 = program participation (categorical)

X_3 = site (categorical)

Because of the combination of categorical and continuous variables as well as unequal cell sizes, multiple regression procedures were used for the data analysis. The model was examined through the backwards elimination procedure. First, the interactions between the continuous

and categorical variables were examined (terms $b_5X_1X_2$, $b_6X_1X_3$ and $b_7X_1X_2X_3$). If these were nonsignificant the terms could be dropped from the equation and incorporated into the error term. The reduced model would then be

$$\hat{Y} = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_2X_3.$$

Since the relationship of major interest was between DTB use and reading achievement, DTB use was entered as the first step in the multiple regression. Following this, the classical experimental approach was used for the categorical variables. This order of entry for the continuous and categorical variables permitted examination of the relationship between DTB use and reading achievement, and then provided data to determine if this relationship was similar both in terms of slope and intercept for all groups in the analysis.

The procedure just described was used for the hypotheses relating to mathematics achievement also. For all hypotheses the .05 level of significance was used.

CHAPTER IV

RESULTS

The results of the statistical tests for the previously stated hypotheses are presented in this chapter. Four groups of mother-child pairs were observed interacting in two structured situations. The desirable teaching behaviors used by the mothers during these sessions were tallied and these data along with the reading and mathematics achievement scores for the children have provided the data reported in this chapter. Results of the hypothesis testing are organized into subsets based on the dependent variables of the various hypotheses.

Descriptive Data

An issue in the analysis of the maternal teaching behavior is whether frequencies should be used or whether these frequencies should be converted into rates to correct for varying teaching times. Data which can be examined to assist in the decision are the teaching times taken by the mothers for the two activities separately and then combined. The means and standard deviations of the teaching times taken by the four groups of mothers are presented in Table 4.

As can be seen in the table, the four groups of mothers are very similar in the amount of teaching time used. This similarity is surprising considering that the mothers were allowed as much time as they wished for each activity. The two groups of mothers from community B used more time than the mothers from community A, but the difference

TABLE 4

MEANS AND STANDARD DEVIATIONS OF MATERNAL TEACHING
TIMES (IN MINUTES) FOR THE MATCHING-FACES
ACTIVITY, THE BOOK-READING ACTIVITY, AND
THE TWO ACTIVITIES COMBINED

Group Description	Faces		Book		Combined	
	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd
A FT	8.56	3.69	11.20	4.10	19.76	6.28
A NFT	8.83	2.76	10.79	3.47	19.62	5.28
B FT	8.81	3.61	12.56	5.00	21.37	5.97
B NFT	9.69	5.67	12.89	7.34	22.58	9.02

was not significant. Because the four groups of mothers had very similar teaching times, there is little to be gained by converting the frequency counts of teaching behaviors into rates. Therefore, the measure of maternal teaching style used throughout the analysis will be the number of DTB's used by the mother during the two interaction situations combined.

Five variables have been used in the data analysis for the present study. Two of these variables are categorical: program participation (FT vs NFT) and site (community A vs community B). The remaining three variables; DTB's, reading achievement, and mathematics achievement, are continuous. The means and standard deviations for these three continuous variables for the four groups of subjects are presented in Table 5.

As can be seen in Table 5, three groups of mothers used similar numbers of DTB's. Only the FT mothers from community A have a dissimilar value, one which is higher than the values of the other three groups. This group (A - FT) is the one with whom there have been deliberate efforts to modify teaching behaviors. This same group also has the greatest variation in teaching behaviors as indicated by the large standard deviation.

Concerning reading achievement scores the two groups within each community look very similar to each other, with the scores for the groups from community B being six to seven points below those for community A. The four groups of children have similar mathematics achievement scores.

TABLE 5
 MEANS AND STANDARD DEVIATIONS OF NUMBER OF DTB'S AND
 ACHIEVEMENT SCORES FOR THE FOUR GROUPS OF SUBJECTS

<u>Group</u> <u>Description</u>	<u>DTB's</u>		<u>Achievement</u>			
	<u>\bar{x}</u>	<u>sd</u>	<u>Reading</u>		<u>Mathematics</u>	
			<u>\bar{x}</u>	<u>sd</u>	<u>\bar{x}</u>	<u>sd</u>
A FT	24.09	19.17	107.38	16.74	115.29	6.32
A NFT	14.48	9.15	107.52	14.07	116.03	8.82
B FT	14.41	13.05	101.07	11.50	115.21	6.21
B NFT	14.07	16.98	99.60	11.56	114.80	10.02

