DOCUMENT RESUME

ED 100 492 24 PS 007 573

AUTHOR Gordon, Ira J.
TITLE The Florida Parent Education Early Intervention Projects: A Longitudinal Look.
INSTITUTION ERIC Clearinghouse on Early Childhood Education, Urbana, Ill.; Florida Univ., Gainesville. Coll. of Education.
SPONS AGENCY Children's Bureau (DHEW), Washington, D.C. Div. of Research and Evaluation.; National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Jan 75
NOTE 36p.; Adapted from paper presented at the Merrill-Palmer Conference on Infant Education (Detroit, Michigan, February 1973)
AVAILABLE FROM Publications Office/IREC, College of Education, University of Illinois, 805 W. Pennsylvania Ave., Urbana, Illinois 61801 (Catalog No. 125, $1.60)

EDRS PRICE MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS Emotional Development; Group Experience; *Home Visits; Infants; *Intervention; *Longitudinal Studies; Mother Attitudes; Paraprofessional School Personnel; Parent Child Relationship; *Parent Education; Preschool Children; *Program Evaluation; Self Concept; Sex Differences; Socialization; Standardized Tests
IDENTIFIERS *Parent Education Project; PEP

ABSTRACT

This article presents a longitudinal analysis of the Florida Parent Education Programs which were designed to provide intervention services to socioeconomically disadvantaged parents of young children through home visits by paraprofessional personnel. The programs include the: (1) Parent Education Project (PEP); (2) Early Child Stimulation through Parent Education Project; (3) Home Learning Center Project; (4) Instructional Strategies in Infant Stimulation Project; and (5) Project Follow Through. Data were collected from children, ages 1-6, who had entered the programs since 1966 and had participated from one to three years. Skills and attitudes of the mothers were also assessed. Descriptions of the projects' effects on the participants are given. The measurement design included experimental and control groups, assessed by standardized tests, interviews and Parent Educator Weekly Report Forms. The results indicate that the parent education approach has had lasting effects on the children and on some aspects of family life. (SDH)

THE FLORIDA PARENT EDUCATION EARLY INTERVENTION PROJECTS: A LONGITUDINAL LOOK

Ira J. Gordon

University of Florida

Available from:
Publications Office/IREC
College of Education/University of Illinois
805 West Pennsylvania Avenue
Urbana, Illinois 61801

January 1975

Price: $1.00 Catalog # 125

The projects reported herein were partially supported by grants from the Fund for the Advancement of Education, Children's Bureau (PHS-R-306), and the National Institute of Mental Health, Department of Health, Education, and Welfare (5-R01-Mh 16037, NIH-MH-17347). This paper is adapted from one presented at the Merrill-Palmer Conference on Infant Education in Detroit, February, 1973.

Since 1966 we have conducted a series of intervention research efforts, in wnich paraprofessionals served as nome visitor parent educators who demonstrated specially designed home learning activities to the parent (usually the mother) so that she, in turn, would engage in broadly-defined instructional interaction with her child. Table 1 shows the chronology of these projects along the top line, witn their spin-offs on the other lines. Here we are concerned with only the top line.

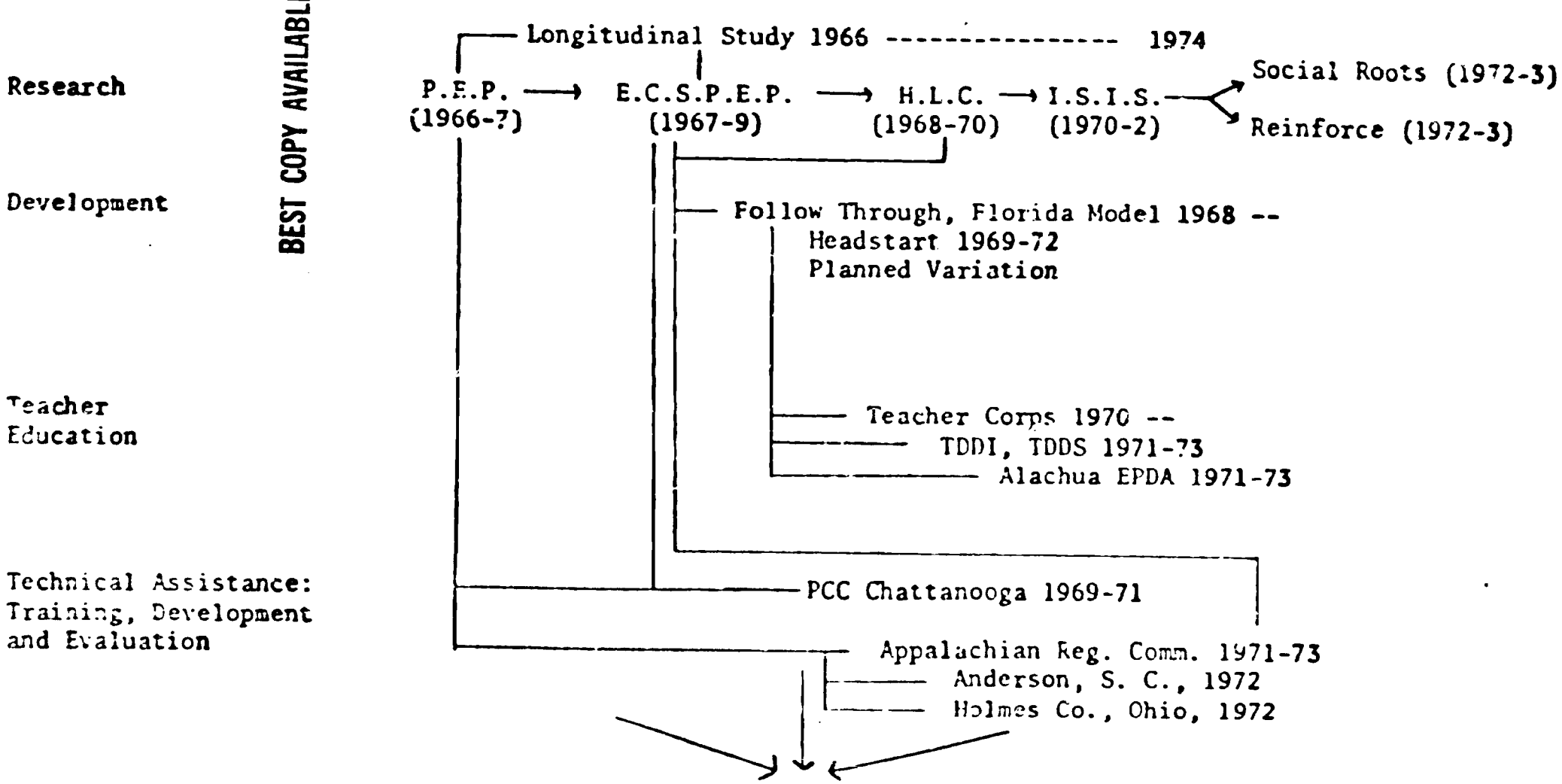
The PEP project (Gordon, 1967) was a basic engineering effort to answer practical questions as whether we could develop and install a delivery system and develop a set of materials to deliver. Obviously, the existence of Table 1 indicates we were successful. In the PEP project, we had 150 experimental families and two control groups of about 30 families each. In one control group, graduate nurses visited the families on a systematic basis, but conducted no parent education (to explore the Hawthorne effect). The other control group was the standard kind. Families were randomly assigned to treatment and to these two control groups.

