DOCUMENT RESUME

ED 057 880 PS 001 994

AUTHOR Gordon, Ira J.; And Others
TITLE Reaching the Child through Parent Education: The Florida Approach.
INSTITUTION Florida Univ., Gainesville. Inst. for Development of Human Resources.
PUB DATE [69]
NOTE 130p.; Edited papers from two symposia presented at the American Educational Research Association National Convention, February 1969

EDRS PRICE MF-$0.65 HC-$6.58
DESCRIPTORS Child Development; *Disadvantaged Youth; Early Experience; Economic Disadvantagement; Environmental Influences; Family Environment; Indigenous Personnel; Infant Behavior; *Infants; *Intervention; Mental Development; Mothers; Parent Child Relationship; *Parent Education; Research Projects; *Stimulation; Verbal Development
IDENTIFIERS Florida; *Project Follow Through

ABSTRACT

Activities of the Institute for Development of Human Resources provide the information contained in this document. This first large-scale project of the institute was in parent education of disadvantaged mothers in the north central Florida area. The purpose of the project was to investigate a way in which early intervention into the lives of babies might break the poverty cycle, the intervention technique being the use of disadvantaged women in teaching mothers how to stimulate their infants. As a result of this project, the institute became one of the program sponsors for the Follow Th[illegible]gh Program, which reflects the synthesis of strong institu[illegible]erests--parent education, cognitive and language develop[illegible] and systematic observation. The 11 papers of which this document is comprised represent individual studies resulting from either the original project or from the Follow Through Program. The chief topics of discussion are: The Disadvantaged Infant; and The Parent Educator as a Paraprofessional Agent of Change in the Education of the Disadvantaged. (DB)

REACHING THE CHILD THROUGH PARENT EDUCATION

THE FLORIDA APPROACH[1]

Ira J. Gordon and Associates

Institute for Development of Human Resources
College of Education
University of Florida
Gainesville, Florida

[1] Edited papers from two symposia presented at the American Educational Research Association National Convention, February, 1969.

FOREWORD

The Institute for Development of Human Resources is an interdepartmental research agency of the College of Education, University of Florida. As these papers from the two AERA symposia indicate, a major thrust of the Institute is programmatic investigation in field situations of the effects of infant and early child stimulation through parent education on both mother and child. The Institute was organized in September 1966, and its first large-scale project was in parent education of disadvantaged mothers in the north central Florida area. The first symposium represents individual studies growing out of that original project.

Because of the efforts of the Institute in this direction it was asked in February 1968 to become one of the program sponsors for the Follow Through Program. The papers in the second symposium present aspects of this phase of the Institute's activities. Preceding each symposium is a brief orientation paper designed to present the overall project inside of which these individual activities are being conducted.

The Institute was designed to foster faculty research and to provide means for faculty to develop their own interests and activities within the broad framework of programmatic research. The Follow Through Program reflects the synthesis of several strong Institute interests--parent education, cognitive and language development, and systematic observation. A separate Institute report, edited by Brown, presents our view of systematic observation. Here it is indicated only in some of the research instruments.

In addition to the concern for faculty development, members of the Institute have seen the encouragement and development of graduate students in both research training and research activity as an important

function. As an indicator of this interest, three of the five papers in the first symposium are by graduate students.

I wish to express my appreciation to the professional and clerical staff of the Institute as well as to Dean Bert Sharp of the College of Education for the efforts all made to prepare this report in time for dissemination at the AERA Convention, February 1969.

Ira J. Gordon, Director

TABLE OF CONTENTS

Early Child Stimulation Through Parent Education 1

IRA J. GORDON

THE DISADVANTAGED INFANT

IRA J. GORDON, Editor

Verbalizations of Environmentally Deprived Two-Year Olds as a Function of the Presence of a Tester in a Standardized Test Situation 13

MICHAEL B. RESNICK, GARY L. WELD, and J. RONALD LALLY

Hearing-Speech Scores on the Griffiths Mental Development Scale as a Function of Language Usage in the Home. 21

R. EMILE JESTER and JOHN P. BAILEY, JR.

A Factor Analytic Study of a Series of Intellectual Stimulation Tasks for Infants and Toddlers 32

JOHN A. MAURELLI

A Comparison of the Scores of Trained and Untrained Environmentally Deprived Male and Female Infants on the "Griffiths Mental Development Scale". 45

GAIL S. SCOTT and J. RONALD LALLY

The Adaptation and Extension of an Infant Education Model to Selected "Follow Through" Projects. 57

WILLIAM F. BREIVOGEL

The Florida Parent Education Model. 68

IRA J. GORDON

THE PARENT EDUCATOR AS A PARAPROFESSIONAL AGENT OF CHANGE IN THE EDUCATION OF THE DISADVANTAGED

R. EMILE JESTER, Editor

The Measurement of Environmental Process Characteristics in Six Follow Through Communities 76

MALCOLM GARBER and THOMAS S. TOCCO

TABLE OF CONTENTS

The Parent Educator as Home Visitor 87

BETTY L. SIEGEL

Parent Educator as Classroom Aide 98

GORDON E. GREENWOOD

The Cooperative Development of Learning Tasks in the Florida Parent Education Follow Through Model 110

DORLAN MORK and JOSEPH SHEA

Contributors 122

EARLY CHILD STIMULATION THROUGH PARENT EDUCATION[1]

Ira J. Gordon

PROBLEM

The purpose of this project is to investigate a way in which early intervention into the lives of babies might break the poverty cycle. The project attempts to simultaneously raise the chances that the infant will reach a higher level of intellectual functioning and that the adult who mothers him will gain in competence and feelings of self-worth.

To achieve this purpose, the technique of using disadvantaged women to teach mothers how to stimulate their infants was developed in a pilot program.

The pilot program conducted from September, 1966 through August, 1967 (Gordon, 1967) demonstrated that disadvantaged women could be selected, instructed and placed in other disadvantaged homes to teach mothers ways to stimulate the perceptual, motor and verbal activities of their infants.

The stimulation procedure consists of a systematic series of perceptual-motor-auditory-tactile-kinesthetic inputs based upon a review of the theory and research on cognitive and affective development in the earliest years (Gordon and Lally, 1967).

The concept that the earliest years of life are critical in the development of not only the personality but also the intellectual development of the individual is becoming generally accepted by the scientific community and the society-at-large. However, there is a considerable empirical and theoretical gap between the generalization stated above and

[1] This project is supported by the Children's Bureau, SRS of the Dept. of Health Education and Welfare. The pilot was supported by the Fund for the Advancement of Education, and a longitudinal extension is being supported by the National Institute of Mental Health.

the systematic implementation of procedures to foster development. For example, the nature of the experiences which serve to stimulate development, and their sequencing, is not fully understood. The timing and amount of intervention are unknown qualities. The interplay of family climate and task is not clear. In addition to these scientific questions, we face practical questions as to how various populations can be reached to use what is known. Although laboratory work should be continued, the basic test of the concept must be conducted under field conditions. It is only as stimulation techniques are investigated under home conditions, without elaborate gadgetry, that the practical as well as scientific questions concerning the efficacy of stimulation can be answered. The importance of providing opportunities for children to function at their highest possible level has been well stated by Hunt. "Participation in our highly technological culture calls for high competence in the use of our symbol systems of language and mathematics and for ability to think and to appreciate evidence. The rapidity of technological change demands that all individuals have the ability to cope with change...." (Hunt, 1966, pp. 143-144). Based upon a series of programmatic investigations of child rearing, R. Sears (1957) hypothesizes that the differences between lower-class and middle-class child rearing patterns are a function of access to information. The general literature on cultural deprivation indicates that language training and other activities which contribute to development are either minimal or constricted in disadvantaged families. Because of this deprivation, potential is damaged.

Given the belief in the importance of early stimulating experience, and the data that it is not available to indigent families especially in the rural and small-town South, how do we bridge the gap? How do we transmit to indigent mothers the information, along with the skill, concerning ways to play with and interact verbally with their babies so as to enhance the babies' potentials for development?

The pilot program developed a way to educate these parents to provide their children with a good start, so that the poverty cycle in these families might be broken. As the children are better equipped to cope with school, they can move out of the indigent class into productive, meaningful work. Further, as the mothers learn to deal effectively with their infants, their image of themselves and their general helplessness may change.

The problem is to investigate the effectiveness of the particular technique developed in the pilot. It represents an innovation in child welfare services, which, if effective, extends the reach of the professional, and, in the long run, reduces the need for services as the participants become more capable of meeting their own needs.

OBJECTIVES

The objectives of this project are to find out whether the use of disadvantaged women as parent educators of indigent mothers of infants and young children (a) enhances the development of the infants and children and (b) increases the mother's competence and sense of personal worth. It is understood that these two objectives may have a functional relationship with each other, and our hypotheses will reflect this, but here we see them as two equally important outcomes which may be treated as inde-

pendent. It is, of course, understood that other approaches might accomplish such objectives. The aim here is to investigate whether this particular complex of activities accomplishes the goal.

In order to measure accomplishment of these two objectives, hypotheses have been developed relating to such classes of variables as: home situation, content of stimulation materials, amount of stimulation.

A third objective, simply stated, is to increase our knowledge of the home life of infants in this population. As Ainsworth has indicated, "To date, there is little published information about infants in their own natural habitat, the home." (1964, p. 1) In order to achieve this objective, a series of questions has been framed.

Hypotheses Relating to the First Objective[1]

1. At the end of their first year of life, children whose mothers were educated in the stimulation series will be more highly developed than those whose mothers received no instruction.

   a. They will perform successfully on more series tasks.

   b. They will score higher on standardized measures of development.

   c. They will have more awareness of color and race.

These three sub-hypotheses apply also to hypotheses 2, 3, and 4, and, in null fashion, to 5.

2. At the end of their second year of life, children whose mothers were educated continuously since the children's third month will be more highly developed than (a) those children whose mothers received

---

[1] First year progress report presented data supporting hypotheses 1, a, b, and 5. Rest of hypotheses will be tested by time of final report (June 30, 1969). This symposium presents data on hypotheses 14 and 15.

instruction in either the child's first or second year (b) those children whose mothers received no instruction.

3. At the end of their second year, children whose mothers were educated in only the first year will be developmentally more advanced than children whose mothers were educated in only the second year.

4. At the end of the first year of life, children whose mothers were educated in the series will be more highly developed than those whose mothers received a different pattern of instruction of an equal length of time.

5. There will be no difference between those children whose mothers received no instruction or visits and those whose mothers had monthly visits from nurses during the first year.

Hypotheses Relating to the Second Objective

6. Mothers who receive instruction will have higher expectancy of internal control than those who do not receive instruction.

7. Mothers who were educated in the series will have more elaborate language codes than those who were not educated.

8. Mothers who were educated in the series will have higher feelings of self-esteem than those who were not instructed.

9. Mothers who were educated in the series will have different voice qualities (pitch, loudness, tempo) than those who were not.

In all the above hypotheses, differences will also be a function of length and time of instruction. The longer the time, and the earlier the instruction, the greater the difference.

Hypotheses Relating to Interaction Between Objectives (a) and (b)

10. There will be a positive correlation between the mother's expectancy of internal control when the baby is six months old and the developmental level of the baby at 1 year and 2 years of age for those receiving instruction.

11. There will be a positive correlation between the mother's expectancy of internal control when the baby is six months old and the amount of verbal activity of the mother.

12. There will be a positive correlation between movement of the mother on internal control orientation from 6-21 months and success of the baby on the series tasks.

Questions Related to the Third Objective

1. What is the density and crowding situation in these homes? How many people are in the home, and what are the space conditions?

2. Who actually cares for the baby? How many play mothering roles?

3. What is the extent and nature of verbal interaction?

4. What is the marital situation?

5. What happens during the visit which disrupts instruction?

6. What is the health situation of the baby?

7. How many children does the mother have?

8. Will there be differences in mother's conceptions of the ideal infant, ideal male infant, and ideal female infant according to age of the infant, race, and parity? Will these differences be related to the mother's description and socialization of her own infant according to sex role?

Additional Hypotheses

13. There will be no difference within or between treatment groups as a function of the situation variables of: density and crowding, multiple mothering, number of children, marital situation, disruption, mother's sex-role expectation for the child.

14. Children in homes with higher levels of verbal interaction will be more advanced developmentally, within treatment groups, over those in homes with lower levels of verbal interaction.

15. Girls will be more advanced than boys, within treatment groups.

16. Within the groups receiving instruction in the series, both mothers' and children's development will be a function of the number of completed visits.

17. Children who are reported more often as ill will make less progress than those least reported ill.

PROCEDURES

(a) General Design

The major treatment variable is instruction of the mother by the parent educator in the stimulation exercises. This instruction is given once a week, in the home, on a regular home visit schedule. The mother is not only instructed in the mechanics of the exercises, but also in the general attitudes toward seeing them as play, to be engaged in at odd moments when both mother and child might enjoy them. These materials, and some skills in toy-making with paper, encouragement of all forms of play, are presented in such fashion that the mother learns by imitation of the parent educator, while the mother holds her own baby. The

mothering role is not assumed by the parent educator, who involves the mother in the actual task.

To test the hypotheses and questions, each family in the original sample from the pilot program was followed until all children reached their first birthday (February 28, 1968). The first baby reached his birthday about June 15, 1967, so that there is about an eight-month spread. As babies reached this birthday, the group containing the mothers who originally received stimulation were randomly assigned to the second year stimulation series or no stimulation group. As the original control babies reached their first birthday, the same type of assignment was made. This yielded four main groups: E_1, receiving instruction from the baby's third month to his second birthday; E/C, receiving instruction until the first birthday but not during the second year; C/E, receiving instruction in the second year but not the first, and C_1, receiving no instruction in either year.

TABLE 1

TREATMENT PLAN

Group	February 1968	Treatment 3 Mo.- 1 year	Treatment 1 year - 2 year
E_1	45	Series	Series
E/C	43	Series	Control
C_1/E	6	Nurse visits	Series
C_2/E	27	Control	Series
C_1/C	12	Nurse visits	Control
C_2/C	27	Control	Control
E_2	27	Series	Began 7/1/67
C_3	49	Other stimulation	Began 7/1/67
C_4	42	Control	Began 7/1/67

In order to investigate whether it is this particular series, or another pattern of equal amount of time spent in the home instructing the mother, three new groups (E_2, C_3, and C_4), selected in the same fashion as the original population, and randomly assigned to series stimulation, "other" stimulation, and control, were started in July, 1967. The two groups of mothers (E_2 and C_3) received instruction until the babies' first birthdays.

New parent educators, who did not receive training in the series, were recruited for half-time work from under-privileged mothers who were working in Head Start and other early childhood programs. They were assigned on an equivalent case load basis (one to five for half-time) to the C_3 mothers. This plan was adopted, rather than employing three new people, so as to control for the personality or other educator variables which might influence results with too few educators. They were trained in concepts of the importance of early stimulation, and developed their own instructional procedures and content based upon their Head Start experiences and their general backgrounds.

The treatment variables are thus: type and content of instruction (E_2 vs. C_3) length of instruction and timing of instruction (E_1 vs. E/C; E/C vs. C/E; presence of instruction (E_1 vs. $C_{1,2}$, E/C, C/E vs. C, E_2, C_3 vs. C_4).

The dependent variables are: changes in mother, and developmental level of the child. Specifics are contained in the hypotheses.

(b) Sample

Mothers and their infants were identified at the birth of the latter by the obstetrics staff of the Teaching Hospital of the J. Hillis Miller Health Center of the University of Florida. The criteria for selec-

tion, in addition to the economic code of "indigent" on the hospital admission form and residence in Alachua and eleven other counties were: single birth, no breech or Caesarian delivery, no complications to mother or infant, no evidence of mental retardation and no evidence of mother's mental illness. Assignment to experimental or control group was based on randomization of geographic area and avoidance of contamination.

(c) Data Collection

Table 2 indicates the type of data collected (or being collected) and the related hypotheses or questions.

TABLE 2

	Hypotheses or Questions
A - Infant Measures	
1. ST (Performance on series tasks)	H 1a, 2, 3, 4, 5, 13, 14, 15, 16, 17
2. Griffiths Mental Development Scale	H 1b, 2, 3, 4, 5, 13, 14, 15, 16, 17
3. RA (Goldman racial awareness test)	H , 2, 3, 4, 5
B - Maternal Measures	
1. PEWR (weekly observation by parent educator)	H 13, 14, 16, 17. Q 2, 3, 4, 5, 6 7
2. SRI (Social Reaction Inventory, a modification of Rotter's I-E Scale down to a fourth grade reading level)	H 6, 10, 11, 12
3. Markel Voice and Language Assessment (audio tape of mother when baby is 12 months)	H 7, 9
4. McCaulley EME (a semantic differential measure of mother expectancy)	H 13 Q 8
5. FOR (Final observation report, completed at 12 and 24 months by parent educator)	H 13, 17 Q 1, 4
6. HISM (Gordon, How I See Myself Scale, a self-report inventory)	H 8

References

Ainsworth, M. D. Naturalistic research into infant-mother interaction. Paper delivered at State University of New York, October, 1964.

Gordon, I. J. A parent education approach to provision of early stimulation for the culturally disadvantaged. A final report to the Ford Foundation, Fund for the Advancement of Education. Gainesville, Florida: Institute for Development of Human Resources, University of Florida, 1967.

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

Hunt, J. McV. Toward a theory of guided learning in development. In R. Ojemann and K. Pritchett (Eds.): Giving emphasis to guided learning. Cleveland: Educational Research Council of Greater Cleveland, 1966. Pp. 98-146.

Sears, R., Maccoby, E., & Levin, H. Patterns of child rearing. New York: Harper & Row, 1957.

THE DISADVANTAGED INFANT

Ira J. Gordon, Editor

VERBALIZATIONS OF ENVIRONMENTALLY DEPRIVED TWO-YEAR OLDS AS A FUNCTION OF THE PRESENCE OF A TESTER IN A STANDARDIZED TEST SITUATION

Michael B. Resnick
Gary L. Weld
J. Ronald Lally

INTRODUCTION AND PROBLEM

The importance of language in the development of cognitive abilities has been well established (Bernstein, 1961). A considerable body of research (Deutsch, 1967; Hess & Shipman, 1965; Jensen, 1967; Lally, 1968; Raph, 1965) strongly suggests that deficits in the area of language development are primarily responsible for the intellectual differences between environmentally advantaged and disadvantaged children. Available studies concerned with the learning characteristics of disadvantaged infants and children have generally found language deficit to exist (Gordon, I. J., 1967, 1968).

Remedial programs attempting to deal with the learning disabilities of the environmentally disadvantaged tend to focus their efforts on language (Shaeffer & Richmond, 1967). There is, however, some question, and little information, about the extent of this language deficit and about assessment techniques appropriate for its early detection. Therefore research must be done in the area of language development and assessment if significant improvements are to be made among the environmentally disadvantaged.

This study developed out of our experiences with disadvantaged infants both in the home and in the standardized testing situation. These experiences suggested to us that although there is a definite

deficit in language ability, it may not be as great as suspected. For example, we encountered an apparently greater amount of vocalization by the babies in the home, and even while being transported to and from the testing center, than was present during the administration of the test. During the testing situation we were repeatedly confronted with babies who were non-verbal during the test and quite verbal after termination of the test. Pasamanick & Knobloch (1955) indicated that the verbal behavior of Negro two year olds in a standardized test situation was affected by white examiners. We feel that not only race but also the test conditions might play a role in influencing expressive language behavior.