Desirable Teaching Behaviors

Hypotheses 1, 2, and 3 were tested statistically by use of a 2 x 2 factorial design analysis of variance. Due to the unequal cell sizes, the classical experimental approach was used. The results of this analysis are presented in Table 6. Significant main effects for program participation and site were found ($F [1,105] = 4.35, p < .05$ and $F [1,105] = 4.21, p < .05$). The interaction of program participation and site did not result in a significant F value. Thus, both Hypothesis 1 concerning program participation effects and DTB usage and Hypothesis 2 concerning site effects and DTB usage can be rejected, while Hypothesis 3 relating the effects of the interaction of these two variables with DTB usage can not be rejected.

Reading Achievement

The backwards elimination procedure was used to examine the model. First, the interaction between the continuous and categorical variables was examined. This analysis yielded a nonsignificant F value ($F [3,101] = 2.48, NS$), and consequently these terms were dropped from the equation and incorporated into the error term. The remaining data analysis was done with the reduced model.

The continuous variable (DTB's) was entered first with the two categorical variables entered via the classical experimental approach. The interaction between the two categorical variables was entered on the fourth step. This ordering was used to handle the problems of unequal cell sizes and a combination of categorical and continuous variables. The results of this analysis are presented in Table 7 and relate to Hypotheses 4 and 5. DTB usage did not result in a significant F value ($F [1,104] = 3.90, p < .06$). Consequently, Hypothesis 4 cannot be rejected.

TABLE 6
 ANALYSIS OF DTB USAGE AS A FUNCTION OF PROGRAM
 PARTICIPATION, SITE, AND THE INTERACTION OF
 THE TWO VARIABLES

Source	SS	df	MS	F
Program Parti- cipation (A)	970.632	1	970.632	4.35*
Site (B)	940.265	1	940.265	4.21*
A x B	526.328	1	526.328	2.36
Residual	23448.445	105	223.318	

* $p < .05$

TABLE 7
 ANALYSIS OF READING ACHIEVEMENT SCORES AS A FUNCTION
 OF PARENTAL DTB USAGE, PROGRAM PARTICIPATION,
 SITE, AND THE INTERACTION BETWEEN PROGRAM
 PARTICIPATION AND SITE

Source	SS	df	MS	F
DTB's (A)	757.806	1	757.806	3.90
Program Parti- cipation (B)	3.813	1	3.813	0.02
Site (C)	918.461	1	918.461	4.73*
B x C	55.289	1	55.289	0.28
Residual	20179.373	104	194.032	

* $p < .05$

Site was the only categorical main effect which resulted in a significant F value ($F [1,104] = 4.73, p < .05$). This result indicates that the regression lines for the two communities have significantly different intercepts. Thus, two regression lines would be needed to accurately portray the results, one for each site. These two lines would have similar slopes since the F value for the interaction between the continuous and categorical variables was nonsignificant. Hypothesis 5 can be rejected as the relationship between DTB use and reading achievement is not similar for all groups of subjects. The regression lines for all groups do have similar slopes, but the intercepts for the two communities are significantly different.

Mathematics Achievement

When the backwards elimination procedure was applied to examine these data, the interaction between the continuous and categorical variables was found to be nonsignificant ($F [3,101] = 2.42, NS$). Consequently, these interaction terms were dropped from the equation and incorporated into the error term. The remaining data analysis was performed with the reduced model.

As in the analysis of the reading achievement data the first variable entered was the continuous variable (DTB's). Then the two categorical variables were entered via the classical experimental approach. The interaction between the two categorical variables was entered on the fourth step. The results of this analysis are presented in Table 3 and relate to Hypotheses 6 and 7. DTB usage did not result in a significant F value ($F [1,104] = 0.608, NS$) and consequently Hypothesis 6 cannot be rejected.

TABLE 8

ANALYSIS OF MATHEMATICS ACHIEVEMENT SCORES AS A
 FUNCTION OF PARENTAL DTB USAGE, PROGRAM
 PARTICIPATION, SITE, AND THE INTERACTION
 BETWEEN PROGRAM PARTICIPATION AND SITE

Source	SS	df	MS	F
DTB's (A)	35.682	1	35.682	0.608
Program Parti- cipation (B)	7.316	1	7.316	0.125
Site (C)	2.278	1	2.278	0.039
B x C	14.180	1	14.180	0.242
Residual	6103.273	104	58.685	

Neither categorical main effect nor the interaction of the categorical variables resulted in significant F values. These results indicate that the relationship between DTB's and mathematics achievement are similar for the four groups of subjects with respect to both slope and intercept. Thus, Hypothesis 7 cannot be rejected.