The first effort was followed by the Early Child Stimulation through Parent Education Project (Gordon, 1969c) which was a little more sophisticated, a little more organized, and also a little more complicated. The original experimental group was divided, and half the families were randomly assigned to a new control group. Since we found no significant differences on the scores of the control groups when the children were age one, we treated them as a common pool and randomly assigned half to the experimental group in the second year. This gave us four groups (see Table 2 for design).

A group of new parent educators and one professional supervisor were instructed to develop their own curriculum so we could explore the question

TABLE 1

The Florida Parent Education Programs



of whether Piaget-based, language-oriented curriculum was any better or any worse than a curriculum put together by people who had a lot of experience with infants, but not much theoretical background. A comparison of the two curriculums (test scores at age one) indicated that it did not really make any difference which one we used.

This investigation led to the Home Learning Center Project (Gordon, 1972). We followed the children through the third year of life. However, we made one significant change. Up to this point all of the intervention had been of the home visit nature, on a once-a-week schedule. We felt that a group experience for 2-year-olds would be an important addition. The children were placed in what we called, "home learning centers" or backyard centers, five children at a time, for four hours a week in two, 2-hour periods. These centers were in homes of mothers already in the project (urban homes in the Gainesville area, and rural homes around the 12-county area). Some of the Gainesville homes were located in newly-opened housing projects and in turnkey housing in the east Gainesville section. The mother who lived in a home center was employed as an aide to the backyard center director, a parent educator converted into a home learning center director as well as a home visitor. Each parent educator still carried 10 children, so she met groups in the center and continued to meet with the mothers on a once-a-week basis. We also added new 2-year-olds in the program so we could look specifically at the effects of people coming in at age 2 and having one year of the combined program versus those who had a continuing program. We are still engaged in the longitudinal study of these families. Tables 2 and 3 contain the treatment design and the basic measurement tools.

Table 3 shows a language measure for children at 24 and 36 months and their mothers. This measure was not part of the original project, but was the work

TABLE 2

Longitudinal Study - Treatment Design

Child's Age by Months

Group	3-12	12-24	24-36	48, 60, 72
1) E	Home Visit	HV	Home Learning Center/HV	Test
2) EE/C	HV	HV	Control	Test
3) C/EE	Control	HV	HLC/HV	Test
4) E/C/E	HV	Control	HLC/HV	Test
5) E/CC	HV	Control	Control	Test
6) C/E/C	Control	HV	Control	Test
7) C/C/E	Control	Control	HLC/HV	Test
8) C	Control	Control	Control	Test

of Resnick (1972). It was a measure of the language in a free play situation with the mother present during the 5-minute period before the child moved into the actual testing situation.

We were interested in how children behaved in the Home Learning Center. The Weld, shown in Table 3, is a situational event sampling procedure of child behavior in various home learning center settings, such as free play, one-to-one adult-child interaction, small group instruction. The SEMS is the Scott Effectiveness Motivation Scale used by Kronstadt (1973) as a measure of achievement motivation.

Since the project was a parent education project, we felt that it was important to gather a variety of information about the mothers (not because we weren't interested in fathers, but because in half the families there was no father present consistently in the home, and therefore it was far easier to measure the essential caretaker, the mother). The Social Reaction Inventory is a measure of internal-external control of reinforcements based on the Potter, the How I See Myself is a self-report scale of feelings of interpersonal adequacy, home-school relationships, and feelings of competence.

We gathered a good deal of demographic information about the size and composition of the family, the mother's education, her age, number of children, housing conditions, and so forth. The longitudinal work is still in process. The children are now reaching 6 years of age.

Based on these three projects, there were a number of questions and concerns that arose over the years, so Dr. Jester and I designed the Instructional Strategies in Infant Stimulation Project (Gordon and Jester, 1972). We did not know at the time that the acronym, ISIS, was the Egyptian goddess of fertility, which was a shame because we were really after the other end of the line!

TABLE 3

Longitudinal Study - Measurement Design
(Infant's Age in Months)

	3	12	24	36	48	60	72
			Children				
Experimental and Control		Griffith Series	Bayley Series	Stanford-Binet	S-B	S-B	S-B
				TOB	TOB	TOB	TOB
			Language	Leiter	Leiter	Preschool Inventory	Preschool Inventory
			TOB	PPVT	PPVT	PPVT	
Experimental Only				Language			
				Weld SEMS			
			Mothers				
Experimental and Control		Social Reaction Inventory	SRI	SRI	Interview	INT	INT	Home Interview
		How I See Myself	HISM	HISM			
			Language	Language	Language		
			Demographic	Demog			
Experimental Only		PEWR (Parent Educator Weekly Report on Visit)	PEWR	PEWR	PEWR		

With ISIS, we examined professional versus paraprofessional home visiting. We had used only paraprofesionals, but other projects, notably DARCEE, Levenstein, and Weikart, had used professionals. We were interested in the fact that in the earlier projects we seemed to be getting a sex-by-treatment effect: girls seemed to be benefiting more from the intervention than boys (Lally, 1968). Yet some of our other data seemed to indicate that maternal attitudes were more influential in affecting boys' performance than in affecting girls' performance (Herman, 1971; Etheridge, 1972). We wanted to look more closely at the socialization process. We also wanted to see if it makes any difference whether you work directly with the child, or whether the focus is on the mother on the assumption that she, in turn, will work with the child. The families in this sample were divided into the various treatment groups necessary to look at these questions.

In the ISIS project, every six weeks the home visit took place in an off-campus apartment. We video-taped the home visit beginning at the 3-month point, and have a massive array of raw data on the 128 families showing the growth in the mother, in the child, and the changes in behavior of the parent educator over time. These tapes are being reanalyzed in our two current projects (Lester, 1972; Gordon, 1972c).

A review of Table 1 shows how a programmatic research effort can lead to development, technical assistance, changes in University programs, and dissemination to the general public.