This study, therefore, was designed to determine whether our observations regarding verbal output could be demonstrated by controlled observation. If so, new means of assessment, in terms of both quantity and quality of language and its relationship to intellectual assessment, would be needed to provide a sounder basis for developing future remedial and preventive programs for disadvantaged children.

METHOD

Subjects

The subjects in this study were 25 environmentally deprived two year old male and female Negroes in the Early Child Stimulation Through Parent Education Project (ECSTPEP) population. Selection was based solely upon the age of the infant and no distinctions were made among the various treatment groups, resulting in a random selection of infants from each treatment group.

PROCEDURE

Audio tape recordings were made when the mothers and infants were brought to the J. Hillis Miller Health Center on the University of Florida campus to be evaluated with the "Bayley Infant Scales of Development." The testing room was equipped with ceiling microphones connected to an amplifier and speakers in an adjacent observation room. Recordings were made directly from the amplifier to minimize extraneous noise and loss of low volume utterances. Upon arrival, the mother was brought into the testing room, where many toys were easily accessible, and asked to play with her child alone for about 5 minutes to reduce the child's apprehension in the new situation. A continuous recording was made from the beginning of this 5 minute pre-test period to the conclusion of the test session.

Two data sheets were compiled, one for the 5 minute pre-test period when the mother and child were alone in the testing room, and a second covering the time from the entrance of the examiner to the end of the testing session. The elapsed time of the test session with the examiner present was calculated from tape footage and recorded in minutes. The following data were recorded for each period: 1) a tally of infant vocalizations, which included all utterances except laughter and crying; 2) a transcript of infant verbalizations, including all understandable words; 3) a transcript of word combinations used by the infant.

For purposes of comparison and analysis, the following calculations were made for each infant during the 5 minute pre-test period and the examiner-present period: 1) total number of vocalizations;

2) total number of words; 3) word/vocalization ratio (total number of words/total number of vocalizations); 4) mean length of word combinations (total number of words/number or word combinations); 5) number of word combinations.

In addition to these 5 variables, a "5-minute factor" was calculated (length of examiner-present period, in minutes/5). This provided a basis for projecting estimates of the total number of vocalizations and total number of words (variables 1 and 2) for comparison with the examiner-present period.

Using the 5 variables described above, means and standard deviations for each condition (i.e. 5 minute pre-test and examiner-present periods) and student's t tests (two-tailed) for differences between the 2 conditions on each of the 5 variables were calculated.

Results

The means, standard deviations, and t's for the 5 variables are presented in Table 1.

TABLE 1

VOCALIZATIONS AND WORDS IN PRE-TEST AND EXAMINER-PRESENT CONDITIONS

	Pre-Test		Examiner		
	Mean	SD	Mean	SD	
Unweighted number of vocalizations	45.0	34.4	246.6	208.2	-5.22**
Unweighted number of words	15.3	17.2	69.6	73.4	-4.00**
Weighted number of vocalizations	579.6	486.3	246.6	208.2	4.37**
Weighted number of words	207.4	232.5	69.6	73.4	3.15*
Word/vocalization ratio	.2929	.2172	.2648	.2076	0.56
Mean length of word combination	1.361	.5439	1.267	.3213	0.83
Number of word combinations	3.96	5.90	16.28	25.84	1.85

*$p < .01$
**$p < .001$

The total number of infant vocalizations ($t=-5.22 \not p < .001$) and the total number of words spoken ($t=-4.00 \not p < .001$) were significantly different in favor of the examiner-present condition when comparing the 5 minute pre-test period and the examiner-present periods.

The weighted 5 minute pre-test scores (calculated by multiplying the recorded frequency during the pre-test period by the 5 minute factor) were then compared with the examiner-present scores.

The results of the "t" tests were significant for the total number of vocalizations ($t=4.37 \not p < .001$) and total number of words spoken ($t=3.15 \not p < .01$); thus indicating a greater number of responses in the weighted 5 minute period. The word/vocalization ratio, the mean length of word combinations, and number of word combinations were not significantly different when the 5 minute pre-test was compared with the examiner-present periods. This indicates that the complexity of the babies expressive language showed no statistically reliable differences for both the 5 minute pre-test period and the examiner-present period. It should also be pointed out that when comparing the number of word combinations of the two year old babies between the 5 minute pre-test and the examiner-present situation 12 out of the 25 babies during the 5 minute pre-test had more or the same number of word combinations than in the examiner-present period.

Discussion

The results reported above support our expectations that there is a marked reduction in the number of infant vocalizations and number of words spoken during the testing situation. They also strengthen our

suspicion that the language deficit of disadvantaged infants is not as great as performance on standardized tests indicate. However, it is interesting to note that the levels of word/vocalization ratio and mean length of word combinations were not significant, suggesting that the differences were in frequency rather than in complexity of verbalization and language. This result indicates that research concerning standardized infant intelligence testing should be re-evaluated. These results lead to the question of the extent to which the reduction of speech and language affect performance on standardized intelligence tests. The problem of defining the causative factors contributing to this reduction of language is also presented. Should the effect of race and sex of the examiner be re-examined? The overall results of this study seem to suggest a re-evaluation of standardized test procedures for the disadvantaged to insure reliable performance levels and to improve the validity of test results.

Additional Questions and Research Problems

The findings reported above raise several problems related to the assessment of language and intelligence among the environmentally disadvantaged. The critical problem is the need for more precisely determining what factors present in the standardized test situation are responsible for restricted expressive language. These factors must be determined before accurate assessments of the extent of language retardation among the disadvantaged can be made. Another question which remains unanswered is the relationship between language indices and infant intelligence test scores. Explanation of this question should yield

information regarding the extent of the effect of reduced language on language items in infant intelligence tests. Finally, the degree to which language behavior in the test situation may be a function of the sex, age or personality of the child should be explored more fully.

Further investigations in these areas would provide basic knowledge about language behavior. They would also establish a better foundation for the development of remedial programs and intelligence testing techniques.

REFERENCES

Bernstein, B. Social Structure, language and learning. Educational Research, 1961, 3, 162-176.

Caldwell, B., & Richmond, J. The Children's Center - a microcosmic health, education and welfare unit. Progress report, Children's Center, Syracuse University, 3-1-67, Children's Bureau, Department of Health, Education, and Welfare.

Deutsch, M., & Associates. The disadvantaged child. New York: Basic Books, 1967.

Gordon, I. J. A parent education approach to provision of early stimulation for the culturally disadvantaged. Final Report, Institute for Development of Human Resources, University of Florida, 11-30-67, Fund for the Advancement of Education, Ford Foundation.

Gordon, I. J. Early child stimulation through parent education. Progress report, Institute for Development of Human Resources, University of Florida, 1968, Children's Bureau, Department of Health, Education, Welfare.

Hess, R. D., & Shipman, V. C. Early experience and the socialization of cognitive modes in children. Child Development, 1965, 36, 869-886.

Jensen, A. Social class and verbal learning. Child Development, 1967, 38, 65-87.

Lally, J. R. A study of the scores of trained and untrained environmentally deprived infants on the "Griffiths Mental Development Scale." Doctoral dissertation, University of Florida, 1968.

Pasamanick, B., & Knobloch, H. Early language behavior in Negro children and the testing of intelligence. Journal of Abnormal and Social Psychology, 1955, 50, 401-402.

Raph, J. B. Language development in socially disadvantaged children. Review of Educational Research, 1965, 35, 389-400.

HEARING-SPEECH SCORES ON THE GRIFFITHS MENTAL DEVELOPMENT SCALE AS A FUNCTION OF LANGUAGE USAGE IN THE HOME

R. Emile Jester and John P. Bailey, Jr.

A number of positions clearly suggest that an important variable related to a child's language acquisition is the language he hears as he is growing up. John and Goldstein (1964) have reviewed research and theoretical positions related to the social context of language acquisition. They derived their position from that taken by Vygotsky three decades ago "that the conditions influencing the development of speech (overt language) are also related to the development of verbal mediation (covert language)" (p.266). John and Goldstein cite evidence to support the view that children acquire the use of language primarily through their social interaction with adults. They further stress the importance of repetition and the amount of language interaction between adult and child. This position is generally in line with that taken by Hunt with respect to the theoretical writings of Piaget. Hunt (1964) has succinctly expressed what seems to be most relevant aspect of Piaget's position on early language acquisition: "spoken language--that is to say the motor side of the language skill--comes only after images of the central processes representing objects and events have been developed out of repeated encounters with those objects and events . . . " (p. 239). If we have interpreted the above authors correctly, then a central issue emerges with respect to the amount of language used in the presence of the infant. We suspect the more exposure to language the infant has, the more adequate his central store of information and images related to language will be. Therefore, his ability to process spoken words and respond to adults' verbalizations to him will increase.

Bradshaw (1968) investigated the relationship between the mothers' verbalizations and infants' scores on the hearing-speech subscale of the Griffiths Mental Development Scale (Griffiths, 1954). She worked exclusively with mothers and infants classed as controls in a larger project (Gordon, 1967). From three to twelve months of age her subjects were visited by nurses who recorded home verbalization. The size of the sample was very small with only eight girls and eleven boys used in the final analyses. Bradshaw failed to confirm a statistically reliable positive relationship. But when the data were plotted there was a clear trend associating higher levels of mothers' verbalizations with infants' scores on the hearing-speech subscale. An interesting although not statistically reliable result was that the mean score on the hearing-speech subscale for boys was higher than it was for girls. The amount of mothers' vocalizations also produced a significant difference in favor of the boys ($p < .01$). What this means is not clear from the Bradshaw data since the sample was so small that the power of the statistical tests was severely reduced.

Bradshaw (1968) estimated the amount of verbalization by mothers from a check-list completed by the nurse following each home visit. The check-list included the following items:

1. Talk words rather than sounds;
2. Repeat sounds the baby makes in a questioning way;
3. Listen to the baby when the baby talks;
4. In a few words, order or tell the baby to do or not to do things;
5. Explain and describe things when talking to the baby.

Each item was checked once if the behavior had been exhibited by the mother during a nurse's visit. The observations were then transformed

into numerical ratios consisting of observed occurrences divided by the total number of possible occurrences. These ratios were then correlated with the hearing-speech scores to test the hypothesis that a larger amount of verbalization by mothers would produce higher levels of performance by the infants on the hearing-speech subscale of the Griffiths. Failure to confirm this hypothesis may have been due to either the small sample size or to the fact that estimates of verbalization were based on only six items in the behavioral checklist. The present study was designed to remedy defects of the Bradshaw study by providing both a larger sample and a better estimate of verbalization. This should permit a clearer focus on the relationship between an infant's hearing and speech and his environmental verbalization.

METHOD AND PROCEDURES

Sample

The infants used in this study were all drawn from the larger Infant Stimulation Project. A total of 177 cases had been visited by the parent educator by the end of the first year. Of these, 124 had been administered the Griffiths within two weeks of their first birthday. The sample of 124 infants was further subdivided into two basic treatment groups. The first of these groups was subjected to a series of stimulation exercises developed from a Piagetian framework with the intent that specific tasks would be arranged in order of difficulty and developmental sequencing (Gordon and Lally, 1967). The other group was subjected to a series of tasks developed by a group of parent educators with no particular theoretical framework. All parent ed-

ucators were supervised by professionals in the field of child development. The basic difference between the groups lay only in the nature of the exercises used in the infant stimulation. A brief analysis of the two sets of materials suggests that the "Piagetian" set has fewer straight locomotor tasks and more concrete, specific directions for maternal behavior as well as more items which are of the "object permanence" type. The amount of language in both sets appears to be similar.

The sample thus consisted of 124 infants and their mothers with 102 infants subjected to the "Piagetian" stimulation exercises (group 1) and 22 infants subjected to the "home-made" tasks (group 2).

Measuring Instruments

The "Griffiths Mental Development Scale" (Griffiths, 1954) has been used in the Infant Stimulation Project as a measure of the child's intellectual development at age one. The Griffiths is divided into five subscales each of which purportedly represents a distinctive area of development. Although the subscale seemingly most appropriate to language development is the hearing-speech subscale (H-S), there is reason to expect that the personal-social subscale (P-S) would also reflect early influences on language. The personal-social subscale includes a number of items which clearly demand some receptive language ability. For example, items such as "turns head to persons talking" and "obeys simple requests" very clearly reflect a receptive language ability. Griffiths (1954) notes that a "good" score on the social subscale reflects an outgoing attitude to others which normally results in a conative trend towards speech (p. 90). It must be noted, however, that very few items on this subscale directly reflect either the child's receptive or expressive language.

The hearing-speech subscale reflects infant verbalization and vocalization to a higher degree than does the personal-social subscale. There are several items scored for attending to the language of adults as well as items scored for infant babbling and utterances. As the subscale approaches the one-year level, scores are assigned for the infant's use of "mama," "dada," and up to three intelligible words.

Estimate of Verbalization

The measure of verbalization was taken from the Parent Educator Weekly Report (PEWR) completed after each home visit by the parent educator. The PEWR includes a section for the parent educator to check categories related to verbal behavior. Each of twelve categories can be checked to indicate which of six persons in the home (parents, grandparents, etc.) did the verbalizing. For this study, the items were divided into the two types shown in Table 1.

Table 1

Items From the Weekly Report Used in Estimates of Verbalization

Growth Producing	Non-Growth Producing
Look directly into his face	Talk about him as though he were not there.
Talk words rather than sounds	Their tone of voice sounds cross and angry.
Tone of voice sounds soft and loving	Talk sounds rather than words (example: coo, goo).
Use the baby's name when speaking to him.	Interpret to others what the baby says.
Repeat sounds the baby makes in a questioning way.	
Listen to the baby when the baby talks.	
In a few words, order or tell the baby to do or not to do things.	
Explain and describe things when talking to the baby.	

Eight items were classed as likely to be "growth producing" and four as "non-growth producing." The classifications were based on the theoretical position taken by the authors that children acquire the use of language primarily through their social interaction with adults. The "growth producing" items were chosen because they seemed to reflect a social interaction which the others did not. The total number of checkmarks possible was 72 per visit: 48 growth producing and 24 non-growth producing.

Estimates of verbalization were derived as simply the average number of checkmarks per visit. There were at least 10 home visits conducted for each of the 124 cases used in this study, which offers assurance of a reasonably stable home verbalization measure. This method of assessing verbalization should provide more accurate estimates than the one used by Bradshaw (1968) since she dealt only with mothers' verbalization in six of the twelve categories.

RESULTS

Product moment correlation coefficients were computed in order to assess the relationship between verbalization and language development. These are presented in Table 2. No substantial correlations were found between estimates of growth, non-growth, or total verbalization and H-S or P-S scores on the Griffiths.

Table 2

Intercorrelations among Verbalization, Personal-Social (P-S), and Hearing-Speech (H-S), scores. Correlations above the diagonal are for group 1 (n=102) and below are for group 2 (n=22).

		1	2	3	4	5
1.	Growth verbalization		.67*	.93*	.15	.21*
2.	Non-growth verbalization	.09		.76*	.06	.05
3.	Total verbalization	.95*	.39*		.13	.13
4.	P-S	.05	.20	.02		.64*
5.	H-S	.30	.07	.31	.36*	

* $p < .05$

It is important to note that the correlation coefficient between growth verbalization and H-S is reliably different from zero (r = .21) for group 1; and while the same coefficient for group 2 is not significant it is of even larger magnitude (r = .30). It seems that the true relationship should produce an r lying somewhere between .20 and .30. Although Bradshaw (1968) reported a non-significant coefficient of .21, the present study not only is consistent with this for group 2 but the relationship is confirmed by group 1. It seems clear that there is a small but consistent relationship between growth verbalization in the home and hearing-speech scores on the Griffiths.

The means and standard deviations for verbalization estimates and Griffiths scores are presented in Table 3.

Table 3

Means and standard deviations of Verbalization, Personal-Social (P-S), and Hearing-Speech (H-S) scores by groups.

Variable	Group 1 "Piagetian," n = 102		Group 2 "Home-made," n = 22	
	$\bar{X}$	s.d.	$\bar{X}$	s.d.
Growth Verbalization	8.39	2.34	11.23	1.99
Non-Growth Verbalization	.87	.71	1.07	.67
Total Verbalization	9.16	2.97	12.31	2.16
P. S.	108.45	8.94	111.14	8.22
H. S.	100.85	14.79	97.85	16.96

An examination of these means and standard deviations reveals a number of interesting findings. Group 2, using the "home-made" tasks with no theoretical base, had significantly higher ($t = 4.5$, $d.f. = 120$, $p < .05$) total verbalization estimates than group 1 with the systematic series of tasks based on Piagetian theoretical concepts. This is a particularly curious finding since one might reasonably expect just the reverse to be true because the series tasks were built with the intent of increasing the mother's verbalizations while presenting the tasks to her infant. The matter clearly deserves further attention and research. In spite of the greater verbalization by group 2, however, there is no indication that their Griffiths scores were substantially higher.

In an attempt to define more clearly the relationship between hearing-speech scores and verbalization in the home, group 1 was split by thirds into high, medium, and low total verbalization and male-female categories. The high-low, male-female groups were then analyzed in separate two-by-two factorial designs using the Griffiths H-S and P-S scores as the dependent variables. Since the within-cell sample sizes were different an unweighted means analysis was used (Winer, 1960, pp. 241-244). The means and standard deviations are shown in Table 4.

Table 4

Means and Standard Deviations of Griffiths Scores As a Function of High and Low Verbalization in the Home.

	High Verbalization		Low Verbalization		Total Group	
	X	s.d.	X	s.d.	X	s.d.
P-S M	110.43	9.75	107.03	10.55	108.82	10.13
F	109.99	7.28	110.42	7.94	110.22	7.51
total	110.23	8.62	108.73	9.35	109.48	8.96
H-S M	102.83	17.93	96.97	15.49	100.06	16.85
F	103.46	7.93	100.51	12.65	101.89	10.65
total	103.11	14.22	98.74	14.04	100.92	14.20

Dependent variable differences were expected between sex of the infant, verbalization in the home, and perhaps an interaction. None of these differences was verified. In fact, the differences among the means were so small that the only reasonable conclusion is that the groups in each of the cells simply represent a random sample from the same population.

DISCUSSION

The results of this study do not substantially confirm the hypothesis that overall quantity of language in the home produces increases in hearing-speech scores on the Griffiths Mental Development Scale. There is, however, a strong indication that a small but reliable relationship exists between amount of growth verbalization in the home and the Griffiths H-S scores. The fact that the magnitude of the correlation coefficient was consistent for the samples used here

and the one used by Bradshaw (1968) is an indication that the actual correlation coefficient between these variables lies between .20 and .30. Although this is a small correlation, the relationship deserves further study in more precisely delineated designs.

Possible areas of improvement of the verbalization estimate include an assurance that the parent educator is actually recording what is intended, an assessment of frequency of verbalization by each family member, and a measure of the language level used in the home. Furthermore, there may be a need to purify the Griffiths hearing-speech subscale. As suggested both by Table 2 and by coefficients not herein reported, there is sufficient overlap between all subscales to provide evidence that they are not factorially pure. Clearly, a next step with the Griffiths may be a factor analysis of its test items.