Summary of Results

In this study the possibility of modifying parental teaching behavior by means of a parent education program was investigated in two communities. Also, the relationship among program participation, site, parental use of DTB's, and two areas of child achievement, reading and mathematics was examined.

For DTB usage, a 2×2 factorial analysis of variance (program participation and site) indicated a significant main effect for both variables. The interaction did not yield a significant F value. These results can be interpreted as follows: (1) the FT parents used significantly more DTB's than did the NFT parents across the two communities, and, (2) the two groups of parents in community A used significantly more DTB's than did the two groups of parents in community B.

For reading achievement, the F value associated with DTB usage narrowly missed the critical value for the associated degrees of freedom. Site was the only categorical main effect which had a significant F value associated with it indicating that the regression lines for the relationship between DTB usage and reading achievement had different intercepts for the two communities. The slopes of the regression lines were similar as denoted by the nonsignificant F value for the interaction between the continuous and categorical variables.

No main effects or interactions, either for the continuous or categorical variables, were significant in the data analysis with mathematics achievement as the dependent variable. Thus, none of the independent variables in the study played a significant role in predicting mathematics achievement performance.

CHAPTER V

DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

Discussion of the Findings

The two major purposes of this study were (1) to compare the teaching behaviors of parents who have participated in the Florida Follow Through Program to that of parents who have not participated in the program, and, (2) to examine the relationship of use of the particular teaching behaviors stressed by the model and child achievement data.

The finding that both program participation and site had effects on the use of DTB's by parents indicated that the program was having a significant impact on DTB usage across the two communities and that the parents in one community were using significantly more DTB's than those in the other community.

The significant finding for the main effect of program participation is important as it provides further evidence of the ability of a parent education program to modify the teaching behaviors of parents. The current findings agree with those of Olmsted and Ware (1975) and the two studies together present a strong case for the effectiveness of the Florida Parent Education Follow Through Program to improve the teaching behavior of parents.

The significant main effect found for site illustrates the importance of considering this variable in analyzing data of this nature.

Including site as a variable allows for its consideration as both a main effect and as one part of an interaction. Any community has its own characteristics and these characteristics may interact with a parent education program in unique ways. It would be possible for a particular program to be implemented in various ways in several communities and for data analysis to indicate that overall the program was ineffective. This finding could be very misleading as it is likely that the program has been implemented with differing degrees of success in the various communities. Considering site as a variable is particularly important when a program has many objectives which may be emphasized differently in the various communities.

Even though a significant interaction between program participation and site relative to DTB usage was not found, it is evident from the table of group means and standard deviations that the difference between the two groups in community A is larger than the difference between the two groups in community B. This finding is congruent with the emphasis given to the various elements of the model in the two sites. In community A considerable emphasis was placed on this objective of the model while in community B less importance was attached to the objective. The results obtained do reflect, at least to some extent, the amount of time and effort devoted to this objective in the two communities. The lack of a significant interaction was surprising, but may be due in part to the large standard deviations of the various groups.

The relationship between parental use of DTB's and child reading achievement narrowly missed reaching statistical significance. Even though statistical significance was not attained, the results are of practical significance. In light of the many variables which may have

an effect on reading achievement and the measurement problems involved in research of this nature, it is encouraging to find a relationship as strong as the one in this study.

Another factor which may have contributed to the nonsignificance of the relationship between reading achievement and DTB use is the uniform nature of the population. That is, all subjects were from low-income families. Limiting the subjects to one socioeconomic group may have resulted in restricting the range of behavior on either one or both variables under consideration. (In previous research the author has found a wider range of frequency of use of DTB's.) Restriction of range for even one variable can result in a decreased strength of relationship. It is possible that had both lower- and middle-income families been included in the study, the relationship might have reached significance due, in part, to the increased range of behavior on one or both variables.

One last issue related to the relationship (or lack of it) between DTB use and reading achievement may be the length of treatment. In a parent education program it takes a certain amount of time to modify the teaching behavior of parents. A parent needs to comprehend the particular teaching behaviors she is asked to use, understand why they are important, and be able to apply them when working with her child. This process may take months for some parents, years for others, and never occur for a few. Assuming there have been changes in parental teaching behavior, it may take several more months or years for the effects of these new behaviors to show up in child achievement data. It is possible that this particular study was conducted when there had been sufficient time for the parental teaching behavior to be modified, but when there had

not been sufficient time for these particular behaviors to have an effect on child reading achievement. It would be interesting to test this idea by repeating the study with the same sample a few years later.