Since 1968 we have been involved in the Follow Through project as a program sponsor. Our model is characterized by the use of paraprofessionals in a home visit program, but also includes the work of paraprofessionals in the classroom and a much greater involvement of the parents themselves in the

decision-making process including curriculum development as well as other aspects of the program. These activities are related to the reseach effort. Another outgrowth of the basic research has been the development of teacher education programs: the Teacher Corps Project and the Teacher Training in Developing Institutions Programs in the Department of Childhood Education. Both use the parent education and involvement philosophy and model.

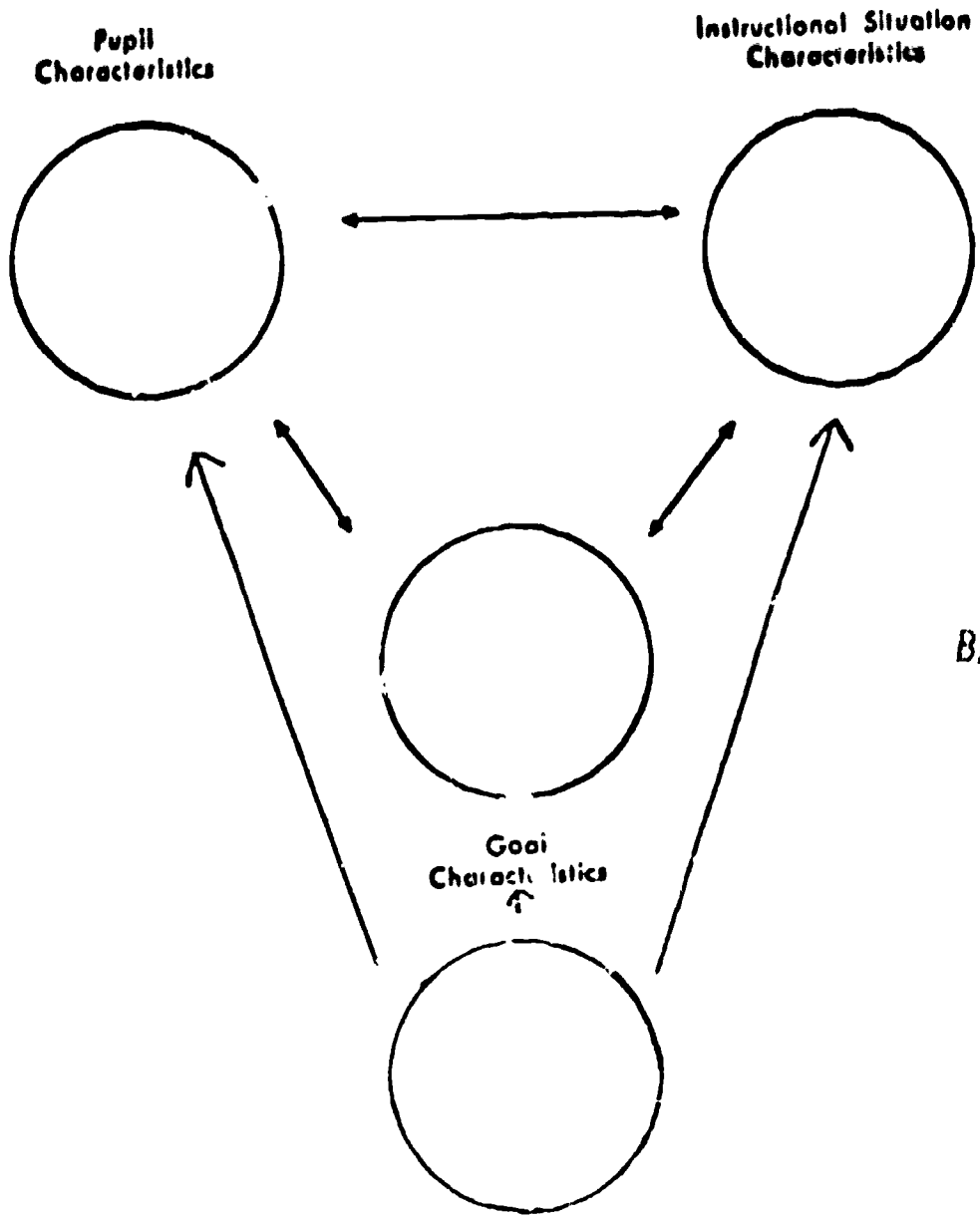
Analysis of the Program

The procedure for analysis was developed by the Association for Supervision and Curriculum Development Commission on Instructional Theory (Gordon, 1968), which leaned heavily on ideas from Robert Travers. The premise is that any instructional program or curriculum program can be analyzed in terms of the way it handles the interaction among three major sets of variables: the pupil characteristics (or the assumed pupil characteristics), program goals, and the instructional setting characteristics (Figure 1). In order for this scheme to make sense, nowever, we must go back a step further and seek the derivation of the goals. What basic assumptions or postulates or hypotheses did we have? We developed a series of postulates and assumptions about the child and about the mother. For each of these postulates and assumptions, it is possible to state what we assumed the pupil characteristics to be as children entered the program, to look at what other factors in the environment might be playing a role in affecting the result or in contributing to the operation. We have called this category "demographic factors."

[illegible] our assumptions, it was possible to state a goal and to describe the means by which we would attempt to get to that goal.

Analysis of Child Characteristics

There are several sets of basic assumptions. The first set is: (1) the child would enter the situation with some level of intellectual performance



ASSUMPTIONS/POSTULATES

Fig. 1 Adapted from the transactional network between pupil goal, and instructional situation characteristics. From I. J. Gordon, ed., Criteria for Theories of Instruction (Association for Supervision and Curriculum Development, 1968), p. 17.

(although we had no way of measuring that level at the entrance age of 3 months), and (2) intellectual performance is a function of experience and not a given.

Our instructional situation involved a series of sequenced tasks. However, the activities were not sequenced in such a way that you had to follow task 4 after 3 after 2 after 1, they were rather sets of sequences. The choice of which task to use at any particular time was up to the parent educator and the mother; but, generally, choices were made in terms of expectation about the growth of the child. Language input was built into the materials for the mother and in the parent educator's instructions and demonstrations.

Tables 4 and 5 contain the results shown when the children reached age 5. Remember that Group 1, the first experimental group, which had been in the program for three years, had been out of the program for two years at the time of testing. Children in Group 2 had been out of the program for three years, and children who were in for the first years only (Group 5) have been out of the program for four years. As the children enter kindergarten are there any lasting effects over a period from at least two years to four years after the program? At age 5 the children in the experimental group were superior to those in the control group on the Stanford-Binet and on the Caldwell Preschool Inventory, the only two measures that we have so far used.