CONCLUSION

We can neither accept nor reject a hypothesis of home verbalization having an effect on the hearing and speech of the infant. However, growth producing home verbalization does seem to be a promising avenue toward increasing infant verbalization.

REFERENCES

Bradshaw, C. E. Relationship between maternal behavior and infant performance in environmentally disadvantaged homes. Unpublished doctoral dissertaion, University of Florida, 1968.

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

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

Griffiths, R. The abilities of babies. London: University of London Press, 1954.

Hunt, J. McV. The psychological basis for using preschool enrichment as an antidote for cultural deprivation. The Merrill-Palmer Quarterly, 1964, 10, 209-248.

John, V., & Goldstein, L. The social context of language acquisition. The Merrill-Palmer Quarterly, 1964, 10, 265-276.

Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.

A FACTOR ANALYTIC STUDY OF A SERIES OF INTELLECTUAL STIMULATION TASKS FOR INFANTS AND TODDLERS

John A. Maurelli

PROBLEM

The concern of this study is to determine if Piagetian type schemata are empirically discernable in the behavior of the sample of disadvantaged children in the Parent Education Project.

Theoretical Background

Jean Piaget in studying the cognitive development of children has made a distinction between the structure, functioning and content of intelligent behavior. The concept of structure is termed schema which refers to the integrated and patterned cognitive structures which are reflected in behaviors initiated by the organism toward certain groupings of perceptual cues. Flavell defines schema as follows: "A schema is a cognitive structure which has reference to a class of similar action sequences, these sequences of necessity being strong, bounded totalities in which the constituent behavioral elements are tightly interrelated" (1963, p. 52). Within each person's cognitive domain many different schemata develop. The developmental process of schemata building is a unitary phenomenon involving the two faces of adaptation: assimilation and accommodation.

Throughout, and basic to, Piaget's formulations is the notion that growth and development are sequential and integrated. This is

also true of the development of schemata. ".....the organism can assimilate only those things which past assimilation have prepared it to assimilate. There must be a system of meanings, an existing organization, sufficiently advanced that it can be modified to admit the candidates for assimilation which accommodation places before it." (Flavell, 1963, p. 50)

The Parent Education Project stimulation series of exercises were based, in part, upon Piaget's formulations concerning the Sensory-Motor Period of development. The exercises were designed to teach the child to make discriminations such as hard-soft, big-small, to understand the permanence of objects, to attend to size, shape, color and various other perceptual cues that lead to the understanding of relationships within the environment. As part of the project assessment each child was tested at six, twelve, eighteen and twenty-four months of age on a "standardized" version of the series material. Graduate students were trained in the presentation of items and the criteria for success on the "Series Test." Each item was scored one or zero to indicate success or non-success by the infant.

At this point there was a theoretical framework for the development of cognitive structure during the Sensory-Motor period, a series of materials engineered to mesh with this theory and a sample of performance data on twelve month old children. It was then possible to raise the question, does performance relate to theory? In effect, do tasks group empirically into the type of schemata suggested by Piaget? The nature of there questions suggested the use of factor analysis.

Factor analysis is a statistical technique designed to determine the nature of underlying factors among a larger number of variables. This notion is consistent with Piaget's concept of schema. With each schema there are an infinite number of possible situations to which the organism can respond. The Series Test represents a number of specific situational variables for which there exists observational data. It seems consistent with both theories that there should emerge from these data a number of factors from which can be inferred the development of Piagetian type schemata among the sample of children who were exposed to the series of intellectual stimulation exercises.

PROCEDURE

During the course of the Parent Education Project a total of one hundred eighty-eight children were administered the twelve month Series Test. This test consists of thirty-eight items, beginning with Series IV; Exercise 1 and continuing to Series VIII; Exercise 8. On a prior analysis of these data, involving one hundred thirteen subjects, none of these children were able to complete Exercise 4, 5, and 6 in Series VIII, thus these three variables were not included in the final analysis. The raw data therefore, consists of thirty-five dichotomously scored variables for one hundred eighty-eight subjects. From this raw data the intercorrelation matrix was computed for the tetrachoric correlation coefficient. This intercorrelation matrix was then used as the input data for the Biomedical Computer Program BMD03M. Communality estimates for this analysis were derived from the maximum absolute raw values.

The limiting criteria for the number of factors to be rotated was one-fourth the number of variables or all vectors with eigenvalues in excess of 1.0000, whichever results in the fewest number of factors. Exactly nine factors met the minimum eigenvalue criteria which accounted for 69.48 percent of the total variance. These nine factors were then rotated to the varimax criterion. Table II is a presentation of the original 35 by 35 intercorrelation matrix, while Table I is a presentation of the final rotated factor matrix. In both cases decimal points have been omitted for legibility. Factor loading under 0.30 have also been omitted..

Results and Discussion

Of the nine rotated factors three relate to Piagetian object concept development; factors one, two and six. Factor four is an integration of several Piagetian concepts best described as anticipatory cues. Piaget's notions of reversibility manifest themselves in factor five, however, the factor loadings indicate that this is an item specific factor. Factor seven is also item specific. Small muscle development best identifies factor three, while the last two, factors eight and nine remain undefined.

Piaget addresses himself to a great number of developmental sequences in young children. One such sequence is termed the development of the object concept. The adult notion that objects are entities in and of themselves is not innate but is developed in the human organism in an orderly, sequential and identifiable manner. Piaget indicates that very young infants do not have the understanding that objects exist independently of the perceiver or that they continue to exist when

TABLE I

ROTATED FACTOR MATRIX

EXERCISE ITEMS	Factor 1 Object Concept	Factor 2 Object Permanence	Factor 3 Small Muscles	Factor 4 Anticipatory cues	Factor 5 Item Specific	Factor 6 Linguistic	Factor 7 Item Specific	Factor 8 Undefined	Factor 9 Undefined
1. Vocal imitation after name					-70				
2. Toy hidden in a box		45							67
3. Filling & emptying a box		38			75				
4. Hidden displacement of object		64							
5. "Behive" count to five									52
6. Screw jar top on and off			37		73				
7. Scribbling on paper			62						
8. Toy hidden in wrapping paper		61							
9. "Pop goes the weasel"				64					
10. Buttons through slot			54	44					
11. Guess which hand				77					
12. Three block tower			64						30
13. Toy hidden in match box			41		32	35			
14. Gives object requested						76			
15. Draw straight line on paper	35	-57						-38	
16. Point to parts of body	71		36					-37	
17. Group two sets of objects			33						
18. Crawls to get object requested						78			45
19. Readies for outdoor walk						50		35	
20. Points to people named						44		40	
21. "Row, row, row your boat				35				63	
22. Pouring water			68						
23. Shell game - same spot							69		
24. Points to picture named		33		45	53				
25. Imitates sounds of things	32			-31				42	
26. Replaces foamboard cutout	55	37	52						
27. Alternate block tower	71				-36				
28. Blocks around rim of pan	99								
29. Folds a piece of paper				31		47	-40		
30. Hide and seek								51	
31. Names familiar objects	70					62			38
32. Shell game - same can							75		
33. Grouping hard and soft	99								37
34. Turns pages of book alone			41					50	40
35. "Ring around the rosy"				79					

NB. Reported to 2 significant digits. Decimal points and loadings less than .30 have been omitted.

TABLE II

INTERCORRELATION MATRIX FOR 35 VARIABLES

ITEMS	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
1	355	-455	078	404	-500	104	-218	210	022	072	-001	-154	321	109	452	-020	367	028	-003	028	229	081	147	101	261	547	259	268	-059	126	080	259	-102	-248	1
2		305	300	233	028	058	396	116	125	040	302	093	-134	-045	-204	119	584	060	153	-035	008	-060	113	267	061	089	-325	279	218	014	166	-325	071	164	2
3			213	-035	653	302	256	-221	312	031	264	338	-117	-078	214	179	-026	058	293	-116	-008	222	200	417	425	-427	-143	-265	006	214	205	-143	030	055	3
4				226	-061	039	406	-067	120	030	201	141	094	-421	-078	-055	083	-141	-082	009	198	287	213	130	348	021	-218	-106	270	134	131	-218	040	432	4
5					020	126	-146	161	-060	300	168	071	126	213	-201	274	300	-055	237	123	261	-020	113	233	046	241	-028	185	236	139	200	-028	174	085	5
6						327	-093	033	193	139	454	370	099	201	420	339	252	-096	160	-017	232	065	023	047	378	-007	229	124	071	092	140	229	229	201	6
7							227	-198	457	213	461	245	345	156	176	089	534	174	116	081	339	-003	205	194	214	-213	-180	170	190	-034	018	-051	332	004	7
8								104	118	049	270	244	-068	-384	-378	061	068	104	044	170	099	283	186	098	228	-228	-193	-250	408	184	118	-190	057	331	8
9									215	456	-250	-003	134	164	-045	-129	068	232	214	468	-147	-003	287	007	134	356	397	418	069	171	-307	297	099	529	9
10										458	362	377	263	-146	258	005	348	198	187	040	316	117	465	172	464	154	-104	278	-035	053	109	-104	580	538	10
11											181	304	357	384	329	-061	231	229	266	338	216	345	601	-176	329	228	190	575	055	046	277	190	255	602	11
12												326	239	398	296	353	295	-018	021	-120	548	-006	214	109	555	396	114	130	080	473	416	114	304	036	12
13													247	039	301	080	358	339	174	-079	203	035	462	-077	503	-339	-061	234	-087	301	180	-061	261	310	13
14														502	148	128	773	268	148	-056	442	012	423	057	-121	051	278	548	-022	619	-016	278	254	136	14
15															496	-048	362	-048	099	-449	250	218	-135	-241	070	416	559	461	-139	272	195	559	034	172	15
16																334	221	-002	-091	-276	240	105	230	059	574	465	760	181	-280	525	196	760	065	272	16
17																	149	-208	020	-207	304	027	-003	108	275	178	148	-003	248	-002	293	148	153	-048	17
18																		360	418	026	391	156	436	171	-212	127	339	642	294	536	108	339	369	066	18
19																			345	266	136	027	434	233	-064	-102	148	358	171	334	-196	148	391	209	19
20																				278	159	072	240	277	-164	-366	070	153	410	432	037	070	359	343	20
21																					073	104	319	181	029	101	084	-006	233	-075	167	084	240	361	21
22																						-158	272	200	540	146	354	424	196	240	282	354	412	-125	22
23																							175	068	393	-184	241	-214	265	105	523	241	-037	340	23
24																								098	202	-064	347	411	096	679	-036	347	491	597	24
25																									021	187	388	150	180	279	130	387	213	-241	25
26																										282	619	-027	-211	340	340	619	012	266	26
27																											711	592	-118	465	-097	711	263	203	27
28																												487	-099	760	318	959	207	559	28
29																													401	401	-421	487	443	062	29
30																														461	401	-099	389	117	30
31																															022	760	065	272	31
32																																318	205	035	32
33																																	207	559	33
34																																		291	34
35																																			35

NB. Presented are three significant digits with decimal points omitted

they are out of sight. Nor do young children understand that objects have discernable attributes such as bigness-smallness, hardness-softness, roundness-squareness, etc. Finally the young child has no concept of "representation," a term Piaget uses to include both labels, such as names, and cognitive imagery.

In each of the exercises that load heavily on factor one the child is required to make perceptual discriminations of various objects within his environment. Items 28 and 33, which both load on this factor at almost unity, describe the latter stages of this developmental sequence. For item 33 the child is given a number of objects which must be separated into two groups, based upon the hardness-softness attributes, while in 28 the child is required to place a number of blocks around the rim of a pie pan to form a circle. These are extremely difficult tasks at twelve months of age and it is not surprising that very few of the children successfully complete these exercises. One interpretation of the fact that so few do complete these exercises suggests that the schema of imparting attributes to objects is not fully organized at this early age. Since a greater proportion of the children do successfully complete the simpler items, it also suggests that assimilation and accommodation of these earlier tasks aids the development of schema that can deal with the more difficult items. The remaining items that load heavily on factor one, (16, 26, 27, and 31) all require the child to identify in some manner various objects or attributes of objects.

From Table I you will notice that the items that load heavily and positively on factor two, (2, 4, and 8) occur earlier in the series than the items on factor one. This is in keeping with Piagetian theory

concerning the development of object permanence. All three of these items are various adaptations of Piaget's object permanence experiments with young infants. Typically a favorite toy is presented to the child and after he shows interest or recognition the object is hidden. At the earliest ages out of sight is equivalent to out of mind. As the child develops object permanence he is able to remove the obscuring obstacle and retrieve the toy. Item 3, although its factor loading is meager, does contribute slightly to understanding this factor. Part of this item requires the child to remove objects from a container while the objects are visible, indicating at least in part a discrimination between object and container is necessary to the development of this schema. The fact that a basic portion of small muscle development is necessary to the completion of all exercises is demonstrated in item 13. This task is reported by Piaget as a demonstration of object permanence, however, it loads most heavily on factor three.

The moderately high negative loading of item 15 indicates that there should exist some inverse relationship between the factor and the item. This item is a motor development item that requires the child to draw a straight line on a sheet of paper with a large pencil or crayon. At this juncture it is difficult to infer this relationship through Piagetian theory especially since it is positively loaded on factor one.

Factor six relates to the development of the notion that objects have names. Six of the eight items that load on this factor, (14, 18, 19, 20, 24, and 31) require the child to recognize the relationship between an object and the object's name. It appears that this factor

clearly points toward the development of a linguistic schema at its earliest stages, the ability to discern between "signifiers and significants." Item 1 is also an item that was intended to deal with the linguistic aspects of the object concept but does not.

Factor four does not illustrate a single elemental Piagetian concept as the previous three have, instead it integrates several concepts into a single factor. The separate items that load on this factor suggest that there is an underlying interrelatedness among the child's developing notions concerning seriation, temporal, spacial and causal concepts. Perhaps the best approach is to discuss the exercise and then relate the theory. Items 9 and 35 are both children's games with a physical movement payoff. The first is the "POP" in Pop Goes The Weasel and the second is the "fall down" in Ring Around The Rosy. In both of these it is necessary to anticipate future events through the auditory cues of the exercises. Flavell (1963, p. 112) reports that it is during stage four of the Sensory-Motor period (8 12 months) that the child begins to use signs and events to anticipate future events. Thus the hat mother is putting on is a cue to the child that mother is about to leave. It seems as if temporal contiguity and seriation result in notions of causality. This might be further illustrated by describing item 11 the very old "guess which hand" game. Again there is involved a seriation of temporally contiguous events which ends with the opened hand. The object is shown to the child, shifted from hand to hand and when the two closed fists are presented (his cue) he must touch the correct hand (cause) to open it. To some extent 24 also suggests a repetitive seriation in the process of "reading a magazine."

Mother turns a page, requests the child to point out an object, whereupon the child touches the picture and in effect "causes" another page to turn. Obviously the inferential extrapolation here is that the child anticipates the turning page with the concommitant new picture. If we can validly make this type of extrapolation then item 10 might be explained in terms of the child anticipating the noise made when he drops buttons or coins through a slot in the top of a jar.

Factor three is clearly the small muscle motor development factor which is not unique to Piagetian theory. Of the ten items that load on this factor only two, 16 and 17, do not require some level of skill in eye-hand, small-muscle coordination and manipulation. Some of the more difficult tasks are pouring liquid from one cup to another (22), building a block tower (12), removing an object from within a closed match box (13), and putting buttons through a slot (10). The remaining four (6, 7, 26, and 34) also require some level of manual dexterity.

Factors five and seven are item specific. That is to say that the items that load on these factors are extremely similar in content and inferring an underlying dimension is somewhat tenuous. The two items that load high positive on factor five are both intended to be "reversibility" items from Piagetian theory. Item 3 is the simple task of filling and emptying a round cereal box, while item 6 is screwing the lid of a jar on and off. Once again, however, there is an inexplicable high negative loading on item 1. This item seeks a vocal response from the child after the mother names an object, a type of vocal imitation. Although such a high loading does suggest a very definite inverse relationship, it remains undiscerned by this investigator.

The two items, 23 and 32 that load up on factor seven are both special adaptations of the old "shell and pea" game. They are both played with three different sized tin cans as shells and candy as the pea. In one instance the candy is always returned to it's original position, such as the extreme left, but under a different can, while in the second instance the candy always ends under the original can but its position is different. Shifting is, of course, not so rapid as to confuse the child. The original intent of these two items is to develop attention to repeated displacements and perceptual cues.

Although there are some clues, the factor loadings on factors eight and nine and the items that load on these factors do not provide sufficient evidence to identify them, therefore, they remain undefined.

SUMMARY

One hundred eighty-eight twelve month old children were tested on thirty-five dichotomously scored items on which they had received prior instruction. An intercorrelation matrix was derived using the tetrachoric coefficient of correlation. This matrix was factor analyzed using the BMD03M Computer Program. Nine factors emerged, four clearly Piagetian, one general physical development, two items specific and two which remain undefined.

Factor analysis as a technique has two basic purposes, "to explore variable areas in order to identify the factors presumably underlying the variables as well as the variables, and .... to test hypotheses about the relations among variables" (Kerlinger, 1964, p. 680). This study has attempted both functions. Piagetian theory hypothesizes the existence of schema as an underlying factor in cognitive behavior. This

study has provided data which lends serious supportive evidence to Piaget's theory of cognitive development. Unfortunately, or fortunately as some view it, factor analysis does not provide a "test of significance" or a "level of confidence" from which very definitive conclusions may be drawn. The implied hypothesis of this study is that Piagetian type schemata would be discernable. This hypothesis has been supported by the analysis of the data. It is, however, the exploratory aspect of factor analysis that provides some insight into the underlying characteristics of the individual items. Some items were very definitely intended to contribute toward the development of "object permanence" or "spacial relations." This study has validated, and in rare cases repudiated, the original intent of the various individual exercises. It has also pointed out a methodology for examining an attempt to put a cognitive theory into practice. And lastly, it has suggested that further study of the Series Test data at other ages will yield further insights into cognitive theory.

REFERENCES

Dixon, W. J. (Ed.). BMD Biomedical Computer Programs. Berkeley, Calif.: University of California Press, 1968.

Flavell, J. H. The Developmental Psychology of Jean Piaget. Princeton, N. J.: D. Van Nostrand Co., Inc., 1963.

Gordon, I. J. and J. R. Lally. Intellectual Stimulation for Infants and Toddlers. Gainesville, Fla.: The Institute for Development of Human Resources, 1967.

Kerlinger, F. N. Foundations of Behavioral Research. New York, N. Y.: Holt, Rinehart, and Winston, Inc., 1966.

A COMPARISON OF THE SCORES OF TRAINED AND UNTRAINED ENVIRONMENTALLY DEPRIVED MALE AND FEMALE INFANTS ON THE "GRIFFITHS MENTAL DEVELOPMENT SCALE"

Gail S. Scott
J. Ronald Lally

An understanding of the effect of early experience on children has led many (Bayley, 1965, 1967; Moss and Kagan, 1964; Kagan & Lewis, 1965) to the belief that young males and females react differently to similar experiences. As the need for early intellectual experiences becomes an accepted fact and people begin creating stimulating experiences for infants, these sex differences need to be made clear so that they can be considered in planning such programs. One group of young children receiving a great deal of attention in recent years is the group which has been classified as environmentally disadvantaged. This study's purpose was to investigate the relationships between sex and training on the performance of disadvantaged infants.