The significant site effects found in the data analysis relating DTB usage and reading achievement indicated that the children in community A had significantly higher reading achievement scores than did the children in community B. The regression lines for the relationship between DTB use and reading achievement were parallel for the two communities, but the line for community A was uniformly higher than that for community B.

It was not surprising to find that parental DTB use related more strongly to reading achievement than to mathematics achievement. Examination of the list of DTB's reveals the strong language orientation of the majority of the behaviors. This heavy emphasis on verbal behaviors was not purposely considered when the list was originally developed, but should be taken into account if modifications are ever made with the list.

The procedures used to assign children to FT classrooms followed local guidelines in each site and varied from site to site. The random assignment of pupils to FT and NFT classrooms was not feasible, making it impossible to know if the two groups within each community were similar. Care was taken to ensure the similarity of the two groups within each community on all variables considered to be important (e.g., socioeconomic group, sex, ethnic group); however, this procedure is an unsatisfactory substitute for random assignment of subjects to groups.

Suggestions for Future Research

One important suggestion for future work in this area would be to have a "match" between the parental teaching behaviors stressed by the program and the evaluation of this program component. This would entail clearly defining the particular teaching behaviors of interest and also developing techniques to assess their use. These two activities are difficult and time-consuming, but are necessary to improve the caliber of research in the area.

A related problem in the field concerns the particular behaviors stressed by parent education programs. Various programs often include a parental teaching behavior with the same label in their materials, but upon closer examination this same behavior may have several different definitions. The area needs a standard set of terms with which to label and describe these behaviors. Also, multiple studies need to be conducted using the same parental teaching behaviors to provide several sets of data regarding these behaviors.

It may be possible in the future to identify particular behaviors or patterns of these behaviors which are particularly effective in improving child performance. Unfortunately, in the present study it was not possible to analyze the data by specific teaching behaviors due to low frequencies. However, if several interaction situations could be used it may then be possible to examine individual behaviors. A promising approach to exploring the effectiveness of various patterns of teaching behaviors is in the work of Guertin (Guertin & Bailey, 1970) in profile analysis.

The last suggestion for future research concerns longitudinal studies. If, as suggested earlier, it takes several months (or years)

to assist parents in developing new teaching skills, and if it takes even more time for the use of these new skills to be reflected in child performance data, then longitudinal studies are important in the area. Only through studies of this nature can evidence be collected to support or reject the idea suggested above. Longitudinal studies can also provide data concerning the continued use of the parental teaching behaviors.

Conclusions

In this study it was found that the Florida Parent Education Follow Through Program was effective in modifying the teaching behavior of parents across two communities. Site differences were also found indicating that the two groups of parents from community A used significantly more of the teaching behaviors stressed by the program than did the two groups of parents from community B.

The F value for the relationship between parental DTB use and child reading achievement narrowly missed reaching significance. Possible reasons for the near miss were presented including the restricting population, the length of treatment, and the primitive state of instrumentation in the area. The results also indicated that although the regression lines were parallel for the two communities, the line for community A was above that for community B. This suggested that the reading achievement scores for the children in community A were significantly higher than those for the children in community B.

The relationship between DTB use and mathematics achievement was found to be nonsignificant. Also, the relationship was similar for all groups of subjects.

APPENDICES

APPENDIX A

Matching Faces Activity

Instructions

As part of a national educational project we are looking at how parents teach and read with their children. Everything you say or do will be kept confidential. No one will ever know who you are. We are asking you to do two things, first, to teach (child) how to play a matching game and second, to read and talk about a book with (child). Let's look at the matching game.

I'm going to ask you to teach (child) how to play this game. Let me show you an example. (Lay out the four faces.) Here are four faces. The idea of the game is to find the two that match. Can you find the two that match? That's right, these two faces match in everyway. The nose is different in this one (*) and also in this one (*). I would like you to teach (child) how to find the matching faces. You can teach him/her any way you please. There is no right way or wrong way to teach this game.

To help you be sure you have a matching pair, each face has a number on the back (*). On the flap of the envelope are the numbers of the faces that match (*). (Put faces back into envelope and keep.)