When the children were age 3 and 4, we factor analyzed the Stanford-Binet (Table 6). Children who were in the program for three years scored significantly higher than the controls across all three factors (Table 7, Gordon, 1971).(Age 4 factors are shown on Tables 8 and 9.) Those children who were in the program for three years, the first two, and the first year only scored significantly higher than the controls on all three factors (Gordon, 1972). The differences at age 4 are clearer than at age 3, and, interestingly, even a bit clearer at age 5.

TABLE 6

Stanford-Binet Factors
Used in Group Comparisons

At Age Three

Factor I Language

S-B Level	Description
II-6	Identifying Objects by Use
II-6	Picture Vocabulary
III-6	Comparison of Balls
III-6	Discrimination of Animal Pictures
III-6	Response to Pictures
IV	Pictorial Identification
IV	Discrimination of Forms

Factor II Memory

S-B Level	Description
II-6	Obeying Simple Commands
III	Picture Memories
III-6	Sorting Buttons
IV	Naming Objects From Memory
IV	Pictorial Identification

Factor III Perceptual Motor

S-B Level	Description
III	Stringing Beads
III	Blocking: Bridge
III	Copying a Circle.
III-6	Comparison of Balls
III-6	Patience: Pictures
III-6	Sorting Buttons.

TABLE 7

Means and Standard Deviations for Three Standard-Binet Factors at Age 3 by Number of Years and Timing of Participation in the Stimulation Program

			Factor					
			Language		Memory		Perceptual-Motor	
Group	Years	N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
1	all 3	27	3.30[a]	1.98	2.26[b]	1.48	3.00[c]	1.82
2	first 2	17	2.64	1.97	2.12	1.69	2.82	1.63
3	last 2	8	3.00	1.85	2.50	1.31	4.12[b]	1.25
4	1 and 3	11	2.91	1.70	1.73	1.27	2.82	1.17
5	1 only	10	2.10	1.60	1.40	1.17	2.30	1.49
6	2 only	10	2.00	1.41	1.60	1.08	1.90	1.45
7	3 only	56	2.78	1.75	1.75	1.38	3.39[e]	1.41
8	Controls	51	2.33	1.81	1.61	1.23	2.98[f]	1.64

a.	Higher than groups 5, 6, and 8	$p < .05$
b.	Higher than groups 5 and 8	$p < .05$
c.	Higher than group 6	$p < .05$
d.	Higher than groups 1, 2, 4, 5, 6, and 8	$p < .05$
e.	Higher than group 5 and 6	$p < .05$
f.	Higher than group 6	$p < .05$

TABLE 8

Stanford-Binet Factors at Age 4

Factor I Cognitive Processes: Symbolic		
S-B Level & Item	Loading	Description
(4)-1	.53	Picture Vocabulary
(4)-3	.82	Opposite analogies
(4)-4	.48	Pictorial identification
(4-6)-2	.51	Comprehension II
(4-6)-4	.84	Opposite analogies
(4-6)-4	.57	Materials
(5)-3	.42	Definitions
(6)-6	.46	Maze tracing

Factor II Visual Discrimination		
S-B Level & Item	Loading	Description
(3-6)-2	.50	Patience: Pictures
(3-6)-2	.55	Discrimination of animal pictures
(3-6) 5	.52	Sorting buttons
(4)-1	.43	Picture vocabulary
(4)-5	.65	Discrimination of forms
(4)-2	.74	Naming objects from memory
(4-6)-1	.73	Aesthetic comparison
(4-6)-3	.63	Pictorial similarities and differences
(4-6) 5	.48	Three commissions
(5) 5	.60	Pictorial similarities and differences II

Factor III Cognitive Processes: Iconic		
S-B Level & Item	Loading	Description
(3-6)-4	.41	Response to pictures
(3-6)-6	.41	Comprehension I
(4)-4	.41	Pictorial identification
(4)-6	.43	Comprehension II
(4-6)-4	.44	Materials
(4-6)-5	.49	Three commissions
(5)-1	.70	Picture completion; Man
(5)-3	.67	Definitions
(6)-6	.55	Maze tracing

TABLE 9

Means and Standard Deviations for Three Stanford-Binet Factors at Age 4 by Number of Years and Timing of Participation in Program

			Factor					
			Cognitive Processes: Symbolic		Visual Discrimination		Cognitive Processes: Iconic	
Group	Years	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1	all 3	24	3.67[a,c,e,g]	3.38	5.88[b,e]	3.85	4.21[b,f]	3.27
2	first 2	14	2.79[b]	2.56	5.79[b,f]	2.25	4.21[b,f]	2.58
3	second 2	9	2.78	2.82	6.44[b,e]	1.88	3.78	2.59
4	1 and 3	11	1.36	1.69	4.64	3.35	2.82	1.66
5	1 only	10	3.70[a,d,f,h]	3.47	5.90[b,f]	3.28	4.80[a,d,e]	3.22
6	2 only	15	1.60	2.20	3.40	2.67	2.40	2.20
7	3 only	54	2.11	2.16	5.74[a,c]	2.57	3.72[b]	2.11
8	control	52	1.50	2.15	4.29	2.66	2.85	2.15
			$F = 2.80$, $p < .01$		$F = 2.55$, $p < .05$		$F = 2.10$, $p < .05$	

[a]Higher than group 8, $p < .01$, one-tailed.
[b]Higher than group 8, $p < .05$, one-tailed.
[c]Higher than group 4, $p < .01$, one-tailed.
[d]Higher than group 4, $p < .05$, one-tailed.
[e]Higher than group 6, $p < .01$, one-tailed.
[f]Higher than group 6, $p < .05$, one-tailed.
[g]Higher than group 7, $p < .01$, one-tailed.
[h]Higher than group 7, $p < .05$, one-tailed.

The long range effects are evident; they are statistically significant. The question is whether these effects are practically significant. They are not magnificent gains of 24 IQ points; they are more in the neighborhood of 8 and 9 IQ points. On the factors they look a little better. There are eight items listed in Table 8 under the Cognitive Processes: Symbolic factors. The mean differences were as much as two items, which is a pretty worthwhile difference. But it would be foolish to say that this difference now showing up at ages three, four, and five was the effect of a single activity or a set of specific activities offered at age one. Instead, it may simply be that we did something to encourage that mother to work with her children during the intervening years, and this "something" is still paying off. When we look at the maternal factors we will see a little more specifically what the mothers' actions were.