Different reactions by boys and girls to experience has been fairly well documented in longitudinal studies. Moss and Kagan (1964) found that maternal protection of boys from 0 to 3 years of age correlated with the boys' IQ at all ages. In other words, the more protection exhibited by the mother, the higher the IQ of the son. This correlation was not found when the girls were studied. Bayley (1965) followed 61 subjects from infancy to 29 years of age. The IQ scores of boys studied were clearly correlated through 18 years of age with maternal behavior in infancy (hostile treatment by mothers correlated positively with low IQ -

loving treatment with high IQ). The opposite results were found for girls during the 1st year of life. Mothers' treatment of boy infants during the first 3 years had lasting effects on their intelligence but had little or no effect on girls' intelligence. Girls' IQ seems to be related to parental ability, whereas boys' IQ appears to be related to early infant behavior. Bayley hypothesizes a genetic sex difference in the persistence of effects of early experience.

Bayley (1967) and her collaborators in a recent summation of a study correlating infant development tests and later intelligence, reported verbal facility correlations between an item cluster composed principally of vocalizations, and girls' intelligence scores. This finding did not hold true for boys.

Kagan and Lewis (1965) measured cardiac and motor responses to visual and auditory stimuli in 32 infants. They found that females were more attentive than males and preferred more novel patterns of stimulation.

Based on these longitudinal descriptive studies and the laboratory finding of differential attentiveness, this study was designed to test the hypothesis that training had a more positive effect, as measured by the "Griffiths Mental Development Scale," on girl infants than it did on boy infants. The present study was additionally designed to discover which areas of intellectual skills differ most when the scores of both trained and untrained girls are compared with the scores of trained and untrained boys.

METHOD

The basic design of the project is presented in the first paper in this report. The subjects in this study were 211 infants from the Early Child Stimulation Through Parent Education Project; 127 were experimental babies and 84 were controls.

The control children were from two treatment groups. Half of the mothers in the control group were not contacted until their child was 12 months of age. They were then asked to volunteer for testing. The other half of the mothers in the control group were visited once a month by a nurse and the home situation was observed for descriptive purposes. No training was carried on, but this group was tested at 6 months on the stimulation materials used by the experimental group. These two groups were not treated separately but were joined to form one control group since other research (Gordon, 1968) indicated no significant differences on the "Griffiths Mental Development Scale" between these two control groups.

Testing

The "Griffiths Mental Development Scale" (Griffiths, 1954) was administered between 12 and 14 months to the entire population. Testing was conducted by two testers who had completed the "Griffiths Intelligence Test Correspondence course."

The following test conditions suggested by Cattell were adhered to as closely as possible.

> The child should not be sick, tired, sleepy or in an antagonistic or unhappy mood when tested. The confidence of young children cannot be gained by verbal explanations but must be built up through an easy confident manner.

> Dissapproval of a child's actions can invalidate the score on his test. Testers should always be alert to boredom and counteract it with praise, encouragement or quick surprise presentation of new toys. An introductory toy should be used that will insure success but still arouse interest (Cattell, 1960, pp. 74-75).

Three children with whom rapport was not established by either tester, were eliminated from the population for fear of inaccurate measurement. Two babies (one control and one experimental) who had illnesses that lasted more than half of their 1st year of life were also eliminated.

The mother, the child, and the tester were included in the test situation with the mother's role mainly supportive. Test location was held constant. All tests were given in one of two test rooms.

Testing style was principally a function of the structure of the test. The "Griffiths Mental Development Scale" is divided into 5 separate sub-tests but is administered as a whole rather than by sub-test. This leaves the tester free to switch back and forth from sub-test to sub-test to hold the child's interest. The 5 areas: locomotor skills, personal-social skills, hearing and speech skills, eye and hand coordination skills and performance skills, can be analyzed separately with scores computed for each sub-test.

The General Quotient (GQ) computation is the familiar $\frac{MA}{CA} \times 100$. The sub-test scores are computed by multiplying the raw score for the particular sub-test by 5 (the number of sub-tests), equating this score to an MA for that sub-test and then proceeding with the $\frac{MA}{CA} \times 100$ formula. The MA in both the GQ and sub-test computation is adjusted to account for the number of items on the test per month (3 items per month, per sub-test, the 1st year; and 2 items per month, per sub-test, the 2nd year). The completed formula for a sub-test score would be:

$$\frac{\text{1st year items passed} \times 5}{3} + \frac{\text{2nd year items passed} \times 5}{2} = \text{"MA" (sub-test MA)}$$

$$\frac{\text{"MA"}}{CA} \times 100 = \text{Sub-test score.}$$

The Analysis of the Data

A 2x2 analysis of variance design was employed to assess the magnitude of the direction of differences between the major treatment groups on General Quotient (GQ) and the 5 separate sub-tests.

Assessment of within group differences by *t* test enabled a more intensive examination of the inter group variables.

RESULTS

A quick familiarity with the data can be obtained from a study of Figure 1 which presents the mean scores and indicates the significant *t*'s of the groups on the GQ and the five sub-tests in graphic form.

Table 1 shows the mean scores, standard deviations and *t*'s for the different groups.

Trained females scored higher than trained males on all 6 tests. Untrained males scored higher than untrained females on 4 of the 6 tests. When the scores of trained males were compared with those of untrained males a significant difference was found on the hearing and speech sub-test at the .025 level, one tailed. Untrained males actually scored higher than trained males on the locomotor sub-test although this difference was not significant. On the other hand trained females scored significantly higher than untrained females on all but the performance sub-test.

Analysis of variance data is presented in Table 2. No *F* ratios were significant when all the males were compared with all the females. Trained children scored significantly higher than the untrained on the GQ test and the personal-social, hearing and speech, and eye and hand sub-tests. A significant interaction between training and sex was found on the locomotor sub-test.

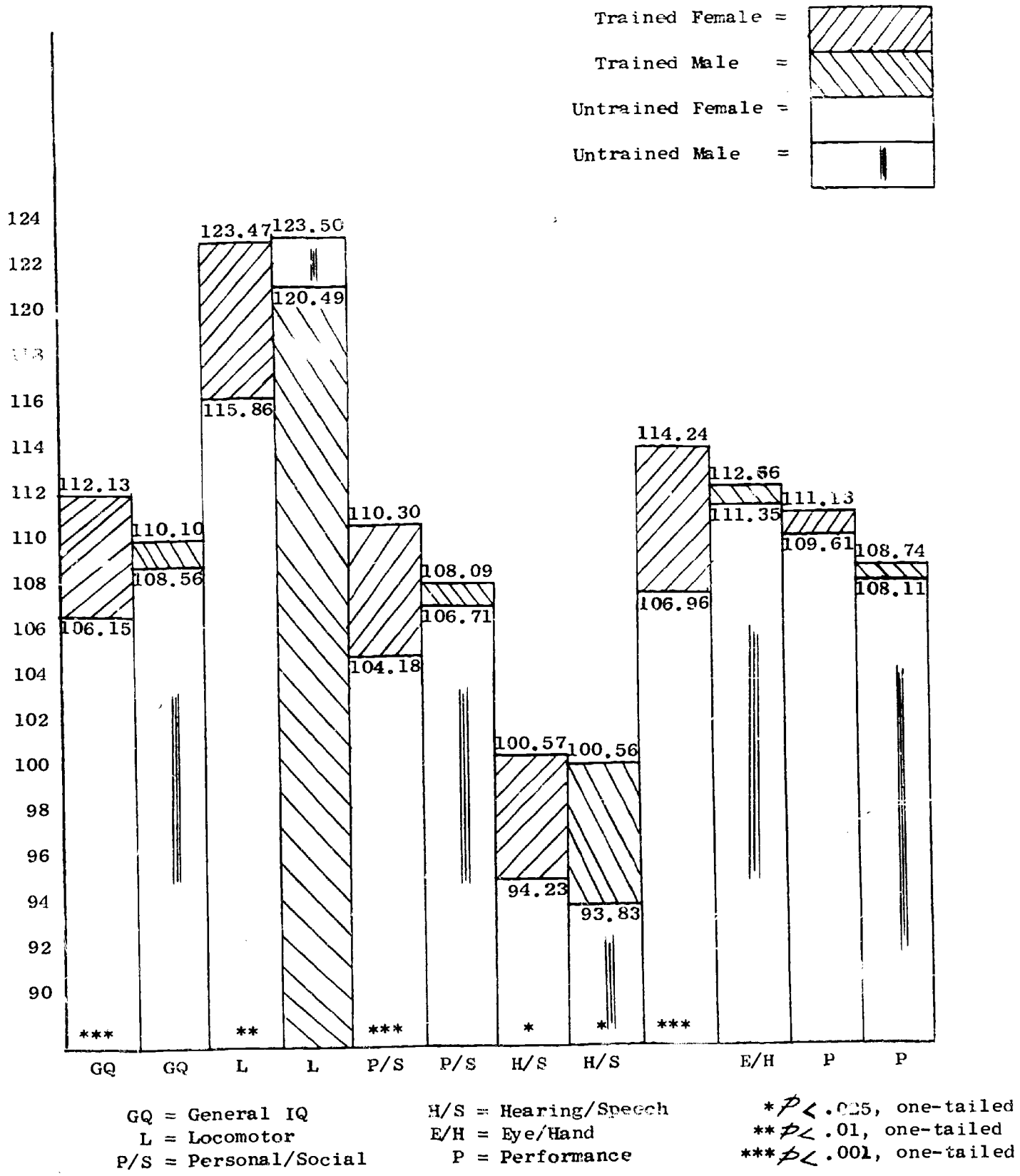

Figure 1. Different reaction to training by boys and girls on the "Griffiths Mental Development Scale."

TABLE 1

SCORES OF TRAINED AND UNTRAINED MALES AND FEMALES ON THE "GRIFFITHS MENTAL DEVELOPMENT SCALE"

	Trained Males (N=67)		Untrained Males (N=36)			Trained Females (N=60)		Untrained Females (N=48)		
Scale	Mean	Standard Deviation	Mean	Standard Deviation	t	Mean	Standard Deviation	Mean	Standard Deviation	t
General Quotient	110.10	10.62	108.56	9.42	.73	112.13	9.39	106.15	9.56	3.26***
Locomotor	120.49	19.00	123.50	18.58	-.77	123.47	17.25	115.86	15.93	2.36**
Personal-Social	108.09	9.77	106.71	11.18	.69	110.30	7.86	104.18	8.48	3.89***
Hearing & Speech	100.56	16.87	93.83	11.51	2.14*	100.57	13.29	94.23	15.50	2.30*
Eye & Hand	112.66	11.40	111.35	9.71	.59	114.24	11.33	106.96	10.78	3.39***
Performance	108.74	14.02	108.11	13.63	.22	111.13	13.45	109.61	13.06	.59

* $p < .025$, one-tailed
** $p < .01$, one-tailed
*** $p < .001$, one-tailed

TABLE 2

ANALYSIS OF VARIANCE FINDINGS FOR SEX DIFFERENCES, EXPERIMENTAL DIFFERENCES AND INTERACTION OF SEX AND EXPERIMENTAL CONDITIONS FOR GENERAL QUOTIENT AND THE 5 SUB-TESTS

General Quotient

Source of Variation	Sum of Squares	DF	Mean Squares	F
Trained and Untrained	710.70	1	710.701	7.33**
Males and Females	3.12	1	3.12	0.03
Interaction	243.13	1	243.13	2.51
Error	20068.38	207	96.95	

**$p < .01$

Locomotor Sub-Test

Source of Variation	Sum of Squares	DF	Mean Squares	F
Trained and Untrained	265.73	1	265.73	.84
Male and Female	273.52	1	273.52	.87
Interaction	1401.13	1	1401.13	4.44*
Error	65365.81	207	315.78	

*$p < .05$

Personal-Social Sub-Test

Source of Variation	Sum of Squares	DF	Mean Squares	F
Trained and Untrained	702.12	1	702.13	8.22**
Male and Female	2.34	1	2.34	.03
Interaction	279.00	1	279.00	3.27
Error	1786.56	207	85.44	

**$p < .01$

TABLE 2 CONTINUED

Hearing and Speech Sub-Test

Source of Variation	Sum of Squares	DF	Mean Squares	F
Trained and Untrained	2132.09	1	2132.09	9.78**
Male and Female	1.56	1	1.56	.01
Interaction	1.56	1	1.56	.01
Error	45125.13	207	218.00	

**$p < .01$

Eye and Hand Sub-Test

Source of Variation	Sum of Squares	DF	Mean Squares	F
Trained and Untrained	920.32	1	920.32	7.65**
Male and Female	98.97	1	98.97	.82
Interaction	441.07	1	441.07	3.66
Error	24913.88	207	120.36	

**$p < .01$

Performance Sub-Test

Source of Variation	Sum of Squares	DF	Mean Squares	F
Trained and Untrained	58.45	1	58.45	.32
Male and Female	189.36	1	189.36	1.03
Interaction	6.23	1	6.23	.03
Error	38153.63	207	184.32	

DISCUSSION

The differences discovered in this study lend themselves to many hypotheses. The data supported the basic hypothesis that training had a more positive effect, as measured by the "Griffiths Mental Development Scale," on girl infants than it did on boy infants. It became evident after studying Tables 1 and 2 that the girls were the major contributors to the differences between trained and untrained children. On the average trained girls scored 6 points higher than untrained girls on GQ and the sub-tests. Trained boys averaged a 2 point higher score than untrained boys on the various tests. It seems then, that girls benefited more than boys from the training.

Could the female reaction to the experimental condition be the genetic difference which has been hypothesized by Bayley (1965) or is the particular set of stimulation materials geared more toward work with girls than boys? The data presented in this study do not lead to an enlightened interpretation. Bayley's findings (1966) give rise to a possible explanation of our results. She reports that girls IQ's frequently correlate highly with measures of parental intelligence and ability while boys IQ's have a high correlation with maternal affect. It is possible that the cognitive training the mother received enabled her to do things with her child that are usually done by more intelligent and able people. It is also possible that no change in affect accompanied this change in ability.

Another possible source of variation, not explored in this study, was the maternal styles used in raising boys and girls. Are girls encouraged to do some things differently than boys? The locomotor results, presented

in Table 1 seem to indicate an affirmative answer to this question. It would seem that the training program slightly retarded the locomotor skills of boys while it stimulated the girls to score 8 points higher than untrained girls. If natural maternal styles differ and boys are expected to be more locomotor than girls, the use of the training exercises, which were created to give infants experiences in all areas of development, could have curtailed the amount of locomotor experiences the boys were allowed to have, because of concentration on the exercises. This same concentration could increase the locomotor experiences of the girls.

The one area where the boys and girls showed a similar reaction to training was hearing and speech. The hearing and speech scores for both trained and untrained children were lower than any of the other sub-tests. It is possible that environmental similarities and lack of verbal stimulation negated the sex differences apparent on the other sub-tests. It is also possible that the verbal stimulation presented to the children from the trained groups helped to raise both males and females from a very low level of verbal functioning which was below any differences that might be found between males and females. Middle class replication of this particular portion of the study would easily validate or repute this hypothesis.

One further question still needs to be raised. Do these differences continue into early and later childhood or are they only peculiar to infants? Longitudinal investigation is seen as the only way this question can be answered.

REFERENCES

Bayley, N. Research in child development: A longitudinal perspective. Merrill-Palmer Quarterly, 1966, 2, 183-208.

Bayley, N. Developmental problems of the mentally retarded child. In I. Philips (Ed.), Developmental problems of the mentally retarded child. Basic Books, 1966, 85-110.

Bayley, N., Cameron, J., & Livson, N. Infant vocalizations and their relationship to mature intelligence. Science, 1967, 157, 331-333.

Cattell, P. The measurement of intelligence of infants and young children. New York: Psychological Corporation, 1960.

Gordon, I. Early Child Stimulation Through Parent Education. Progress Report, March 1, 1968, University of Florida, Grant number PHS-R-306, Children's Bureau, Department of Health, Education and Welfare.

Griffiths, R. The abilities of babies. London: University of London Press, 1954.

Kagan, J., & Lewis, M. Studies of attention in the human infant. Merrill-Palmer Quart., 1965, 11, 95-127.

Moss, H., & Kagan, J. Report on personality consistency and change from the Fels Longitudinal study. Vila Humana, 1964, 7, 127-138.

THE ADAPTATION AND EXTENSION OF AN INFANT EDUCATION MODEL TO SELECTED "FOLLOW THROUGH" PROJECTS

William F. Breivogel

The Florida Parent Education Follow Through Model is based on two years of experimental field research conducted in the Early Child Stimulation Through Parent Education Project. The basic orientation and procedures were adapted and extended by Gordon into the Florida Follow Through Model.

This paper will describe the model, the role of the participants, objectives, and report what types of data are being collected.

The basic viewpoint of the ECSTPEP is that early intervention into the cognitive development of children (three to twenty-four months) can produce cognitive growth; and that parent educators selected from the same social context as these children can be trained to teach instructional tasks to the mothering one in the home which will aid the mother and child's growth. The ECSTPEP model is also based on the premise that parent educators can help to improve the attitudes and perceptions of those people in the home toward the school and the community.

Roles

Four roles are identified and developed in the Florida Follow Through model:

1. A parent educator is selected from the same population as that of the student. The parent educator is trained during a workshop and throughout the year to act as an educator of parents, a liaison person, and as a teaching aide to the classroom teacher. In her role as an educator of parents, she teaches Piagetian oriented instructional

tasks to the mothering one in the home. These tasks are developed by the classroom teacher and parent educator, based on their observations of the child in the classroom. The tasks are designed to supplement and reinforce what has been taught to the child during the school day. The ultimate goal is to get the mothering one in the home to work with the child.

In her role as a teaching associate in the classroom the parent educator presents instructional tasks to individuals and small groups of children. These tasks are developed by the teaching team and taught to her so that she can implement them without direct teacher supervision. The parent educator also collects observational data on individual children, small groups, and the total class. These observations are systematic and cut across both the cognitive and affective elements of the classroom and are used by the teaching team to make instructional decisions.

In her role as a liaison person, the parent educator communicates the needs of the parent to the school, school to parent, and parent to the community. She observes what medical, dental, social, or psychological services are needed in the home and acts as a referral agent to the teacher in these matters.

2. The teacher provides leadership for each team in assessing, understanding, and providing an individualized program for each child. She is trained and directed to use the parent educator as a teaching associate in the classroom in the ways described under the description of the parent educator role as a teaching associate in the classroom. It is the teacher's responsibility to build the relationship between the parent educator and herself. A basic premise of the Florida Parent

Education Follow Through Model is that as the teacher uses the parent educator as an observer in the classroom, her systematic observations produce information which can be translated into instructional tasks for use in the classroom and in the home without direct supervision from the teacher.

3. The local community coordinator's role is defined by the local community. Her responsibilities are:

a. Coordinate the work of all teaching teams.

b. Provide continuing inservice training for teachers and parent educators.

c. Modify and/or develop the curriculum

d. Facilitate a dialogue: a) between the local Follow Through program and the regular instructional program of the local school system, b) between the local Follow Through program and the Florida Parent Educators Follow Through staff.

e. Assist in the continuing evaluation of the Follow Through program by facilitating the flow of collected data to the University of Florida for processing; and calling upon University of Florida Follow Through consultants for interpretation of results of local data collection and for his on site assessment of the program.