Here are the four sets you will use to teach (child). The first envelope has four faces and one pair that match like the example I showed you. (Show numbers on flap.) The second envelope has six faces but still only one pair that match. (Show numbers on flap.) The last two envelopes have eight faces in them with two pair of matching faces. (Show numbers on flap.) You can give (child) as much or as little help

as you think necessary to find the matching faces.

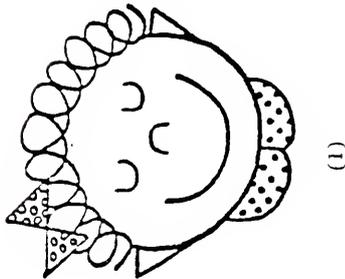
When you are done teaching this game to (child), let me know. Then I'll explain about the reading.

Do you have any questions?

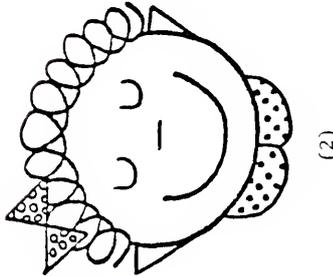
You may begin when you are ready.

(*) Do appropriate action.

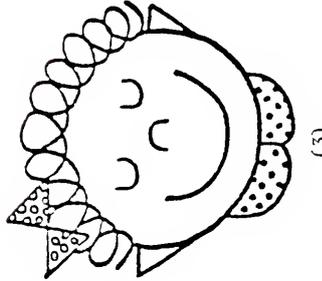
Sample Item from the Matching-Faces Activity



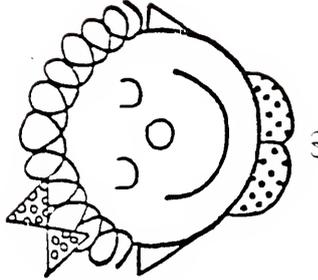
(1)



(2)



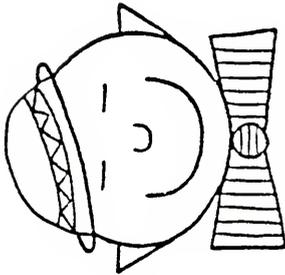
(3)



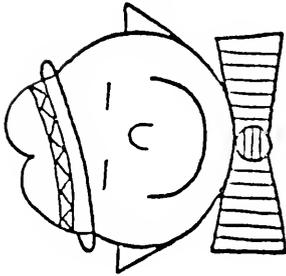
(4)

Sample 1: 4 faces

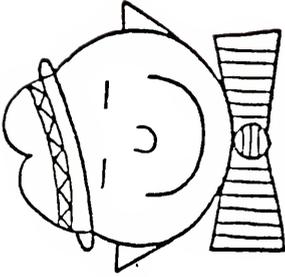
Two faces match in every way. Each face is on a separate card.
(Answer: 1st and 3rd face)



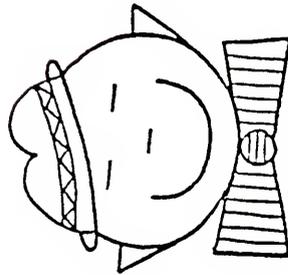
(1)



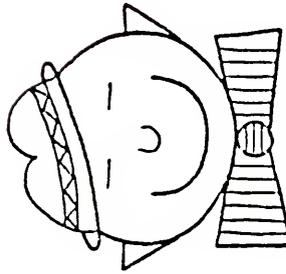
(2)



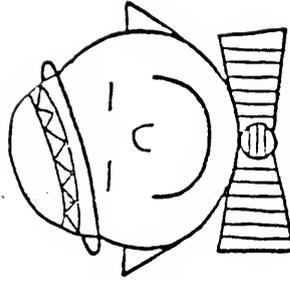
(3)



(4)



(5)



(6)

Sample 2: 6 faces

Two faces match in every way. Each face is on a separate card.
(Answer: 3rd and 5th face)

APPENDIX B

Book Reading Activity

Instructions

As part of a national educational project we are looking at how parents read with their children. Everything you say or do will be kept confidential. No one will ever know who you are. We would like you to read a book with (child). We have selected (title) and would like you to read this book with (child) any way you want. There is no right way or wrong way to read this book. Just read the book any way you please. We're only interested in how you do read with (child). Do you have any questions? You may begin when you're ready.