The second set of assumptions were related to time. The first of this set was that the child's age at entry would affect the holding power. Our assumption was, the earlier the better. As indicated on Table 2, we are able to examine each 1-year program and each 2-year program by the starting age of the child. Binet scores show that those children who were in the first year only are significantly higher than those in the second year only and tend to be higher than those in the third year only. There may also be a recency effect for the third year, since the scores of these children surpass those of the second year. Those children who were in the program for the first year only have been out now four years and still score significantly higher than the controls. Those children who were in for the third year only, also still score higher than the controls. There are no differences in scores for the consistent 2-year groups. They are higher than the controls, but equal to each other.

The scores on the Caldwell Preschool Inventory show that the first-year-only group scored higher than the controls, but the other single year

groups did not. Both of the two-consecutive-year groups scored higher than the controls, but not differently from each other. The second-year-only group has consistently scored low at ages 3, 4, and 5, although there was no difference on the Griffiths measure at entry point into the group.

I have an idea that there are at least two factors involved. First, we knew pretty well what we wanted to do in the sequence of materials from 3 months to 12 months, but we were a lot more vague about materials to use from 12 months to 24 months. We did a lot of experimenting, on a trial and error basis, all during the year. Second, I believe that you have something going for you in the first year that you don't in the second. The child is growing very rapidly in the first year of life, and I am perfectly willing to take advantage of magic! (If the mothers assumed that this magic growth was partly the result of what we were doing, that served as a positive reinforcement for the mothers.) However, growth slows down in the second year of life, and the children become a good deal more mobile. They do not want to sit still and pay attention in the same fashion.

Of critical importance is the fact that we are able to demonstrate, four years later, the effects of a minimal intervention program in the first year of life. It will be important, however, to see if these effects hold up at age 6 and what happens as the children move on into school.

A second time assumption concerned length of time the children were in this program. Is it a case of "the longer the program, the better?" The analysis of Stanford-Binet and PSI scores shows that there is not any nice, neat pattern of the longer the better. What emerges is that the combination of earliness, length, and consistency of treatment.

The third set of assumptions had to do with sex differences. We have examined our data in a variety of ways: within treatment groups, across

treatment groups, and regardless of treatment groups. The Stanford-Binet scores show no significant difference at age 5 by group, but there are some differences on the Preschool Inventory for those children who were in the program for two consecutive years. Otherwise, the picture does not seem completely clear.

The TOB is a measure of task-oriented behavior which Earl Schaefer derived from the Bayley observation form used during Bayley testing. We have been using it with our testing at each year. We find no sex differences. We find no differences on our rating, based on observation in the Home Learning Center, of effectiveness motivation (Kronstadt, 1973). Lally (1968) found that there was a sex-by-treatment effect at age one; the significant differences between experimentals and controls on the Griffiths seemed to be due to the girls. In Resnick's (1972) study of the language of two-year-olds in a free play situation, there were no significant differences by sex in expressive language; but by age 3, according to the 27 different ways in which he scored his tapes, he found that measures favored the expressive language of girls, and 10 of these were significant, including the number of words used, the number of different words used, and the mean length of remark.

We believe that the sex differences are not so much quantitative (although when they are, they favor the girls), but qualitative, in terms of the interrelationships among variables. In my view, this organizing concept, how the variables are put together, is both more intriguing and more useful than score-by-score comparisons.

The fourth set of associations is related to affect. Although we have used such terms as intellectual stimulation and intellectual performance measurements such as the Griffiths, Bayley, and Binet, we were also concerned with affective development of the child. There are, as you well know, a number of severe problems in this area. There is just no satisfactory way to measure self-concept

in the 3-month-old, 1-year-old, 2-year-old, and even the 3-year-old. What we had to do was use some other measures and theoretically link them as reflecting aspects of self-concept. We used the SEMS, an event-sampling procedure still not fully analyzed (Weld), and the Task Oriented Behavior (TOB) scores. At age 3, the SEMS scores are related to Stanford-Binet, although the trend is for this to be more true for girls. Boys' SEMS scores are significantly related to TOB, girls' are not. SEMS scores are related to Resnick's major child language variables: vocalizations, number of words used, number of different words used, mean length of remark, number of nouns used and number of verbs used (Kronstadt, 1973). Earl Schaefer[ii] takes the position that expressive language is not only an intellectual variable. He has found a number of relationships between it and other ways in which he measures affect. It is interesting that the effectiveness motivation, as measured by observing behavior of youngsters in the backyard center, was significantly related to the expressive language output of children in the 5-minute free play situation set up by Resnick.

TOB has been highly related to the intellectual test scores of children ages 3, 4, and 5. If TOB is a measure of self-concept, then we can see the relationship here between this aspect of affect and cognition. Further, Resnick (1972) found that the expressive language measures of children at age 2 were highly predictive of Stanford-Binet scores of children age 3. We have a commitment to the viability of the concept "self-concept," but we are still struggling with the measurement problem.

Maternal and Family Characteristics

We began our parent education program because, in 1966, people were making

---

[ii] E. Schaefer, personal communication, December 13, 1972.

an assumption that one of the reasons that children do not do well in school is because something is wrong in the home (labeled the deficit model). So our first assumption was that the lower class mother, as defined by income, does not necessarily see herself as a teacher of her child. She lacks effective motivational and instructional techniques. Long range gains depend on changing the home so that the mother sees herself as a teacher of her child, and possesses skill in teaching her child. We assumed (and let me stress the word "assumed") that the mother entered the program with a lack of skill in teaching the child and a lack of orientation toward self as teacher. Since our early programs we had no way of assessing "the skill of the mother," this was only an assumption, and we proceeded on our way using this assumption. In 1973 we would explore this whole area in quite a different fashion, but our goal at that time was to increase the ability of the parent to teach her child specific activities. The instructional situation characteristic was therefore to send somebody into the home to show the mother how to do a specific activity, encourage her to try it with the child, and to follow up with weekly home visits, introducing a continuous set of materials. The home visitors would talk with the mother about how well the child was doing, and involve her in the operation.

We have been able to assess maternal teaching skill through use of the videotapes in the ISIS project (Gordon and Jester, 1972). We used a variation of the reciprocal categories scale which was based on interaction process analysis and involved the observations of parent educator, mother, and infant. A behavior was assigned to a category every three seconds and these behaviors were then paired. We analyzed by examining the pattern of interaction between 7 and 12 months of age as predictive of Bayley Mental Development Index scores at age one. We found that there were very clearly some teaching patterns that related positively, and others negatively, to the child performance at age 1.