4. The University of Florida consultant. The major emphasis furnished by the consultant is to guide the development, implementation, and evaluation of the local Follow Through program. Consultants visit the local community two days a month. The dates and tasks are set after a need is defined by the coordinator. The need in turn determines whether a consultant specialist in curriculum, observation instruments,

child development, educational psychology, or parent education is to be sent.

The consultant does any one or combination of the following:

1. Interprets to the teachers and parent educators the data which they collected and which was processed at the University of Florida.
2. Visits classrooms and homes to determine how the teachers and parent educators are carrying out their roles as defined in the model.
3. Conducts inservice training on various aspects of the model components.
4. Acts as a liaison person between the local Follow Through program and the Follow Through staff at the University of Florida by interpreting his perception of the overall progress of the model in that community and communicating the needs of the local Follow Through program as he sees them.

Objectives

The Follow Through Model was designed to accomplish the following objectives:

1. To increase parental involvement in the learning and development of the child.
2. Improve the mother's attitude toward self and school.
3. To increase the mother's competency to help her child.
4. To increase the teacher's morale.
5. To improve the home-school relationship.
6. To increase the school's ability to provide for the individual needs of children.
7. To increase the child's ability, social behavior, and attitude towards himself.

Specifically, in the affective domain the model is designed:

1. To bring about changes in mothers' attitudes.
2. To bring about changes in the emotional climate in the classroom.
3. To bring about changes in pupils' self-concepts.

In the cognitive domain the model is designed:

1. To bring about changes in the mothers' verbal interaction.
2. To increase the cognitive level of discourse in the classroom.
3. To improve children's ability in the usual school subjects.

In terms of the school and community the model is designed:

1. To change the nature of the use of non-professionals in classrooms.
2. To increase the interaction between home and school.

Data Collection

Data in the Florida Follow Through Model are collected through the following instruments: Parent Educator Weekly Report, How I See Myself, Social Reaction Inventory, Children's Self-Social Construct Test, Florida Affective Categories, Teacher Practices Observation Record, Reciprocal Category System, Purdue Teacher Opinionaires, and the Home Interview Schedule. (See Table 1 for the schedule of data collection and who collects the data; and Table 2 for the objectives of this model to be measured and the instruments which are used to do this.) An outline for data collection of pre-post and process measures follows the tables.

DATA COLLECTION SCHEDULE

Pre-post Measures

1. An observation team from the University of Florida observed in the experimental and control classrooms in September and will do so again in late May or early June. The Florida Affective Categories, Teacher Practices Observation Record, and Reciprocal Category System

will be used.

2. Classroom teachers will complete the Personal Beliefs Inventory and Purdue Scale at beginning and end of program.

3. Parent educators will complete the How I See Myself and Social Reaction Inventory at the beginning and at the end of the school year.

4. The parent educators (after training) administered the Social Reaction Inventory and How I See Myself instruments to mothers as early in the school year as possible, and will do so again at the end of the school year.

Parent Educator's Weekly Report (PEWR)

The Parent Educator's Weekly Report was developed in the Early Child Stimulation Through Parent Education Project. The PEWR went through a number of revisions during the ECSTPEP and was adapted for the Florida Follow Through Model.

How I See Myself Scale (HISM)

The How I See Myself Scale is an instrument constructed by Gordon (Gordon, 1968). It is a pencil-paper self-reporting device which is administered to the mother. It yields factor scores on attitudes toward teachers and school, interpersonal adequacy, autonomy and physical appearance. The mother's version of the scale is an adaptation of the original designed for children and youth.

The Social Reaction Inventory (SRI)

The Social Reaction Inventory was developed by Mr. Larry Bilker as a modification of the Rotter (1966) I--E Scale. The first step in the modification was changing the language to a fourth grade vocabulary

level. The other steps were clarifying terms with the parent educators, reworking language structure, and testing whether mothers would be willing and able to understand and respond to such an instrument.

Childre. s Self-Social Construct Test (CSSCT)

The Children's Self-Social Construct Test is a paper and pencil, nonverbal instrument providing measures of (a) self esteem, (b) social dependency, (c) identification with and preference for mother, father, teacher, and friend, (d) realism as to size, and (e) minority identification. The test is administered individually; all directions are oral and all responses nonverbal. The child selects a symbol (circle) to represent the self from among those presented to him, or pastes a gummed circle (representing the self) on the page in relation to symbols representing others. It is assumed that the child can express his self-social concepts symbolically, using common symbolic meanings. (Long, Henderson and Ziller, 1967)

Florida Affective Categories (FLAC)

The Florida Affective Categories is an instrument used in the classroom to look at the affective verbal and non-verbal behaviors of teachers and children. The instrument is a modification of the South Carolina Observation Record (SCOR) developed by Robert Soar (1966). The original instrument (SCOR) drew heavily on the Hostility-Affection Schedule (Fowler, 1962) and the earlier versions of the Observation Schedule and Record (Medley and Mitzel, 1958). The present version includes behavior specific to primary age children.

Teacher Practices Observation Record (TPOR)

The Teacher Practices Observation Record (Brown, 1968) is an instrument used to measure a teacher's practices in relationship

to John Dewey's Experimentalism. The instrument consists of sixty-two sign items of teacher behavior.

Reciprocal Category System (RCS)

The Reciprocal Category System is a modification of the Flanders System (Flanders, 1965) by Ober, Wood, and Roberts (Ober, 1968). The system records the verbal behavior of both teachers and pupils in the classroom.

Purdue Teacher Opinionnaire

The Purdue Teacher Opinionnaire scale is designed to measure teacher morale. It yields a total score indicating the general level of a teacher's morale, and also provides meaningful factors or sub-scores which break down morale into some of its dimensions.

Home Interview Schedule (Environmental Press Characteristics Questionnaire

The Home Interview Schedule is, as the name implies, a questionnaire given to parents in the home by the parent educator. It was develop[illegible] Wolf (1964) and adapted for the Florida Follow Through project by Malcolm Garber of the University of Florida. The Schedule measures three things: 1) environmental press for achievement; 2) press for language development, and 3) availabil[illegible] of learning situations inside and outside of the child's home.

TABLE 1. DATA COLLECTION INSTRUMENTS[1] AND SCHEDULE USED IN FLORIDA'S PARENT EDUCATION FOLLOW THROUGH MODEL

Instrument	Pre-Test	Post-Test	Monitoring	Administered By:
1. Parent Educator's Weekly Report[2]			x	Parent Educator
2. How I See Myself[2]	x	x		Parent Educator
3. Social Reaction Inventory[2]	x	x		Parent Educator
4. Children's Self-Social Construct Test	x	x		Parent Educator
5. Florida Affective Categories (class version)	x	x		Pre & Post - Observation Team &
(ind. version)			x	Parent Educator
6. Teacher Practice Observation Record	x	x		Observation Team
			x	Parent Educator
7. Reciprocal Category System	x	x		Observation Team,
			x	Tape Recordings of class sent to U. of Fla.
8. Purdue Teacher Opinionnaire	x	x		Fla. Observation Team
9. Home Interview Schedule (Environmental Process Characteristics Questionnaire)	x	x		Parent Educator

[1] A description of these instruments, the type of data they collect and details on their development may be procured from the Institute for Development of Human Resources, University of Florida at cost.

5. The parent educator (after training) administered the self-concept measures to the pupils.

Process Measure

1. The parent educator complete the Parent Education Weekly Report after each home visit.

2. The teacher and the parent educator complete several classroom observation measures at least once a month, for feedback purposes.

Data Analysis

All data are scored and analyzed by the Institute for Development of Human Resources at the University of Florida.

Future Plans

The Florida Parent Education Follow Through model is now operative in six communities - Jacksonville, Richmond, Jonesboro, Philadelphia, Yakima and Lac du Flambeau. An Educational Professional Development Act grant has been made to the Institute for the Development of Human Resources, University of Florida, to conduct three three-week summer (1969) workshops. The plan is to invite 1) the original six communities to send their coordinators, teachers, and parent educators for one of the three-week workshops; 2) new teachers, parent educators and coordinators in the original six Follow Through communities in the next grade (the first grade where we worked with kindergarten, the second grade where first graders were in the program) and down one grade; and 3) four new communities to take part in one of the three-week workshops where they will be introduced to the basic concepts and systems of the Florida Parent Education Follow Through model.

REFERENCES

Brown, B. B. The Experimental Mind in Education. New York: Harper & Row, 1968

Flanders, N. A. Teacher Influence, Pupil Attitudes, and Achievement. Coop. Res. Monograph No. 12, OE-25040. Washington: U.S. Dept. of H.E.W., 1965.

Fowler, B. D. "Relations of Teacher Personality Characteristics and Attitudes to Teacher-Pupil Rapport and Emotional Climate in the Elementary Classroom." Unpublished doctoral dissertation, University of South Caroline, Columbia, 1962.

Gordon, Ira J. A Test Manual for the How I See Myself Scale. Florida Educational Research and Development Council, University of Florida, Gainesville, Florida, 1968.

Long, B. H., Henderson, E. H., and Ziller, R. C. "Developmental Changes in the Self-Concept During Middle Childhood." Merrill-Palmer Quarterly, 1967, 13, 201-216.

Medley, D. M., and Mitzel, H. E. "A Technique for Measuring Classroom Behavior." Journal of Educational Psychology, 1958, 49, 86-92.

Ober, R. L., et al. "The Development of a Reciprocal Category System for Assessing Teacher-Student Classroom Verbal Interaction." Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, February 8-10, 1968.

Rotter, J. "Generalized expectancies for internal versus external control of reinforcement." Psychological Monographs, 1966, 80 (1).

Soar, R. S. "An Integrative Approach to Classroom Learning." NIMH project numbers: 5-R11 MH 01096 to the University of South Carolina and 9-R11 MH 02045 to Temple University, Philadelphia, Pa., 1966.

Wolf, Richard, "The identification and measurement of environmental process variables related to intelligence." Unpublished doctoral dissertation, University of Chicago, 1964.

THE FLORIDA PARENT EDUCATION MODEL[1]

Ira J. Gordon

Rationale and Major Objectives

A considerable body of research literature indicates that a major source of a student's pattern of achievement and motives for achievement, as well as his personality structure, is the home in which he grows up. The behavior and attitudes of his parents, as well as the nature of the physical setting and materials provided, have a direct impact on his behavior before and during the school years. In particular three elements of the home may be categorized: Demographic factors (housing, income, ethnic membership), cognitive factors, and emotional factors. The cognitive variables might be further defined as the amount of academic guidance provided, the cognitive operational level and style of the parents, the cultural activities they provide, the amount of direct instruction they engage in, their educational aspirations, their language structure, and the frequency of language interaction, and the intellectuality they provide such as [illegible] magazines, and the like.

The parental emotional factors may be conceived of as the consistency of management and disciplinary patterns, parents' own emotional security and self-esteem, their beliefs in internal versus external control of the environment, their own impulsivity, their attitudes toward school, their willingness to devote time to their children, and their patterns of work (Gordon, 1968, in press). If these factors do contribute to child performance, then one phase of the educational program, especially in compensatory education, should

---

[1]Adapted from a paper prepared for the Atlanta Follow Through Workshop, October 10-12, 1968.

be the education of parents to not only recognize these factors but also to change them in ways which might increase the achievement motivation, intellectual behavior, and self-esteem of the child. The Florida Parent Education Follow Through Model, therefore, was designed to directly intervene in the home so that the home situation might lead to better school and life performance.

Not all of the child's behavior, obviously, is a function of the home. The school itself plays an integral role in the intellectual and personality development of the child. The nature of the curriculum, the mode of teacher behavior, the classroom ecology, all influence not only immediate behavior but also patterns of behavior for the future. Any program of compensatory education needs to work not only in the home but also in the school. The Florida Model, therefore, provides ways of changing the classroom organization and teaching patterns as well as influencing the curriculum in a Follow Through classroom through the use of paraprofessionals, systematic observation techniques, and curriculum development based upon Piagetian theory.

The program emphasis is on (1) the development of nonprofessionals as parent educators, and as effective participants in the classroom teaching process, and (2) the development of appropriate observation procedures and instructional tasks which can be carried from the school to the home to establish a more effective home learning environment.[2]

Key Elements

The key elements of the program are the training of the mother (one or two to each classroom) in the role of combined parent educator and teacher aide along with training the teacher in the use of an aide.

[2]For specific objectives, see Breivogel's paper in this report.

Both are taught techniques for studying individual and classroom behavior, and procedures for the development of teaching tasks. The parent education activity consists of periodic (preferably once a week) home visits in which the major activity is the demonstration and teaching of the mother in tasks that have been devised in school to increase the child's intellectual competence and personal and social development. As a part of the demonstration in teaching, the parent educator helps the mother understand the purposes of each task, how to perform it, and how to estimate the ability of the child to complete the task.

The parent educator also serves as the first line liaison person between the Follow Through program and the home. She serves as a referral agent for medical, dental, psychological, or social services, by informing the mother of the existence of such services and, depending upon the community, establishing the contact between the home and a representative of these services. This requires that the parent educator understand the nature of other Follow Through and community services in addition to understanding her role in the task area.

In the school, the parent educator serves as a teacher aide in implementing instructional activities through assisting in the observation of individual pupils and general classroom behavior and in working with individuals or small groups on various tasks. A basic element in the Florida Model is the upgrading of the aide to carry on such technical tasks.

A key element in the program is the classroom teacher. She supervises the classroom work of the aide and assists her in planning

and implementing the parent education activities. In return she receives more effective technical help from a second or third adult in the classroom in carrying out the general goal of reaching each child.

Procedures for Implementation

In order for the parent educator and the teacher to carry out the complex system of home and school task building and observation, the summer workshop taught both teachers and aides a set of observation instruments (available upon request) designed to enable either the teacher or the aide to study a particular child, several children, or the classroom at large as well as to study the teaching behavior and general classroom climate. This workshop training will be supplemented throughout the year by monthly consultant visits and a data monitoring program.

A second element is the development of materials and teaching procedures for the parent educator to take to the home. Beginnings were made on laying a theoretical rationale and teaching a way of development of procedures in the summer workshop. The Florida Parent Education Model in no way determines for a school community what its curriculum should be. The effort is to enable the teacher and school to examine the curriculum and apply an analytical orientation to it so that particular tasks may be developed which are appropriate for home training. This was begun in the workshop and the consulting and monitoring operations will also be related to this activity.

A possible classroom on a particular day might proceed as follows: Teacher and aide sit down and plan together that the aide will apply some techniques for pupil observation to studying a particular

child or several children for a stated period of time while the teacher will conduct the usual range of activities. The aide will then report to the teacher on her observations and the teacher-aide team will then make some decision as to what particular curriculum materials will be appropriate for those children. The teacher and aide then will decide which of these the aide may be able to use in either individual or small-group work. The aide will carry out this activity and feed results back to the teacher. At the same time as she is doing this with the child in the school, she will visit the home and teach the mother either the same or a complementary task. The number of home visits which will be made is to some degree a function of size of class and number of aides employed. Generally, visits will be no further apart than once every two weeks. The aide will then report back to the teacher (using a standardized observation report form) and the cycle will begin again.

A consultant and monitoring system has been developed to assist schools in implementing this type of activity. Each local community sends monthly reports to the University of Florida (approximately two weeks before a scheduled consultant visit), including data consisting of classroom observations of the class at large and each individual pupil, copies of the tasks taken into the homes, the observation reports of the home visits, and an audio tape taken during a classroom instructional period. These data are analyzed to assess the possible difficulties and needs of the community. The consultant is briefed and carries back with him an analysis of the data along with ideas for continued inservice training of the Follow Through group. In this way the data serve constantly as feedback. As effective teaching

tasks are developed in a particular community, they will be shared with the other communities for possible use. In this way a body of materials suitable for home learning will be identified for general distribution.

Expectations

It is obvious that this is a complex program requiring effective teamwork not only between the University and the local communities but also between teachers, aides, parents, and administrators. One condition essential for effective implementation is the understanding by the school principal and other administrative school personnel of the nature of the program, its expectations, and its requirements. It is hoped that the consulting visits will involve the principal and other school personnel so that this condition can be met. The continued inservice education of teachers and parent educators, particularly those who did not attend the workshop, is essential for the program. We make no assumptions that the program will go well in its early stages. We see this first year as enabling both the schools and the University personnel to learn how to make such a program work. This means that another essential condition is a high degree of flexibility, willingness to change, and tolerance of ambiguity by all concerned. Only if this exists can the monitoring system work for change rather than serve to freeze the program prematurely. We do not expect the essential elements of the role of parent educator and teacher to be learned and understood and applied without a good deal of give-and-take and interaction. On the other hand we see the development of the parent educator role as essential and as the one part of the program basically not subject to much modification.

If by the end of the first year teachers have learned to use a parent educator for observation and task work, if teachers have learned to continuously assess what they are doing in terms of its purposes, if parent educators have been able to establish continuing contacts with many of the homes, and if the parents in these homes have begun to understand the importance of their role and have learned some specifics for working with their children, we will have gone a long way toward accomplishing our objectives. Based on these achievements, continuing years will be needed to tighten up and improve the general model and its procedures.

Future Developmental Work

When we entered, naively, upon this activity in Kansas City (February, 1968) we had not envisioned how critical it would be that people in this model engage in curriculum development. We now see this as an important part of the model, although I repeat, we do not wish to determine for a community what its curriculum should be. We see curriculum development as enabling them to make the most out of whatever it is they wish to teach. The process of development and the application of a theoretical rationale is part of our future developmental work. As a result of the summer workshop we are even more convinced of the utility of the systematic observation of classroom behavior and of home learning behavior as key elements in the work of the parent educator and teacher. Future developmental work is needed in the design of observation approaches which can be used and learned by teachers and nonprofessionals in the home and school setting. Further developmental work in the definition of the relationship of the parent educator to the non-instructional and non-parent involvement

elements of the program is also needed. How does the parent educator serve as the liaison person? Should she become an ombudsman? These are questions to which we must address ourselves. We look forward to this continued development.

THE PARENT EDUCATOR AS A PARAPROFESSIONAL AGENT OF CHANGE IN THE EDUCATION OF THE DISADVANTAGED

R. Emile Jester, Editor

THE MEASUREMENT OF ENVIRONMENTAL PROCESS CHARACTERISTICS IN SIX FOLLOW THROUGH COMMUNITIES

Malcolm Garber and Thomas S. Tocco

What happens to the child in his home setting can affect his performance at school as much as any other set of variables. Measuring what happens in the home can be accomplished through home interviewing techniques. Changing what takes place in the home is somewhat harder to accomplish. Yet such changes may be accomplished through counseling, discussion, mixed media presentations and especially through the employment of paraprofessionals such as is the case at the Institute for Development of Human Resources at the University of Florida.

Environmental Process Characteristics (E.P.C.) are measures of what happens in a child's home setting. Table 1 lists the 12 dimensions of Environmental Process Characteristics.