APPENDIX C

Coding Manual for
DESIRABLE TEACHING BEHAVIORS (DTB)
Observation Form

1. Get the learner to ask questions.

In this item the teacher (T) creates a situation in which the learner (L) feels free to ask his own questions. It is the teacher's responsibility to present the learner with opportunities to ask questions pertaining to the task, perhaps concerning something not fully understood. However, unless the teacher creates the situation and the learner does indeed ask a question, this category should not be checked.

For example: T: "Is there anything about this game which you do not understand?" L: "Yes, why are there only four correct combinations?"

This would constitute an instance of this category. However, if the same question was asked and answered with a "No" it could not be considered an instance of this category.

Note: This item is not for each time a learner asks a question. The teacher must first initiate the situation in which the learner asks questions. For example: T: "I'd like you to ask me questions about anything you don't understand." This would be an instance of the category if at some time during the task the L does ask questions.

2. Ask questions that have more than one correct answer.

This item is marked when the one acting as T asks a question which requires some thought before answering. These are known as

"open-ended" questions and allow the L to answer with any number of responses, all of which are acceptable.

For example: T: "What do you like about this picture?" or
T: "Why do you think birds fly south in the winter?" or T:
"What would you do?" or T: "What are your favorite colors?"

The above questions may be answered in many ways. But a question like, "What color is that chair?" has only one correct answer and should not be checked as a 2. Most "Yes" and "No" questions are not included in this item. The opinion question "Did you like that story?" is included because there is no one correct answer.

3. Ask questions that require more than one word as an answer.

This item is marked when the T asks a question which requires the L to use either phrases, sentences, or a list of things in answering. This item is never marked for "Yes" and "No" questions.

For Example: T: "What can you tell me about these pictures?"
or T: "What do you like to do on rainy days?" An example of a one-word answer which would not be included in this item is
T: "What is your favorite color?". L: "Red."

4. Encourage the learner to enlarge upon his answer.

This item is marked when the T prompts the L to expand on an answer that he has previously given. Also, these second and subsequent questions must indicate that T's intention for the L to reach the most complete answer to the T's original question.

For example: T: "What can you tell me about these animals?"
T: "What else can you tell me about them?" or T: "What do plants need to be able to grow?". L: "They need sunlight."
T: "What else do they need?" or, "Why do they need sunlight?"

5. Praise the learner when he does well or takes small steps in the right direction.

The T lets the L know when he is doing well or has answered correctly. The T may only say, "That's good," or "Right," but her words must carry a praising intonation with them to distinguish them from mere acceptance of the L's responses.

6. Let the learner know when his answer or work is wrong, but do so in a positive or neutral way.

When the L makes an inappropriate response, the T corrects by saying, "Are you sure?," or "Look at it again," or "Let's think about it a little more," etc. A negative word may not be used in any manner regardless of how slight or innocent it may sound.

7. Get the learner to make judgments on the basis of evidence rather than by guessing.

This item is checked when the T guides the L into a situation where he is required to examine facts or evidence before deducing the proper answer. The L must give reasons for or cite evidence for his response.

For example: L: "Billy will like this picture of swings."
 T: "Why do you think so?" L: "Because I know that every day after school he goes to the playground.," or T: "How does Peter look?" L: "Happy." T: "How can you tell?" L: "Because he's smiling and clasping his hands."

It is important that the teacher follows up the learner's responses until the learner gives a reason for his answer. This cannot be checked until the T elicits a reason for the answer.

8. During the activity give the learner time to think about the problem; don't be too quick to help.

This item is checked when the T encourages the L to think before proceeding. This may occur when the learner is stumped and the teacher pauses to let him think about the problem. The teacher may then suggest alternatives, give hints, or ask additional questions.

For example: T: "Why does this block belong with all these blue ones?" L does not respond. Teacher gives him a few moments and asks, T: "Well, what color is this particular block." The T must also allow the L ample time to complete a specific task the T may have given. For example: T: "Underline all words on the page that begin with the letter P." The teacher then allows the L several minutes to complete the task before discussing the answers. The teacher does not interrupt until the learner has finished the activity.

9. Before starting the activity, give the learner time to familiarize himself with the task materials.

The teacher allows the L time to examine materials involved in the task. The teacher should remain silent and not continue into further instructions until the L is finished.

10. Before starting the activity, explain what you are going to do.

In this explanation, the T tells the L the nature of the task.

For example: T: "This task is called 'Where would you like to go?' We are going to look at several pictures and discuss what they are and what you like about the places they show." This item may include more than simply the task title but does not need to include specific instructions to the L.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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