The positive pattern was the "ping-pong pattern:" I do something, you do something, I do something, you do something. It is a very rapid transactional pattern. On the other hand, sustained adult behavior, talking to the child without allowing him to respond or necessarily paying any attention to his responses, (typical professorial behavior) has a negative correlation to Bayley scores. What is fascinating about these two findings is how closely they tie in with Soar's work in Follow Through (Soar, 1972) and with so much of the classroom systematic observation research. Mothers within this population vary considerably in how much of this pattern they use. Therefore, it is quite possible now that we have, if we wanted to start over again, a way of measuring entering behavior of parents that we did not have back in 1966 (Table 10). Furthermore, results indicate that one of the basic assumptions on which so many projects rested, that of a homogeneous deficient population, is just not true. Some of the mothers were extremely skillful in "ping-pong" behavior at the end of the project, and had probably been extremely skillful before we were ever involved with them. But other mothers were unskillful at 12 months, especially those in the control group. Jester and Guinagh (1972), used parents as readers, and found a great range in the ability of parents to read stories to their young children. The assumption that mothers lack skill is true for only a portion of the population: but for that portion, I think we were effective in influencing their behavior.

A second assumption related to affect is that children learn from their experiences. It is not a revolutionary idea that children living in a home having a wide variety of materials, such as books, toys, magazines, etc., might be learning that intellectual activities are not important. There were indeed a considerable number of homes in which such materials were lacking. In our infant project we supplied materials we thought were needed by building some

TABLE 10

RCS Items Used as Criteria for Defining Teaching Skill

Categories	Behavior Description
Instructional Interaction	
15/20	Baby responds, mother initiates
24/15	Mother elicits, baby responds
26/15	Mother initiates, baby responds
27/15	Mother directs, baby responds
15/24	Baby responds, mother elicits
15/27	Baby responds, mother directs
Affective Interaction	
11-19/21,22,23	Baby behaves, mother warms, accepts, amplifies
Baby Sustained Activity	
15/13	Baby responds, baby amplifies

From I. J. Gordon and P. E. Jester, Instructional Strategies in Infant Stimulation. JSAS, Catalog of Selected Documents in Psychology, 1972, 2, P. 77.

of our home tasks around these and introducing them in a meaningful fashion into the home. We provided Dagny and Life magazines and other printed materials. We provided toy-making experiences by teaching mothers to use simple objects and materials around the house for making mobiles, dolls, and games. Mothers were interviewed when their children were age 3 by a team consisting of an anthropologist and a psychiatric nurse, neither of whom were heavily involved in the project. Mothers in the experimental group indicated were significantly more involved in child play with their children, in bring materials into the home, and in buying more educational toys than were the control group mothers. On the other hand, the tester who asked the mothers some questions while she was doing the testing, found that about 40% of the control mothers (unidentified to her) indicated that they had learned of the value of some of these things simply by watching the child's behavior in the testing situation. The question has been raised about the effects of testing as an intervention. If you recall our child effects, testing is insufficient, because both the experimental and the control groups had continued testing. Program effects overshadow testing effects.

The third and very basic set of assumptions has to do with language. There is much discussion in the current literature on the deficit versus difference approach to language. Nevertheless, our 1966 assumption was that the child structure of language, his linguistic development, is determined by the linguistic pattern in the home. According to interpretations of Basil Bernstein (1961), a child exposed to a simple linguistic pattern in the home would have more difficulty developing and learning abstract concepts. This theoretical area is controversial; Bernstein himself does not hold this position at the present time. Linguists now feel that all languages have common characteristics, and that any language can express abstract concepts. But I would take the position that how a language is used in the home makes a tremendous difference in the development of a child. We assumed that in a "lower class"

home the frequency of adult interaction with the child would be less than in "favored" homes, and that the kind of language used with the child might be more of the ordering, forbidding, and commanding type than the reasoning, questioning type of language. Therefore, we tried to build the use of verbs and adjectives and total sentences and questions into our materials.

Resnick found that several of his variables were significantly related to the Stanford-Binet score at age 3. Two major variables were: (1) the number of different words that mothers used, and (2) the mothers' interrogatory sentences to their 2-year-old children in a 5-minute free play time. The correlations between these two maternal variables at child age 2 and the Stanford-Binet at child age 5 is approximately .50. Considering the 3-year-gap, and that the language sample had been very small (5 minutes), the finding supports the notion of the strong relationship between home use of language and child intellectual performance. Again, we find wide variability in the group. But Resnick's data and our follow-up study indicate a clear relationship between maternal language behavior and child performance within this population.

Another language assumption is that the important time in language development is the receptive language period, 0 to 2 years of age. The pattern of interaction of language at that time, before the child is doing much talking himself, is critical. We assumed that in "lower class" homes there was a low frequency of conversation directed at the child. This does not mean that the mother lacks language, but rather, that she does not have a verbal interaction pattern with the child. The child may be surrounded with a lot of people talking, but they are not talking to him. In a number of homes, children are getting language input from television and radio, but it is mostly background noise. It is not being directed specifically at these children, nor does it require any kind of response from them. Since we were concerned about increasing the frequency

of verbal interaction, we stressed the importance of language in the home visit, providing a variety of words in relation to each activity.

Our data come primarily from the Parent Educator Weekly Reports (PEWR) completed by the parent educators after each home visit. Included was a very short checklist about the presence of certain verbal activities, such as: did the mother use words with the child? Did she speak directly to the child, face to face? This checklist of 13 items is very primitive. There were no frequency counts (verbal interaction simply occurred or did not occur), and no allowance was made for the length of time parent educators were in the home. Nevertheless, Jester and Bailey (1969), who studied the first experimental group, Herman (1971) and Etheridge (1971), who analyzed language as part of larger investigations of maternal effects on the performance of 2-year-olds, all found significant low but reliable correlations (in the 30's) between the language behavior as gathered on that primitive scale and the child's performance on the Griffith's measure at age 1, and on the Bayley measure at age 2.

The reciprocal categories tapes were examined to see if the program resulted in increased amount of interaction between mother and infant and the amount of instructional interaction. There is a rising line from 3 months to 12 months in both the amount of general mother-infant interaction and mother-infant instructional interaction. This is an indication that we achieved the goal of increasing the frequency of verbal interaction. Further, we demonstrated a positive relationship between adult language and child performance (Gordon and Jester, 1972).

The fourth maternal set of variables was affect. The literature in the early 1960's suggested that disadvantaged mothers saw themselves as inadequate, that they had lower self-esteem than middle class parents, that they had less feeling of control over the environment and more feeling of being victims of fate and circumstances. We thought that a program such as ours might change

that picture. Our assumption was that when the mother realized that what she was doing with the child was paying off, she would feel more adequate as a teacher and mother. We also assumed that she had low self-esteem when she entered the program and our goal was to raise her self-concept. Because of the time it took to develop the scales, we were not able to use them on the original 1966 population. We used them only on the second cohort involved in the curriculum comparison study (Gordon, 1969c). We found that the How I See Myself scale did not show any significant change from the mother's score when the child was 12 months of age. Since then we have refactored that instrument on the Follow Through population but we have not yet reanalyzed these data. The Follow Through data suggest that this program does lead to the improvement of self-esteem as measured by the How I See Myself scale (Greenwood et al., 1972).