Wolf (1964) was able to show a rather high and significant relationship between measures of environmental process and Henmon Nelson I.Q. scores. He studied a group of middle class Chicago fifth graders. Similar relationships were obtained by Henderson (1967). Henderson's measures were taken on groups of middle class Anglos and lower class Spanish American first graders. Garber (1968) studying Navajo, Pueblo, and rural Spanish American first graders was able to predict differences among these groups of children on the basis of measured Environmental Process Characteristics (alpha = .01). Havighurst (1968) is currently studying differences among Indian groups using the same technique. This growing body of literature is accumulating and suggests that measures of Environmental Process Characteristics may be taken on different cultural groups which could

Table 1

Environmental Process Characteristics

A. Press for Achievement Motivation

1. Nature of Intellectual Expectations of Child
2. Nature of Intellectual Aspirations for Child
3. Amount of Information about Child's Intellectual Development
4. Nature of Rewards for Intellectual Development

B. Press for Language Development

5. Emphasis on Use of Language in a Variety of Situations
6. Opportunities Provided for Enlarging Vocabulary
7. Emphasis on Correct English Language

C. Provisions for General Learning

8. Opportunities Provided for Learning in the Home
9. Opportunities Provided for Learning Outside the Home
10. Availability and Encouragement of use of School Supplies
11. Availability and Encouragement of use of Books (including reference works), Periodicals and Library Facilities.
12. Nature and Amount of Assistance Provided to Facilitate Learning in a Variety of Situations

yield educationally relevant information. The present study is aimed at measuring differences among various groups of children in different urban American settings with the hope of generating Environmental Process Characteristic profiles. Through the examination of such profiles, prescriptions for whole groups of children will then be possible.

If the cultural factors which are assumed to affect environmental process in fact do so, and if the technique of measuring this environmental process is a sensitive one, then two general hypotheses can be made. They are:

1. There are differences in Environmental Process Characteristics among different cultural groups.
2. Group profiles will emerge with relatively little within group variation.

Interest in the above mentioned general hypotheses led to the following study.

Procedures

During a summer workshop held in August of 1968, approximately one hour of training was given to a group of paraprofessional parent educators assembled from the following communities; Jacksonville Florida, Richmond Virginia, Jonesboro Arkansas, Philadelphia Pennsylvania, Lac du Flambeau Wisconsin, and Yakima Washington. The instruction consisted of about five minutes of explanation of what information could be gained from the Environmental Processes Questionnaire. The remaining 55 minutes were spent in impressing upon the parent educators

three points which were:

1. The importance of establishing rapport with parents.
2. The importance of knowing the items to be asked before actually going into the home.
3. The importance of recording the responses on the protocol sheets as soon after the interview as possible, if not during the interview.

Included in this training session was a sample administration by the group as a whole. Each potential questionnaire administrator asked one question. The trainer played the role of parent and the group recorded his responses to the question.

Armed with this training session, the parent educators took copies of the Environmental Process Questionnaire back to their respective communities. During their first few contacts with the parents of the children with whom they worked in class, the parent educators administered the Environmental Process Questionnaire. The parent educators asked the questions of the parents and recorded the parents' responses. The questionnaires were then returned to the Institute for Development of Human Resources. Three undergraduate students were enlisted and trained to rate each of the Questionnaire Protocols. The training session focused on obtaining agreement among raters scoring the protocols. Three protocols picked at random were rated by each of the three judges. These protocols were examined for interjudge agreement. In 75% of the cases, the judges agreed with each other with not more than a $1\frac{1}{2}$ point spread.

The children studied were kindergarten students most of whom had Head Start experience before entering this Follow Through Project.

re we e American Indian children, lower class Negroes, and lower middle class Caucasians. Thirty protocols were randomly selected study from each of the six communities.

Statistical Procedures

No systematic procedure to randomly sample children from defined ethnic or socio-economic populations was undertaken. Therefore, generalizations to particular populations must be guarded. The null hypothesis that no differences among groups of children from the various communities would be obtained was tested using a simple one way analysis of variance. The analysis was repeated for each one of the twelve Environmental Process Measures. The second null hypothesis that the measures would not separate actual groups of children was tested using a multiple discriminant function analysis. Horst (1966) described the general case of multiple discriminant function analysis as follows:

> The more general case for the multiple discriminant function model involves not only several or more predictor or independent attributes but also several or more criterion or dependent attributes measured in dichotomous terms. It should be emphasized that in the multiple discriminant function model, although we are generally concerned with a problem of classification of a sample of entities into one of a number of different groups, the only distinguishing feature of the data matrix from that of the general multiple regression model is that the criterion submatrix is always dichotomous. (Horst, 1966, p.149).

A significance level for rejecting these null hypotheses was preselected with alpha = .05. A discussion of the results follows.

Results

Eleven of the 12 dimensions measured by the Environmental Process Characteristics (E.P.C.) questionnaire reflected significant differences among the six communities. The null hypothesis of no

difference among groups on each variable was rejected along every dimension except number 3, Amount of Information Parents Have About the Intellectual Development of Their Child. Table 2 shows the mean scores and Standard Deviations of each of the six communities on all of the 12 E.P.C. scale dimensions. Fig. 1 illustrates 2 different community profiles along the 12 E.P.C. dimensions. The results of Duncan's (1955) New Multiple Range test are displayed in Table 3. Predictions made on the original data on the basis of a multiple discriminant function analysis of E.P.C. scores were as follows:

Richmond, Virginia	9 of 30 children were correctly classified
Jonesboro, Arkansas	23 of 30 children were correctly classified
Philadelphia, Pa.	10 of 30 children were correctly classified
Yakima, Washington	17 of 30 children were correctly classified
Jacksonville, Florida	5 of 30 children were correctly classified
Lac du Flambeau, Wisc.	14 of 30 children were correctly classified

Jacksonville, Florida was the only community in which the E.P.C. measures did not allow for a correct classification of children. A review of the original data from Jacksonville revealed that 12 of the 30 protocols came from an upper middle class group of Caucasian children. The remaining 18 protocols were those of lower class Negro children. The fact that these two culturally divergent groups were lumped together in one community may explain why the multiple discriminant function analysis could not yield a correct classification. This finding also suggests that the E.P.C. measures may be highly sensitive to cultural differences.

Duncan's New Multiple Range test revealed no clear cut difference among the six communities along the 12 E.P.C. dimensions. Although 61 of a possible 180 comparisons of means were significant, no

Table 2

F.P.C. Means and Standard Deviations on Six Communities

		1	2	3	4	5	6	7	8	9	10	11	12
Richmond	$\bar{X}$ =	3.97	3.33	2.00	1.73	1.93	2.00	2.70	1.97	1.77	2.63	2.57	2.17
	SD =	1.56	1.60	1.36	1.01	1.62	1.34	1.86	1.43	1.43	1.47	1.83	1.42
Jonesboro		2.83	2.60	1.47	1.73	1.37	1.80	1.40	1.40	1.40	1.97	1.47	1.37
		1.29	1.25	.94	1.26	.76	.61	.62	.81	.86	1.19	.82	.67
Philadelphia		4.33	3.63	2.03	2.53	2.40	2.50	3.60	2.53	2.13	2.80	2.97	2.63
		1.24	1.38	1.30	1.61	1.73	1.38	1.94	1.66	1.53	1.69	2.09	1.77
Yakima		3.70	3.03	1.73	2.27	2.30	2.63	3.40	2.33	2.43	3.23	3.10	2.53
		1.39	1.19	1.23	1.23	1.26	1.19	2.14	1.18	1.45	1.83	2.02	1.28
Jacksonville		4.43	3.77	2.03	2.60	2.87	2.80	3.73	3.00	2.83	3.67	3.73	3.43
		1.45	1.33	1.33	1.67	1.81	1.19	2.07	2.15	2.23	2.25	2.05	1.85
Lac du Flambeau		3.57	3.10	1.47	2.93	1.80	1.87	2.70	2.17	1.60	2.60	2.10	2.40
		1.34	1.16	.97	1.51	1.40	1.28	1.88	1.51	1.33	1.87	1.63	1.61

Figure 1

E. P. C. Profile

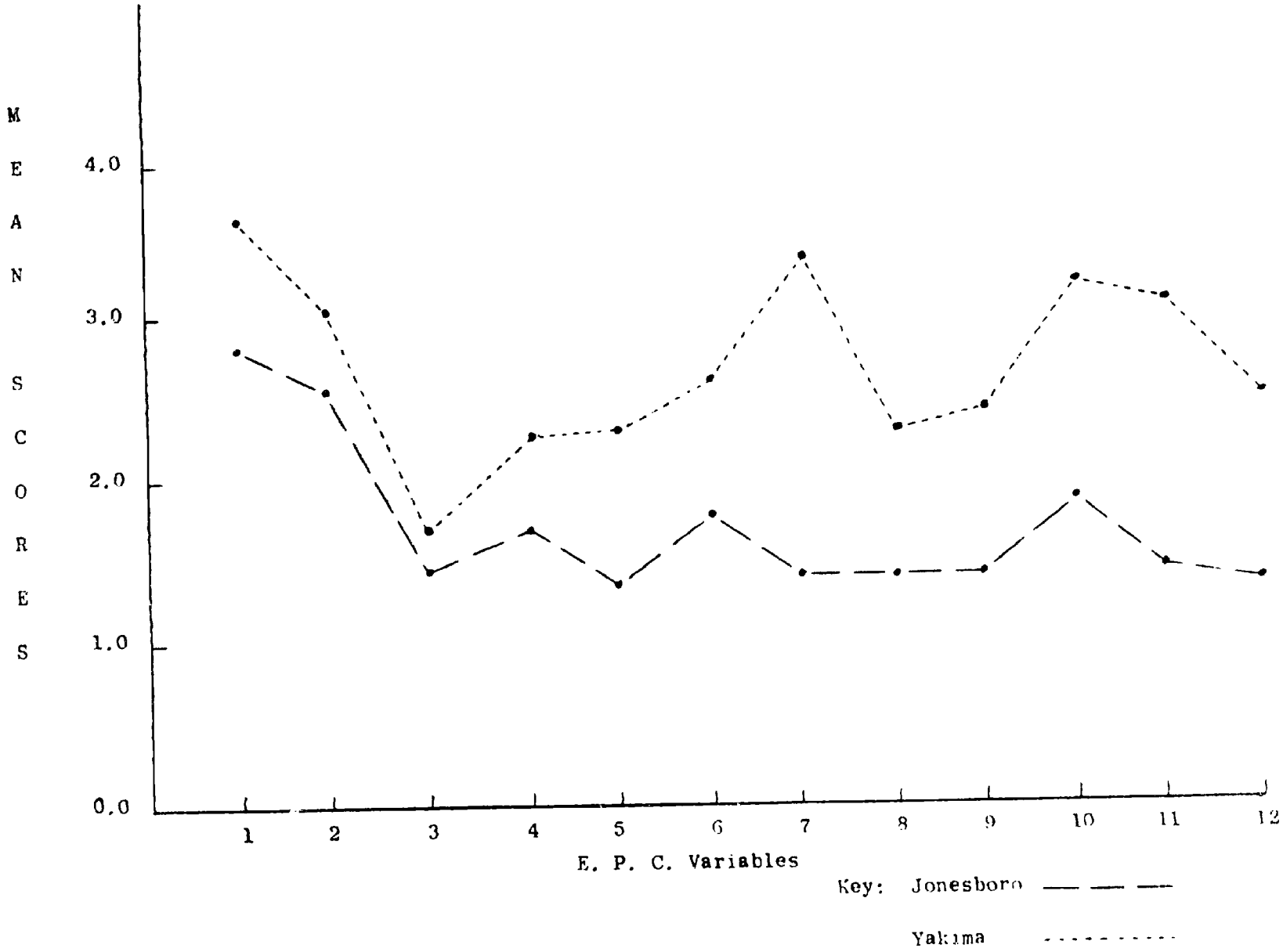

Table 3

Results of Duncan's New Multiple Range Test

	Richmond	Jonesboro	Philadelphia	Yakima	Jacksonville	Lac du Flambeau
Richmond						
Jonesboro	1, 11, 7, 12					
Philadelphia	4	1, 2, 4, 5, 6, 7, 8, 11, 12				
Yakima		1, 5, 6, 7, 8, 9, 10, 11, 12				
Jacksonville	4, 5, 6, 7, 8, 9, 10, 11, 12	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12	12	12		
Lac du Flambeau	4	1, 4, 7, 12	1	6, 11	1, 5, 6, 7, 9, 10, 11, 12	

Each number indicates a significant difference on an E.P.C. variable for the two communities involved. The number specifies the variable.

pattern emerged which would indicate that each community was different from all other communities along every dimension. Garber (1968) did find that such a pattern emerged among Navajo, Pueblo, and rural Spanish American first grade children. It may be the case that the children studied here are not so culturally different from each other as those studied by Garber. Yet, the fact that 61 comparisons were significant does suggest that the regional differences did have a considerable effect in producing differing scores.

Much research with E.P.C. measures remains. Factor analysis to determine which factors account for most of the variance might be a first step. Secondly, item analysis and reliability studies might be performed. Finally, various types of validity studies ought to be considered.

In summary, 11 of 12 E.P.C. measures generated significant differences among the six communities studied. Multiple discriminant function analysis allowed for accurate classification in five of the six communities. Multiple range comparisons provided 61 of 180 significant differences. Though not enough to support the notion that these communities were culturally different, this large number of significant differences did suggest that there were strong regional differences. From this it may be inferred that parent educators ought to be attentive to different environmental processes which are peculiar to their own community.

REFERENCES

Duncan, P. B. Multiple range and multiple F tests. Biometrics, 1955, 11, 1-42.

Garber, M. Ethnicity and measures of educability. Los Angeles, University of Southern California. June, 1968.

Havighurst, R. J. Personal Communication. November, 1968.

Henderson, R. W. Environmental stimulation and intellectual development of Mexican-American children: an exploratory study. Dissertation Abstracts, 1967, 27 (7A), 2068, 2069.

Horst, P. An overview of the essentials of multivariate analysis. In R. B. Cattell (Ed.) Handbook of multivariate experimental psychology. Chicago: Rand McNally and Company, 1965.

Wolf, R. M. The identification and measurement of environmental process variables related to intelligence. Chicago: University of Chicago, June, 1964.

THE PARENT EDUCATOR AS HOME VISITOR

Betty L. Siegel

The intent of this paper is to explore the innovative qualities of the selection, training, professional responsibility, and role assignment of the parent educator as home visitor.

Central to the Florida Parent Education Model adopted for Follow Through is the utilization of non-professionals, who are themselves drawn from a disadvantaged population, in a process of parent education. These non-professionals, with whom the parents can readily identify, serve to educate disadvantaged mothers in procedures which are designed to enhance the development of their children. As such, the parent educator serves as a directly intervening agent in the home, in order that the home situation might lead to improved school and life performance.

The general literature on cultural deprivation indicates the significance of early intervention into the lives of disadvantaged young children. The work of Piaget (1952), Bloom (1964), and Loretan (1966) points to the critical nature of early experiences for cognitive development. Siegel (1964), in reviewing the theory and research on attainment of concepts stated: "The long-term significance of the intellectual functioning needs to be studied longitudinally. To illustrate, it may be that one reason children from so-called culturally disadvantaged homes have difficulty in kindergarten and first grade is that, they did not have appropriate stimulation during these early years." (p.216) Witkin (1962),

Sears (1957), and Bandura and Walters (1963) similarly attest to the significance of the early years for personality development.

Despite considerable interest in early infant and childhood stimulation, most of the studies to date have been of a laboratory nature (White, 1964; Ricciutti, 1965; Hunt, 1966) or of a longitudinal, non-intervention type (Bloom, 1964; Bayley, 1967; Escalona, 1967). Those field studies which are currently using intervention procedures (Caldwell, 1967; Schaeffer, 1967; Gray, 1966) are in general, designed to use well educated personnel as interveners either as the home visitor with the parent or directly with the children. Reismann (1966), however, reports that the utilization of disadvantaged non-professionals increases communication effectiveness with indigenous groups.

Building on this rationale, Ira Gordon (1967), designed a pilot study which demonstrated that disadvantaged women could be selected, instructed, and placed in disadvantaged homes in order to teach mothers how to stimulate their infants and toddlers. From Gordon's initial work now emanates a three-pronged attack on poverty: The Early Child Stimulation Project, the Home Learning Center Project, and Project Follow Through.

The major focus of each project under the Florida Parent Education Program is on the parent educator, but the role of the parent educator varies substantially from project to project. In the Early Child Stimulation Project, the major treatment variable is instruction of the mother by the parent educator in the stimulation exercises developed by Gordon and Lally (1967). This stimulation procedure consists of simple exercises designed to provide the infant or toddler with a systematic series of perceptual-motor-auditory-kinesthetic inputs. The Home Learning Center Project expands the

role of the parent educator so that she not only continues her work with the individual mothers in the home, but she also becomes director of a home learning center as well. The Home Learning Center Project differs from the Early Child Stimulation Project in the developmental status of the child, in the level of the stimulation materials, and in the development of small-group settings for additional instruction beyond the home visit. The Follow Through Project further expands the role of the parent educator so that she serves the dual role of classroom aide and parent educator.

Let us now examine in detail the parent educator's role in Project Follow Through. The major points of emphasis are: (a) the training of non-professionals for the combined role of parent educator and effective classroom participant in the classroom teaching situation, (b) the development of observational procedures and instructional tasks for the parent educator to carry from school to the home, and (c) the training of the teacher in the use of the aide.

In order to discuss the recruitment and training program for the aide-parent educator it is necessary to first discuss the general objectives for the Florida Parent Education Follow Through Model and then to demonstrate how training relates to these objectives.

The following changes are particularly sought:

(a) Changes in the mothers (including the parent educators). It is hoped that mothers and parent educators will have more favorable attitudes toward school, will be more actively involved in school activities, and will manifest a movement toward standard speech.

(b) Changes in the school. Through interaction with the parent educators, teachers will hopefully have more effective communication with disadvantaged pupils. Further, changes in classroom organization and duties, as they refer to the teacher and the aide-parent educator, may be forthcoming.

(c) Changes in pupils. As the aide-parent educator and teacher cooperatively work in planning diagnostic and instructional programs for the children in their charge, it is expected that pupils' self concept will move toward the more positive and achievement will be at a higher level of performance.

Recruitment

Applications are solicited through church groups, Head Start groups, school officials, and employment services. In Project Follow Through the responsibility for selecting the aide-parent educators is left in the hands of the local communities participating with the Florida Model. No academic requirements are set for the aide-parent educator, but she should be a mother whose child is in the school in which she works, or who lives in the immediate community served by the school. She must, of course, fit the requirements for inclusion in a Title 1 population. It is highly desirable that she be literate, intelligent, and manifest an interest in the affairs of the local community.

Training

The training of the parent educator for her complex role, as well as training the classroom teacher in the use of the parent educator as classroom aide, is a significant aspect of the Florida Parent Education Model adopted for Follow Through.

In order to achieve the objectives of the project, the aide-parent educator needs specific and special training in (a) knowledge of child development, especially as it applies to the kindergarten-first grade years and to disadvantaged children, (b) knowledge of and practice in techniques of home visitation for the purpose of helping the mother reinforce that which is occurring in school, and (c) knowledge of and practice in the description and organization of learning tasks in such a fashion that the aide can use them without direct supervision, both with children in school and with parents at home.