Bilker (1970) modified the language of the Rotter I-E Scale with the help of the parent educators. We labeled it the Social Reaction Inventory. We felt that the mothers entering the program would have a high belief in external control of reinforcement. Our hypothesis was that as a mother saw that what she was doing with her child was really having an effect, she might begin to feel she had more control over what happened to herself as well as to her child. When the same group of mothers was studied on the How I See Myself scale, mothers moved to a more internal view. When we compared our mothers with other samples, they were more external than at least a comparative national high school sample using the standard I-E scale, and were more external than parent educators employed in the Florida parent education projects in the 11 communities in which we work. Parents in the Florida Follow Through program have moved toward a more internal view (Greenwood et al., 1972).

Both of these schedules are self-reports; they are weak measures of what we are after. One can question their validity. We could say that if the

parents have moved toward more sense of control and more self-esteem this should show up in what they do. We have studied the housing patterns, birth rates, and the involvement of the children in other programs after leaving this program. The experimentals have improved their housing patterns by moving to better housing as it opened in the Gainesville area, and by moving less often than previously. The average experimental mother had about three children when she started the program and the average control mother had three-plus children. The experimental mothers have given birth to fewer children, even after leaving the project (Gordon, 1971, 1972). The program supplied no information. When parents were interviewed more of the experimental mothers reported that they had tried to put their children into other kinds of child development programs than did the control. These are side effects, but I think worthwhile side effects. I believe they relate to control over the environment.

The fifth maternal assumption was that the mother's different expectations for boys and girls would influence her behavior and child performance. We were not only interested in the sex differences in child performance, but also in the ways that mothers might relate differently to boy and girl babies. We have many findings on this particular dimension. We assumed that there would be different socialization patterns and different verbal behavior and different attitudes toward boys and toward girls. Two dissertations, Herman (1971) and Etheridge (1971), examined the relationship between maternal variables and the scores of the children on the Bayley scales at age 2. They found that (1) maternal attitude index and amount of positive verbal behavior on the PEWR differentiated mothers of high from low scoring boys and girls on MDI and PDI (Herman), (2) SRI and HISM factor scales differentiated mothers of high and low boys (Herman), (3) extent of talk on PEWR differentiated high and low boys

and girls on MDI and PDI (Etheridge), (4) HISM factors score differentiated high and low boys on MDI (Etheridge), and (5) HISM factor scores differentiated high and low boys on TOB (Etheridge). In general, maternal self-attitudes, maternal verbal behavior, and maternal attitudes toward the project seemed to be more influential in determining (within the experimental group of boys) those boys that scored high and those that scored low. There is an effect for the girls, but the predominant effect is for the boys. We have the interesting situation that treatment effects seem to be more related to the girls, maternal personality and behavior within the experimental group seems to be more influential on boys.

The ISIS project was designed to shed further light on the above problem. In the ISIS project we compared professional with paraprofessional teaching of boy and girl babies both when babies were taught directly and when mothers were taught and later taught their babies. We found fascinating sex-by-treatment differences. For example, girl babies taught (either directly or through the mother) by professionals, averaged 12 points higher on the Bayley than did the boy babies they taught. No such differences appear for the paraprofessionals, and the overall test score averages are equal for the two parent educator groups. The same pattern held on our other measures. Examination of the interaction data indicate that professionals seemed to attend more to the mothers, particularly the mothers of girls: paraprofessionals seemed to attend more to the baby. Recall that the poor (negatively related to BMDI at age 1) teaching pattern was sustained adult talk. The professionals used this pattern with higher frequency when the children were from 3 to 12 months of age (especially with the boys). Sustained baby activity was a pattern related to BMDI. Again, professionals seemed to encourage less of this when they taught the child directly, than did the paraprofessionals; and again, the boys taught by professionals show up at the bottom (Gordon and Jester, 1972).

We do not know why this picture emerged, or whether it is replicable. There is still a great deal to be learned, and ISIS raised more questions than answers about early socialization as a function of sex.

We had several demographic assumptions. We found a significant but low correlation between amount of mother's education and Stanford-Binet scores at age 5. There were some indications that these homes were crowded, but no clear picture of effects. We found no solid support for the general assumption that marital status affects a child's test performance.

The Griffiths measure and our series items have been factor analyzed (Maurelli, 1969, 1971), and we have begun studies across age on the various tests. We have, as I mentioned earlier, considerable data yet to be analyzed, particularly of the type in which early information is related to later performance.

Implications

At the simplest level, we have demonstrated the efficacy of one approach to parents of young children which seems to have a lasting effect not only on the children but also on some aspects of family life. We have also demonstrated that such a program should not confine itself to only the traditional experimental-control design, but that much which needs to be learned comes from a program of multivariate studies of factors within the experimental group, both demographic and personal, which influence the course of events. Our data show that the so-called disadvantaged group is by no means homogeneous, and that neither is the middle class group with whom we've worked in Follow Through and other spin-off programs. Programs, therefore, must move away from oversimplified and erroneous concepts built around such terms as either deficit or difference models. We need to move toward better subject-by-treatment designs. This will require the development of effective measures

of parents' entry skills. Here, I believe we have made a contribution through the ISIS project.

As we examine our procedures, we know with much confidence that the basic model works. It can be done and it can be transplanted. We have also learned that the model is acceptable to parents across social class, income and ethnic lines. In spite of earlier criticisms by some naive sociologists, the program, both in the infant and Follow Through projects, is perceived by parents from all groups as helpful and desirable, as strengthening the role of the family and supporting parents' desires for their children.

Improvements in the delivery system need to be made, in keeping with what we have learned about parent educator-mother-baby interaction. Examination of the videotapes, for example, shows that a major problem is convincing parent educators to be more open and flexible and less ordering and autocratic. It is a matter of training. With a videotape system we can engage in a more careful prescription of the training operation than we were able to do earlier. We would want to capitalize on encouraging more of the ping-pong behavior that we did originally. We have developed a preliminary list of what we call desirable parenting behaviors which we did not have before. There is a task orientation problem which occurs when the parent educator demonstrates an activity with the child. The parent often focuses on the activity and forgets the child, failing to attend to the cues the child is giving and urging the child to get the activity done. We would now suggest: let the child stay with an activity without interruption, if possible; attend more to the comfort of the child than to the activity; respond to what the baby is doing; play and talk with him. If the child is doing something, do not interrupt; let the activity you want flow from the child's behavior. These are different suggestions than we could have stated in 1966.

We have also developed a preliminary list of parent educator "do's" and "don'ts." Parent educators interrupt mothers, pull the attention of the child from the mother, and do not play ping-pong with the mother. There is a good deal more precision we could introduce in training.

Another area which needs improvement is the measurement of the affective domain--both for adults and children. Our results show that even with limited measurement tools there is a relationship between maternal affective factors and child cognitive development; there is a relationship between cognition and affect in the children; that the program has an impact beyond intellectual performance scores. However, we need far more knowledge, which requires better measurement, so that we can help parents in the affective domain to view themselves better and to relate to the child in mentally healthy ways which enhance his sense of self-esteem.

Although we have made progress, we have a way to go yet. Continued progress will require the cooperative work of many longitudinal studies, and, of course, hard cash. I believe we have shown that such money is well spent, in terms of our goals for sound and effective family life.

References

Bernstein, B. Social class and linguistic development: A theory of social learning. In A. Halsey, J. Floud, and C. Anderson (Eds.), Education, economy and society, New York: The Free Press of Glencoe, 1961, 288-314.

Bilker, L. Locus of I-E control expectancy and expectancy changes in disadvantaged mothers. Doctoral dissertation, University of Florida, 1970.

Bradshaw, C.E. Relationship between maternal behavior and infant performance in environmentally disadvantaged homes. Doctoral dissertation, University of Florida, 1963.

Etheridge, F. The relationship of marital status of the mother and sex of the infant to maternal variable scores and infant performance. Doctoral dissertation, University of Florida, 1971.

Gordon, I.J. A parent education approach to provision of early stimulation for the culturally disadvantaged. Final report to the Fund for the Advancement of Education established by the Ford Foundation, 1967. Mimeographed.

_____ (Ed.). Criteria for theories of instruction. Washington,D.C.: Association for Supervision and Curriculum Development, NEA, 1968.

_____ (Ed.). Reaching the child through parent education: The Florida approach. Gainesville, Fla.: Institute for Development of Human Resources, 1969a. (Available through ERIC-ECE, Urbana, Ill. #ED-057-330).

_____ The Florida parent education projects: A schematic representation. Mimeographed. Prepared for SSRC Conference, May 1969. Gainesville, Fla.: Institute for Development of Human Resources, 1969b.

_____ Early child stimulation through parent education. Final report to Children's Bureau, Department of Health, Education and Welfare. Mimeographed. Gainesville, Fla.: Institute for Development of Human Resources, 1969c. (Available through ERIC-ECE, Urbana, Ill. #ED-038-166).

_____ Developing parent power. In E. Grotberg (Ed.), Critical issues in research related to disadvantaged children. Princeton, N.J.: Educational Testing Service, September 1969d, Seminar #5, 1-24.

_____ Stimulation via parent education. Children, March/April 1969e, 16(2), 57-59.

_____ Baby learning through baby play. New York: St. Martin's Press, 1970 a.

_____ Reaching the young child through parent education. Childhood Education, February 1970 b, 46(5), 247-249.

_____ A home learning center approach to early stimulation. A progress report on Grant #5-R01-MH-16037-03, Gainesville, Fla.: Institute for Development of Human Resources, July 1971.

_____ An instructional theory approach to the analysis of selected early childhood programs. In I.J. Gordon (Ed.) Early childhood education, seventy-first yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press, 1972 a, 203-228.

_____ A home learning center approach to early stimulation. A progress report on Grant #5-R01-MH-16037-04, Gainesville, Fla.: Institute for Development of Human Resources, June 1972 b.

_____ The social roots of competence. National Institute for Mental Health project statement. Mimeographed. Gainesville, Fla.: Institute for Development of Human Resources, 1972 c.

Gordon, I. J., Guinagh, B., Jester, R. E., & Associates. Child learning through child play. New York: St. Martin's Press, 1972.

Gordon, I.J., & Jester, R. E. Instructional strategies in infant stimulation. JSAS, Catalog of Selected Documents in Psychology, 1972, 2, 122.

Gordon, I. J., & Lally, J. R. Intellectual stimulation for infants and toddlers. Gainesville, Fla.: Institute for Development of Human Resources, 1967.

Greenwood, G. et al. Assistance to local Follow Through programs, Final Report, December 1972. Gainesville, Fla.: Institute for Development of Human Resources and Florida Educational Research and Development Council, 1972. Mimeographed. 53 Pp. plus appendix.

Herman, S. The relationship between maternal variable scores and infant performance in a Negro experimental stimulation population. Doctoral dissertation, University of Florida, 1971.

Jester, R. E. The effect of reinforcement infant performance. National Institute for Mental Health project statement. Mimeographed. Gainesville, Fla.: Institute for Development of Human Resources, 1972.

Jester, R. E., & Conley, J. Hearing-speech scores on the Griffiths Mental Development Scale as a function of language usage in the home. In I.J. Gordon & Associates, Reaching the child through parent education: The Florida approach. Gainesville, Fla.: Institute for Development of Human Resources, 1969, 21-31.

Jester, R. E., & Guinagh, B. J. How parents read to children. Theory Into Practice, June 1972, 11(3), 171-177.

Kronstadt, D. The relationship of motivation to achieve, and intellectual functioning, language ability, and behavioral functioning in three-year-old disadvantaged children. Doctoral dissertation, University of Florida, 1973.

Lally, J. R. A study of the scores of trained and untrained twelve month old environmentally deprived infants on the "Griffiths Mental Development Scale". Doctoral dissertation, University of Florida, 1969.

Maurelli, J. A factor analytic study of a series of intellectual stimulation tasks for infants and toddlers. In I. J. Gordon & Associates, Reaching the child through parent education: The Florida approach. Gainesville, Fla.: Institute for Development of Human Resources, 1969, 32-44.

Maurelli, J. A factor analytic study of the Griffitns Mental Development Scale. Doctoral Dissertation, University of Florida, 1971

Resnick, M. B. Language ability and intellectual and behavioral functioning in economically disadvantaged children. Doctoral dissertaiton, University of Florida, 1972.

Soar, R. S., & Soar, R. M. An empirical analysis of selected Follow-Through programs: An example of a process approach to evaluation. In I. J. Gordon (Ed.) Early childhood education, seventy-first yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press, 1972, 229-259.

Weld, G. L. Behavioral correlates of intellectual performance among disadvantaged three year old Negro children. Doctoral dissertation, University of Florida, unfinisned.