The Workshops at the University of Florida are considered essential for the orientation and staff training required for this project. The first workshop, conducted in the summer of 1968, consisted of a five day a week, eight-hour day, two week program. A similar workshop, consisting of five eight-hour days for three weeks is planned for the summer of 1969. Dr. Greenwood, in his presentation entitled the Parent Educator as Classroom Aide, will discuss that aspect of training pertinent to the parent educator's work in the classroom, as well as discuss the role of the parent educator as classroom aide. This paper will deal only with that portion of the training concerned with the parent educator's responsibilities in the home visit.

The intensive training period for the parent educator as home visitor consists of instruction in (a) interviewing mothers and explaining the program to them, (b) the nature of the learning tasks to be taken into the home, and (c) techniques for teaching the tasks to the mother in the home. The training period focuses on

problem-solving activity, role playing and other forms of practice, small and large group discussions, seminars, and home visits with the present Florida Parent Educators. Most of the training is on a one-to-one basis including the home visits. Materials for the home visits include the Parent Educator Weekly Report and the attitude assessment measures, as well as materials from the schools which they plan to use in their home visits. These materials will be discussed later in the paper.

A one-week Follow Through workshop in the participating community is conducted for those people who could not attend the University of Florida workshop.

Role Assignment

The parent education activity consists of periodic visits to the homes of the children with whom the parent educator works at school. These visits are generally made each week, and certainly, no further apart than once every two weeks. The parent educator maintains her own schedule of home visits to the mothers assigned her.

On these home visits the parent educator's role is to demonstrate the tasks being taught at school as well as to demonstrate complementary and supplimentary tasks for the mother to use at home. The tasks in this project, as well as in the other projects, are built around an orientation which is Neo-Piagetian, that is, the conversion of Piagetian principles and measurement tasks into instructional materials. The development of these tasks will be presented in another paper (Mork and Shea, 1969). The presentation of a sample task at this point, however, might serve to demonstrate the type of task activity with which the parent educator is involved.

The following task was developed by one of our centers. Its aim is to use real things to develop mental operations for classifying objects with criteria undefined. The materials consist of a collection of about ten different objects for each participant. A collection might include one red crayon, one green crayon, a rock, a piece of chalk, a red rubber ball, one piece of green construction paper, one piece of red construction paper, and a piece of white string. The action might go something like this: The aide-parent educator or teacher asks the children to place the objects in piles with the other objects they are somewhat like. After a child has sorted the objects, he might be asked about what he has done. Such questions as these might be asked: (a) "In this pile, how is the pencil like the piece of paper?" (b) "Why didn't you put this green pencil in the same pile as the red pencil?" (c) "How else could you arrange the objects?" There is no correct or incorrect arrangement. The important point is that the arrangement be logical to the child. Adaptations of this task for home use might be made by asking the mother to engage in the same kind of activity, only using a variety of collections possibly found in the home, such as metal objects, fruits, vegetables, buttons, coins, etc.

The mother is helped to understand the nature and purpose of each task presented in the home, how to perform it with her child, and how to assess her child's progress in completing the task satisfactorily.

As part of her home visit, the parent educator collects data on the mother with the major data consisting of the Wolf Scale,

the Parent Educator Weekly Report (PEWR), the Rotter Social Reaction Inventory, modified to reflect a fourth grade reading level (SRI), and the How I See Myself Scale (HISM).

The HISM, the SRI and the Wolf Scale are administered sometime during one of the weekly visits. The Adult Form of the How I See Myself Scale, developed by Gordon (1966,1968), at the University of Florida, is used for purposes of examining the self-concepts of the parents. This forty-item self-report type of instrument is best suited to assessing self concepts on a group basis. The degree to which the parents feel they have control over what happens to them is measured by the Social Reaction Inventory, which is a modification of the Rotter (1966) I-E Scale that was adapted to our purpose at the University of Florida by Larry M. Bilker. A high score on the instrument indicates that feeling that life is a function of chance over which one has little control. A low score reflects the feeling that the individual has some control over what happens to him.

The PEWR, completed by the parent educator at the end of each visit, describes people in the home, the responses to the stimulation series, impressions of the child's health and development, and the nature of verbal interactions. The weekly observation report, developed cooperatively by the research staff and the parent educators, is based on direct observation, rather than interview.

Aside from her weekly home visits, the parent educator is expected to spend one day a week in in-service training activities. As part of her in-service activity the parent educator engages in activities designed to build clerical and observational skills and to provide information about child development, referral agencies, and the like.

The parent educator in her unique dual role serves also as an important liaison between the classroom teacher and the home and community as she works with the classroom teacher in setting up and participating in small group sessions with parents.

The parent educator further serves as a referral agent for the dental, medical, social, and psychological services available to the family. The role of parent educator as referral agent varies from community to community. For example, in one of our centers all information from the home goes directly to the teacher, who in turn contacts the appropriate representative of the referral agencies. In another of our centers the school system is served by a home-school coordinator and a school psychologist. Usually, information about the home is fed through the parent educator directly to the teacher. If, however, there is considerable difficulty in establishing and maintaining a liaison with the home, the home-school coordinator may help serve in this capacity. If there are emotional problems in the home, the parent educator makes this information available to the psychologist.

In conclusion, this paper represents an overview of the unique role of the parent educator as home visitor. It has considered the selection, training, professional responsibility and role assignment of the parent educator, a potentially significant agent of intervention in the attack on poverty.

REFERENCES

Bandura, A., & Walters, R. Social learning and personality development. New York: Holt, Rinehart & Winston, 1963.

Bayley, N., Cameron, J., & Norman, L. Infant vocalizations and their relationship to mature intelligence. Science, 1967, 157, 331-333.

Bloom, B.S. Stability and change in human characteristics. New York: John Wiley & Sons, 1964.

Caldwell, B., and Richmond, J. The children's center: A microcosmic health, education and welfare unit. Children's Bureau U.S. H.E.W. progress report for grant No. D156(R), March, 1967. (unpublished mimeograph)

Escalona, S.K. Albert Einstein scales of sensory motor development. New York: Albert Einstein College of Medicine, Department of Psychiatry, 1967. (Mimeograph)

Gordon, I.J. Studying the child in school. New York: John Wiley & Sons, 1966.

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

Gordon, I.J., & Lally J.R. Intellectual stimulation for infants and toddlers. Gainesville, Florida, available through the Institute for Development of Human Resources, 1967.

Gordon, I.J. A test manual for the How I See Myself Scale. Gainesville, Florida: Florida Educational Research and Development Council, 1968.

Gray, S. Before first grade: The early training project for culturally disadvantaged children. New York: Teachers College Press, 1966.

Greenwood, G.E. Parent educator as classroom aide. Paper presented at the meeting of the American Education Research Association, Los Angeles, February, 1969.

Hunt, J. McV. The epigenesis of intrinsic motivation and early cognitive learning. In R.N. Haber (Ed.), Current research in motivation. New York: Holt, Rinehart & Winston, 1966, 355-370.

Loretan, J.O. Alternatives to intelligence testing. In R.E. Ebel (Chairman), Proceedings of the 1965 Conference on Testing Problems. Princeton, New Jersey: Educational Testing Service, 1966, 19-31.

Mork, D., & Shea J. Parent educator as curriculum development aide. Paper presented at the meeting of the American Educational Research Association, Los Angeles, February, 1969.

Piaget, J. The origins of intelligence in children. New York: International Universities Press, 1952.

Reissman, F. The role of the indigenous non-professional in a community mental health neighborhood service center program. Paper delivered at American Orthopsychiatry Association Meeting, 1966.

Ricciuti, H. Object grouping and selective ordering behavior in infants 12 to 24 months old. Merrill-Palmer Quarterly, 1965, 11, 129-148.

Rotter, J. Generalized expectancies for internal versus external control of reinforcement. Psychological monographs, 1966, 80 (1).

Schaeffer, E., & Furtey, P.H. Intellectual stimulation of culturally deprived infants during the period of early verbal development. Informal progress report to National Institute of Mental Health, 1967. (unpublished)

Sears, R., Maccoby, E., & Levin, H. Patterns of child rearing. New York: Harper and Row, 1957.

Siegel, I.E. The attainment of concepts. In M. Hoffman and L. Hoffman (Eds.) Review of child development research, New York: Russell-Sage, 1964, 1, 209-248.

White, B.L., Castle, P., & Held, R. Observations on the development of visually-directed reaching. Child development, 1964, 35, 349-364.

Witkin, H.A. et al. Psychological differentiation. New York: Wiley and Sons, 1962.

PARENT EDUCATOR AS CLASSROOM AIDE

Gordon E. Greenwood

The purpose of this paper is to present another aspect of the parent educator's role, that of aide to the teacher in the classroom. Not only does the parent educator serve as a home visitor to the homes of the children in the classroom on the basis described by Siegel (1969), but she also serves as a teacher aide in the classroom of the children whose homes she visits. In this way she serves as a link between the home and the school and facilitates the flow of information between the two. The use of teacher aides in the classroom is hardly a new notion. However, the way in which the classroom teacher utilizes the parent educator as classroom aide is somewhat unique and is, therefore, the focus of this paper.

Let's make one point clear at the outset: the parent educator is a paraprofessional. Hopefully, her social class background and the training she receives as a parent educator allows her to communicate effectively with both parents and children, perhaps even more effectively, in some cases, than the teacher under whom she works. However, she is not likely to be a licensed teacher and she, therefore, works under the direction of the teacher to whom she is assigned. She and the teacher form a team and work out their plans jointly. However, it should be pointed out that she does not work independently of the teacher as far as decision-making is concerned. The classroom teacher is the ultimate decision-maker.

The Parent Education Model proposes that the classroom teacher use the parent educator in the classroom in ways that are somewhat novel. For purposes of analysis, we may think of the parent educator's

classroom role as being a dual one consisting of certain aspects of data-gathering and instruction. Let's consider her data-gathering functions first.

Data-Gathering Functions

In order for the teaching team (the teacher and parent educator) to make informed instructional decisions, it is part of the parent educator's job to gather certain kinds of data on the classroom as well as on the home environment.

At present, the parent educators are utilizing the following instruments in the classroom: the Florida Affective Categories, the Teacher Practices Observation Record, and the Children's Self-Social Constructs Test. The Florida Affective Categories (FLAC) was developed by Soar at the University of Florida as a modification of the South Carolina Observation Record (Soar, 1966). The individual form of this point-time sampling instrument is used to systematically observe the behavior of individual pupils. The overall rationale for developing the instrument was to develop a schedule that emphasizes behavior ignored by Flanders' Interaction Analysis. FLAC emphasizes such things as expressions of non-verbal as well as verbal affect, physical movement of pupils, participation in work and play activities, and participation in group and individual classroom activities.

In using the FLAC, the parent educator seats herself in an inconspicuous place, writes the name of the pupil to be observed in the appropriate blank, observes his behavior just long enough to positively determine what he is doing, and places a tally in the category or categories that best describe the child's behavior. She then turns to the next child and repeats the procedure.

A few samples of the categories are: "absorbed in work;" "engaged in parallel play;" "seeks reassurance, support;" and "pretends object is something else." Categories such as "threatens" or "hurts someone with something" demonstrate non-verbal negative affect. On the other hand, positive verbal affect is indicated by such categories as "praises another" or "offers to compromise, share, cooperate." Presently, the parent educator gathers a minimum of three point-time samples on each child in the classroom each month.

Once each month, the parent educator gathers data on the teacher's classroom behavior with the Teacher Practices Observation Record (TPOR) developed by Brown (1968) at the University of Florida. This instrument contains items of teacher behavior which the parent educator checks if the behavior occurs during the observation periods. One-half of the 62 items reflect teacher behaviors that are in agreement with John Dewey's philosophy of Experimentalism and the other half are in disagreement. The TPOR yields data on such things as whether the pupil or the teacher is the center of attention, the extent to which pupils are active or passive, the amount of freedom that the teacher permits the pupils to exercise, the extent to which processes or products are emphasized, and the extent of teacher participation in pupil activities.

Each observation that the parent educator makes with the TPOR requires three separate ten-minute observations and marking periods. She observes the behavior of the teacher for five minutes and then takes five minutes to mark all the behaviors that she saw occur. No matter how many times a behavior occurs during the observation period, the parent educator only checks it once. She does not mark behaviors

that do not occur. Examples of TPOR items are: "Teacher makes self center of attention;" "Teacher steers pupil away from hard question or problem;" "Teacher involves pupil in uncertain or incomplete situation;" "Teacher encourages pupil to guess or hypothesize about the unknown or untested;" "Teacher accepts only one answer as being correct;" "Teacher asks pupil to suggest additional or alternative answers."

In addition to gathering monthly data with the FLAC and TPOR, the parent educator gathers self-concept data on the pupils on a pre and posttest basis. The self-concepts of the pupils are assessed by means of the Children's Self-Social Constructs Test developed by Henderson, Long, and Ziller at the University of Delaware (Long and Henderson, 1967). The pre-school form of this instrument is used and is suitable for children aged three to eight years. It is administered individually and takes about ten minutes per pupil.

Instructional Functions

The instructional functions of the parent educator involve presenting learning tasks to individual and small groups of children in the classroom. These tasks are carefully developed by the teacher and the parent educator so that the parent educator can implement them without the direct supervision of the teacher. These or complementary tasks are taught to the child's mother by the parent educator during her home visits. The parent educator reports the results of her instructional efforts with children and parents to the teacher as data to consider in their further planning.

Any mention of learning tasks immediately raises questions about the nature of the materials and teaching procedures being utilized. The Follow Through schools that have adopted the Florida Parent

Education Model have agreed to a Piagetian approach to curriculum development. They are free to use other curriculum materials in addition if they so choose. The important point, however, is that most of the learning tasks utilized by the parent educator are Piagetian in nature. How the parent educator and the teacher develop tasks to fit their local situation is the subject of another paper (Mork and Shea, 1969) in this document. The present paper will only attempt to show how the parent educator uses such tasks in the classroom.

Piagetian tasks are used by the teacher and the parent educator to serve the purposes of both diagnosis and instruction. The teacher and parent educator build several complementary tasks around a given Piagetian principle so that some tasks can be used for diagnosis, some for instruction, and some for use in teaching the mother in the home.

Tasks are used as diagnostic tools in at least two ways: as means of (1) systematic assessment and (2) specific assessment of cognitive development. During the school year, the parent educator attempts to systematically assess the performance of every pupil in the class on tasks that are based on as many different Piagetian principles as possible. When she gathers this type of data, the parent educator usually works with small groups of pupils. In working with a group of six pupils, for example, she might find that one pupil has problems relating to conservation of quantity, another has difficulty with classification tasks, etc. The parent educator then feeds this information back to the teacher who helps her remedy the situation by selecting or building other tasks for the parent educator

to use with these children in the classroom and in the home.

At other times, the teacher and parent educator decide to assess the performance of a specific child or group of children with a specific task. The decision to use a specific task with a specific child is based on data other than the kind gathered by systematic task assessment. Suppose, for example, that the parent educator categorizes the following point-time samples of a pupil's behavior on the FLAC: "aimless wandering;" "withdrawn (ignores others);" "talks to self;" "parallel play;" "me too-copies child;" "uses object as itself."

After examining this data, the teacher might suspect difficulties relating to the Piagetian notion of egocentrism. She is likely to suggest that the parent educator work with the child individually and assess his performance on specific tasks related to egocentrism. The parent educator will report her findings to the teacher who is then likely to suggest that the parent educator gather other kinds of data or use certain tasks for instructional purposes or both.

Role Played by the University of Florida

It should be clear by now that the teacher aide role played by the parent educator involves the performance of tasks that are somewhat "technical" in nature when compared to an ordinary teacher aide. This is not to say, of course, that the parent educator does not help the teacher with other tasks, such as those of a clerical and housekeeping nature, as ordinary teacher aides do. However, her instructional and data-gathering functions distinguish her from ordinary teacher aides and demand that she receive training in instructional and data-gathering skills. It should be obvious that the teacher needs similar training in order to be able to interpret the data obtained,

supervise the activities of the parent educator, and make informed decisions.

It is also necessary for the data obtained by the parent educator to be scored, processed, interpreted, and fed back to the classroom situation. Finally, it is necessary that consultants visit the classroom periodically and lend assistance where it is needed. Servicing all of these needs is where the University of Florida comes into the picture.

First, the University of Florida conducts summer workshops to permit the parent educators and teachers to receive training in the skills that they need to carry on their classroom functions. Second, the University provides a monitoring service by scoring, interpreting, and feeding data collected by the parent educator back to the classroom. Third, consultants who are familiar with the Follow Through centers' problems, visit each center once a month. The task of the consultants is to help the centers deal with their problems as well as help them interpret the data they have gathered.

Since the training that the parent educator and the teacher receive is a crucial aspect of the Florida Model, the summer workshops at the University of Florida are carefully planned. The first workshop ran eight hours per day, five days a week for two weeks during the summer of 1968. Three workshops running eight hours per day, five days a week for three weeks each are planned for the summer of 1969. Among the experiences provided in the workshops are the following:

1. Lectures, discussions, and laboratory experiences in child development and learning are conducted by specialists in such areas as cultural deprivation and the developmental theory and research of Piaget.

2. Techniques for systematically observing the teacher, the pupil, and the class at large are presented along with the opportunity to utilize them. In addition to thorough training in the use of the Florida Affective Categories and the Teacher Practices Observation Record, an introduction is given to other systematic observation systems such as the Florida Taxonomy of Cognitive Behavior (Brown, 1968) and the Reciprocal Categories System (Ober, Wood, and Roberts, 1968). The former assesses cognitive behavior in the classroom and the latter is a modification of Flanders' Interaction Analysis.

3. Training and supervised practice in administering the How I See Myself, the Social Reaction Inventory, the Children's Self-Social Constructs Test, and the Wolf Scale are provided.

4. Follow Through teachers explore and discuss techniques for supervising the activities of the parent educator.

5. Parent educators and, to a lesser extent, teachers study techniques for teaching mothers in the home. They not only observe actual home visits but practice filling in the Parent Educator Weekly Home Visit Report.

6. Lectures, discussions, and actual practice are provided in the area of curriculum development and utilization. Not only are participants given the opportunity to build Piagetian tasks, but experience is provided in teaching such tasks to children.

Of course, the content of the workshops will vary according to the needs of the participants. Experienced parent educators and teachers, for example, need different experiences than those receiving such training for the first time. The University of Florida staff does not emphasize formal presentations at these training workshops but

attempts to make the experiences as practical as possible. Much, perhaps most, of the training received might be described as a practicum and field experience type.

The Parent Educator as an Agent of Change

The Florida Parent Education Model is a somewhat complex program that requires considerable coordination and teamwork between the home, the school, and the University. Utilization of the parent educator as teacher aide in the classroom is only part of the program. However, if the parent educator plays her classroom role effectively, several changes should result. First, as she and the teacher develop learning tasks to be used in the classroom and home, changes in teaching materials and procedures should occur. Tasks of a Piagetian nature, for example, require teaching procedures that differ somewhat from conventional ones. If the teacher examines everything that she teaches in terms of Piaget, the end result could be a complete revision of the curriculum.

Second, since the parent educator works with individual and small groups of children somewhat independently of the teacher, and since such instructional activities require planning by the teacher and the parent educator, the teacher must adjust to a new role. She must develop her decision-making skills so that she can plan effectively by utilizing the information fed back to her by the parent educator and the University. Also, the teacher must develop her supervisory skills. She must learn to plan cooperatively with the parent educator and to allow her some independence in performing her instructional and data-gathering functions. She must also learn how to assess the parent educator's success in carrying out her classroom functions and give her guidance when necessary.

If the teacher learns to utilize the parent educator effectively, then she should increase her ability to provide for the individual needs of children. Not only can the parent educator work with a given child on an individual basis, if necessary, but she can gather data on the child and his home that is not otherwise likely to be available to the teacher. This increase in the teacher's potential effectiveness should significantly increase her morale.

Third, the teacher's classroom behavior should change as a result of the systematic observation data that is fed back to her. The data gathered by the parent educator with the TPOR and FLAC, for example, should influence the teacher to change the behavior in her classroom in whatever directions that she feels are desirable. Further, the teacher's skill, as well as that of the parent educator, in using and interpreting such instruments should increase.

Fourth, inasmuch as the parent educator visits the homes of the pupils as well as serves as teacher aide in the classroom, the amount of interaction between the home and the school should increase. The home-school relationship should improve and the mothers of the pupils in the teacher's classroom should change their attitudes toward and actual involvement in the school's activities. The teacher should find it easier to communicate with both her parents and her pupils as a result of the parent educator's efforts.

Fifth, changes should occur in the pupils. As a result of the instructional and diagnostic efforts of the teacher and parent educator in the school, and the efforts of the mother and parent educator in the home, the pupils' self-concepts should become more positive. In addition, chances of the pupils achieving success in classroom activities

are increased by the kinds of diagnostic and instructional procedures being utilized. As their level of achievement increases, their classroom behavior should become more work-oriented.

Research and Evaluation

The changes listed above suggest a number of research hypotheses. In fact, such research is presently being conducted by the Institute for Development of Human Resources at the University of Florida. The results of this research will provide a basis for evaluating the effectiveness of the parent educator as an agent of change.

REFERENCES

Brown, B. B. The experimental mind in education. New York: Harper & Row, 1968.

Long, B., & Henderson, E. H. Social schemata of school beginners: Some demographic correlates. In Proceedings: 75th Annual Convention, American Psychological Association, 1967. Pp. 329-330.

Mork, D., & Shea, J. J. Parent educator as curriculum development aide. Paper presented at the meeting of the American Educational Research Association, Los Angeles, February 1969.

Ober, R. L., Wood, S. E., & Roberts, A. The development of a reciprocal category system for assessing teacher-student classroom verbal interaction. Paper presented at the meeting of the American Educational Research Association, Chicago, February 1968.

Siegel, B. L. Parent educator in the home. Paper presented at the meeting of the American Educational Research Association, Los Angeles, February 1969.

Soar, R. S. An integrative approach to classroom learning. Final Report, 1966, University of South Carolina, Project No. 5-R11 MH 01096 and Temple University, Project No. 7-R11 MH 02045, National Institute of Mental Health.

THE COOPERATIVE DEVELOPMENT OF LEARNING TASKS IN THE FLORIDA PARENT EDUCATION FOLLOW THROUGH MODEL

Dorlan Mork and Joseph Shea

INTRODUCTION

The Florida Parent Education Follow Through Model provides three important avenues for influencing change in classroom organization, teaching patterns and learning activities. The three key features of the Model are (1) the use of paraprofessionals as parent educators and classroom workers (2) the use of systematic observation techniques, and (3) the emphasis on a learning activities program based upon Piagetian theory. This paper deals with the last of these features - the development of Piagetian-type learning activities which we refer to as tasks.

The Florida Parent Education Model uses the learning task as a medium for influencing a number of facets of the learning environment. The fact that the Model calls for local task construction results in teachers and parent educators taking a critical look at their own curriculum. The revised curriculum thus tends to better reflect the needs, culture and resources of the local community. A further purpose of local task development lies in the extent to which curriculum based on Piagetian-type learning experiences appear to be well suited for use with children from culturally deprived settings.

The Model also intends for the parent educator to be a communication link between the school and home, parent and teacher, as well as between the child and the curriculum. The parent educator, therefore, is so in gear with the child's learning environment that she is uniquely capable of working in partnership with the teacher in task development.

Additionally, by having the parent educator communicate selected activities into the home, it is possible for both the home and the school to become educationally stimulating to the child. Because of her school, home, and parent and child contact, the parent educator is a vital source of information for the production and selection of learning tasks.

PIAGETIAN BASED TASKS

Effective teachers have for centuries endeavored to cause their pupils to analyze, generalize, and summarize as well as interpret, anticipate and discriminate. It remained for Piaget to observe, identify and classify these kinds of thought processes into a comprehensive theory of cognitive development. Piaget has described intellectual development as evolving through various stages of ontogenetic development of the child. The age categories of Piaget's stages and substages are outlined in Table 1. Although the stage breakdown has been presented by Piaget and his followers in various ways at different times, the delineation given here is consistent with his notion of invariant sequences (Sullivan, 1967).

Table 1

PIAGETIAN DEVELOPMENTAL STAGES

Sensorimotor stage	(0-2 years)
Preoperational stage	(2-7 years)
Preconceptual thought substage	(2-4 years)
Intuitive thought substage	(4-7 years)
Operational stage	(7-16 years)
Concrete operational thought substage	(7-11 years)
Formal operational thought substage	(11-16 years)

(Piaget, 1960)

The children participating in Follow Through are generally in the five and six year age category. Piaget's intuitive thought substage (4-7 years) provides a convenient and reasonable psychological model for Follow Through task development.

Task Production

The Florida Model operates under the premise that a disadvantaged environment is less likely to offer opportunities for developing cognitive mental operations than the non disadvantaged environment. It is therefore desirable that the Follow Through project design learning tasks to bridge the home-school learning environment as well as supplement the learning opportunities available to the child.

The Institute's role in task production has expanded somewhat since the program was begun. This increased involvement was brought about by numerous requests from the centers for assistance. The chief concern expressed by the centers was in interpreting Piagetian theory and the application of Piaget's ideas to local resources.

The first aspect of task production was the identification of objectives; in this situation this involved the construction of a taxonomy of Piagetian-type mental operations by one of the authors of this paper (See Table 2). This taxonomy served both as source of task themes as well as criteria for assessing the adequacy of the task collection in covering the domain of desired mental operations. It should be noted that the taxonomy is not a closed system, and that it can be expand whenever an objective is identified which focuses on Piagetian-type mental operations.

Table 2

SELECTED CATEGORIES FROM A
TAXONOMY OF PIAGETIAN-TYPE MENTAL OPERATIONS

Discrimination	Temporal Reasoning
Audio	Before
Visual	Now
Tactile	After
Smell	Tomorrow
Taste	Later
Seriation	**Spacial Reasoning**
Size	Under
Weight	Over
Shade	Here
Texture	There
Color	On
Conservation	**Grouping**
Number	Color
Weight	Shape
Continuous matter	Material
Discontinuous matter	Texture
Time	Size

The second aspect of task development involves the incorporation of the Piagetian-type objectives into the local curriculum. In most instances the local curricula provide abundant opportunities for this kind of adaptation. In other cases, this effort to adapt has the effect of revealing deficiencies in the local programs. These deficiencies can then be compensated for by the addition of Piagetian-type tasks. Through this effort it is desired that the Piagetian approach permeate the curriculum and become an instructional technique which will thread throughout the educational program.

Through the influence of the parent educator the child, his home, and his parents become determinants of curriculum. By means of home visits and classroom observation, the parent educator assesses educational strengths and weaknesses of the child and his home environment. She, therefore, can bring suggestions to school for task development and utilization. As a result the parent educator becomes instrumental in the development of a personalized curriculum for each Follow Through child.

The third consideration in task production relates to internal qualities and characteristics of the task itself. It should be noted that tasks developed under the Florida Model are not precise representations of Piagetian theory. It is desired, however that the tasks reflect a Piagetian overtone. The Florida Model is a process model which requires only that the tasks be carefully specified and described so that the parent educator can carry them out with children in the classrooms and with mothers in the homes.

For the benefit of children, parents, parent educators and teachers of all centers, it appeared desirable to promote a limited amount of internal task consistency. For this reason a number of suggestions were sent to the various centers for the local development of tasks. These suggestions (See Table 3) were drawn, in part, from the writings of Almy (1966), Ausubel (1963), Flavel (1963), Inhelder (1958), Piaget (1960), and Sullivan (1967).

Table 3

SUGGESTIONS FOR THE LOCAL DEVELOPMENT OF LEARNING TASKS

1. Good Piagetian tasks should develop mental operations (mental processes or "ways of knowing").

2. The task should promote a notion of logical thought sequence for the child. The elements of the sequence for one child are not necessarily the same as for another child or for an adult.

3. Good tasks should provide for the continuous mental involvement of each participating child. An occasional "tune-in" and "tune-out" disrupts the logical progression and greatly diminishes the value of the task.

4. Tasks in general should be "open-ended" (no specific culmination is anticipated at the completion of each task. The task should rather serve as a "springboard" for further individual exploration.)

5. The use of proper labels (names of objects, people, quantities, colors, etc.) is secondary to the thought processes which these labels tend to facilitate. Let the need for labels precede their designation. If the task causes a child to discriminate between colors, shapes, quantities, etc., it can be assumed that he then has a need for a label and the vocabulary of labels can be injected into the task.

6. Lower level tasks should, whenever possible, enable the child to manipulate real materials such as rocks, leaves, crayons, fruits, vegetables, bottle caps, spools, etc.

7. Tasks should be prepared and utilized which develop mental processes that have practical value in the child's life.

8. Task activities should be informal, flexible, logical and spontaneous rather than rigid recipe-book type procedures.

9. Piagetian tasks should permeate the educational program. It is hoped that their usage will result in a way of teaching which will be in evidence throughout the educational program.

10. The element of surprise should be built into each task. Even a surprise failure may prompt a child to pursue a thought process with increased vigor. Activities should also be intriguing to the child and should capitalize on the kind of events which excite children at this age.

11. Verbal and non-verbal interaction should be encouraged among children in a group as well as between children and adult leaders.

12. Whenever possible present higher order questions which require the child to anticipate, summarize, generalize, interpret, analyze, discriminate etc.

The task in Table 4 is presented as an example of a learning activity produced under the procedures previously described.

Table 4

A SAMPLE TASK

"BLIND DETECTIVE"

Aim: To learn to recognize shapes of objects from touch and to transfer this knowledge to verbal and pictoral descriptions.

Materials: A paste board box and an assortment of blocks, balls and other small objects. Cut two holes on opposite sides of the box large enough for child's hands and forearms to enter, and near enough to the bottom of the box that he may handle objects that are placed on the bottom. Place objects in the box for children to handle without seeing. The younger the child the simpler and more familiar the objects. For older children use complex shapes and less familiar objects.

Action: Place objects in the box and have the child come to the box and put his hands through the holes to handle one object. Encourage them to turn the object over in their hands and feel all surfaces and angles. The teacher can observe by looking into the top of the box. Ask the child to describe the object. Then ask him to draw it. After he has done this, place the object in his view and let him describe and draw it.

Adaptations: When two different objects are used, the child could describe how the objects differ or are alike.

The format of learning activities used in the layout of the task components - aim, materials, action, adaptations - is an outgrowth of organizational pattern employed by Gordon and Lally (1967) and Wagner, et. al. (1967) in their books of learning activities.

Task Assessment

A basic part of the Follow Through Model is systematic monitoring. Periodically, each Follow Through Center forwards to the Institute copies of the tasks recently produced. Additional information relative to task production is provided by the Parent Educator

Weekly Report (PEWR) as described in a previous section of this report and other classroom observational data.

Each locally produced task is evaluated subjectively by the Institute in terms of its correspondence to Piagetian qualities. The task is appraised and assigned a classification symbol to indicate the presence of one of the following conditions:

1. Good Piagetian Task - The task focuses on a Piagetian-type mental operation and reflects internal characteristics consistent with the suggestions presented in Table 2. These tasks are reproduced and occasionally modified for distribution to other Follow Through centers

2. Potential Piagetian Task - The task lacks either a promising mental operation or internal qualities. This kind of task holds some potential but requires considerable revision before it can be utilized or circulated.

3. Non Piagetian Task - The task lacks both a mental operation focus and internal qualities. This task presents little potential for utilization or revision.

This classification information is then sent back to the Follow Through Centers for their use in further task development and utilization. To date a total of 183 tasks have been received. Of this number, 9 tasks were regarded as good, 94 were classified as potentially good and the remaining 40 were seen as essentially non-Piagetian.

A second facet of task evaluation is the assessment of task suitability to the interest and ability of the mothering one and the child. Table 5, an exerpt from the PEWR, shows the items used in making this appraisal.

Table 5

PEWR TASK ASSESSMENT ITEMS

Col. 36 and 37. Which main task was presented today? Place the task number in Col. 36 and 37. If task number was only one digit, precede it with a zero. Example: If you present task 6, mark 06 in Cols. 36 and 37.

Col. 38. How did the mothering one react to your instructions for main task?

1. Looked at you while you were talking. Asked questions, was attentive.
2. Did other things while you were showing her how to do the task (ex: straightening child's clothes, looked around the room, did housework), listens passively.
3. Walked out of the room while you were explaining things to her.
4. Refused to do task
5. Laughed at and/or scoffed at instructions
6. Other _____

Col. 39. Mothering one's ability to repeat main task

1. could repeat task you had explained to her
2. could do part of the task by herself but needed the trainer's help
3. couldn't repeat task you had explained to her

Col. 40 and 41. Which main task was presented during last visit? Place the task number in Cols. 40 and 41. If the task number has only one digit, precede it with a zero. Ex: If last task was No. 5, mark 05 in Cols. 40 and 41.

Col. 42. Mothering one feels that child's response to last task was

1. child was highly interested in it and successful
2. child was highly interested in it but could not handle materials
3. child was mildly interested in it and successful
4. child was mildly interested in it but could not handle materials
5. child showed little interest but could handle the materials when urged to
6. child showed little interest and was not able to handle materials

Col. 43. When the mothering one goes over last week's task with her child she

1. doesn't know what she is doing
2. knows what she is doing
3. information not available

Col. 44. When the mothering one goes over last week's task with her child, she

1. gets discouraged if child doesn't do task the first time
2. satisfied even if child doesn't do well
3. tries again even if child doesn't do well the first time
4. tries until child can do it or child gives up
5. continues task even after child does well
6. she did not go over last week's task

Another important facet of task assessment is the role played by the consultant in maintaining continuing contact with local centers through correspondence and a monthly visitation. The consultant from the Institute uses this visit as an opportunity to work directly with teachers and parent educators in the classroom, on home visits, and in workshops. Because of his periodic visitation schedule and his professional bearing, the consultant is in a unique position to personally communicate task assessment information and assistance to each center.

Implications for Future Task Production

The development of appropriate tasks which fit our Piagetian based framework has been and continues to be an area of vital concern to the success of the project. Since this is the initial year of operation for the project, much of the data relevant to tasks remains to be collected and analyzed. As result, the following conclusions and implications should be regarded as subjective and tentative:

1. The Piagetian theory of cognitive development has been an effective force in providing structure and direction for the task development program. Thus far it is apparent that this theoretical base can be incorporated into existing local curricula.

2. One of the important outcomes thus far has been the realization by the schools that (frequently) their curriculum documents contain numerous examples of learning objectives which could be readily adapted to a Piagetian theoretical base.

3. Success in task production is related to the teacher's and parent educator's familiarity with Piaget's developmental stages and a working taxonomy of mental operations.

4. The identification of mental operations categories served as an effective criteria in the assessment of the tasks which have been produced.

5. Task development should receive greater emphasis during the summer workshop sessions as well as through the ongoing consultant visitation program.

Concluding Statement

The cooperative planning of learning tasks has been an integral part of the Florida Parent Education Model from its inception. It has come more clearly into focus, however, since September of 1968. Task development has become a means by which the teacher and parent educator plan and work together while the task itself represents the substance of parent educator activity. Although other materials could also serve as substance, our experience to date suggests that the present approach offers opportunities for influencing both school and home in substantial ways.

REFERENCES

Almy, M., Chittenden, E., & Miller, P. Young children's thinking. New York: Teachers College, Columbia University, 1966.

Ausubel, D. The psychology of meaningful verbal learning. New York: Grune & Stratton, 1963.

Flavell, J. The developmental psychology of Jean Piaget. Princeton, N.J.: Van Nostrand, 1963.

Gordon, I., & Lally, J. Intellectual stimulation for infants and toddlers. Gainesville: University of Florida, College of Education, Institute for Development of Human Resources, 1967.

Inhelder, B., & Piaget, J. The growth of logical thinking from childhood to adolescence. New York: Basic Books, 1958.

Piaget, J. The psychology of intelligence. New Jersey: Littlefield, Adams, 1960.

Sullivan, E. Piaget and the school curriculum - a critical appraisal. Ontario: Ontario Institute for Studies in Education, 1967.

Wagner, G., Duea, J., Finsand, D., & Mork, D. Science games and activities. Darien, Connecticut: Teachers Publishing Corporation, 1967.

CONTRIBUTORS

Mr. John P. Bailey, Jr. is Research Associate, Institute for Development of Human Resources and a doctoral student in Foundations of Education Department.

Dr. William F. Breivogel is Assistant Professor of Elementary Education, Assistant Executive Secretary of the Florida Educational Research and Development Council, and a member of the Institute for Development of Human Resources.

Dr. Malcolm Garber is Assistant Professor, Foundations of Education Department and a member of the Institute for Development of Human Resources.

Dr. Ira J. Gordon is Professor, Foundations of Education Department, Director of the Institute for Development of Human Resources, and Principal Investigator of both the Early Child Stimulation Through Parent Education and the Follow Through Assistance Projects.

Dr. Gordon E. Greenwood is Assistant Professor, Foundations of Education Department and a member of the Institute for Development of Human Resources.

Dr. R. Emile Jester is Assistant Professor in the Foundations of Education Department and a member of the Institute for Development of Human Resources.

Dr. J. Ronald Lally is Assistant Professor, Institute for Development of Human Resources and Project Field Director of the Early Child Stimulation Through Parent Education Project. He received his doctorate in June 1968 from the University of Florida.

Mr. John A. Maurelli is Research Associate, Institute for Development of Human Resources and a doctoral student in Foundations of Education

Department.

Mr. Dorlan D. Mork is Research Assistant, Institute for Development of Human Resources and a doctoral student in Curriculum and Instruction.

Mr. Michael Resnick is Research Assistant, Institute for Development of Human Resources and a doctoral student in Foundations of Education Department.

Mrs. Gail C. Scott is Research Assistant, Institute for Development of Human Resources and a doctoral student in Foundations of Education Department.

Dr. Joseph J. Shea is Assistant Professor, Elementary Education Department and a member of the Institute for Development of Human Resources.

Dr. Betty L. Siegel is Assistant Professor, Foundations of Education Department and a member of the Institute for Development of Human Resources.

Mr. Thomas S. Tocco is Associate in Research, Institute for Development of Human Resources and a doctoral student in Foundations of Education.

Mr. Gary L. Weld is Research Associate, Institute for Development of Human Resources and a doctoral student in Foundations of Education Department.