LANGUAGE FACILITY IN RESPONSIVE PROGRAM
KINDERGARTEN CHILDREN

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STATEMENT BY AUTHOR

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ABSTRACT

Thirty-two low-income kindergarten children in the Responsive Follow Through Program (FT children) and twenty-four comparison children (NFT children) were tested on the Language Facility Test. The Responsive Follow Through Program emphasizes a language experience approach to language instruction; the Language Facility Test was designed to measure language facility independent of a child's ability to produce middle-class English. The FT and NFT groups were evenly divided by sex and ethnicity (black and white). A three-way analysis of variance (Program x Sex x Ethnicity) was performed on the data. There was no difference in performance between FT and NFT children or between black and white children. There was evidence that girls demonstrated greater language facility than boys, and there was a slight indication that sex interacted with the program variable. The finding of no difference between the FT and NFT children may signify that the two groups do not differ in language facility. However, the assessment instrument may not have been sensitive to differences which exist between the groups. Language facility scores were also correlated with Learning Booth achievement for sixteen FT children. No correlation was
found. It was concluded that a more precise measure of Learning Booth achievement is needed.
CHAPTER I

INTRODUCTION

Purpose

The major purpose of this study was to assess the effectiveness of the Responsive Follow Through Program in the area of oral language facility. The Responsive Program is one of several early childhood education models which are being used experimentally in kindergarten through third grade under the auspices of Project Follow Through.

An additional objective of the study was to investigate the relationship between oral language facility and a child's achievement in the Learning Booth, which is an integral part of the kindergarten level of the Responsive Follow Through Program.

Background

With the advent in the early 1960's of the cultural deprivation theories of child development (Hunt, 1969; Deutsch and Deutsch, 1968), and the subsequent institution of widespread educational intervention programs, much attention has focused upon the language development of the culturally different child. While educators disagree in their view of the culturally different child's language, and what language instruction should entail, they nevertheless
agree that a successful intervention program must emphasize development of a child's language facility (Bereiter and Engelmann, 1966; Maccoby and Zellner, 1970). As Maccoby and Zellner state, "Success in school depends heavily on linguistic fluency, and it is particularly in language that poor children fall short" (p. 42).

Project Follow Through, funded under the Economic Opportunity Act and administered by the U. S. Office of Education, has given more than 20 sponsors the opportunity to implement an educational program on a large-scale basis. The sponsors usually operate by sending their own training staff to train program directors and advisors in the communities, who in turn train Follow Through teachers and teaching assistants.

The sponsors subscribe to a number of basic theories of learning and development (Stanford Research Institute, 1972), and each takes a somewhat different approach to language instruction. Maccoby and Zellner (1970) summarize some of the similarities and differences between the sponsors in the area of language:

... everyone takes it as a goal that the child should be able to produce appropriate words and phrases, as well as understand them. The differences among programs seem to lie in what procedures are thought to bring these conditions about, and in what detail they are specified. Some programs assume that if the teacher achieves a close match between what she says and what the child is doing, this will be sufficient to insure that the child will attend to what she says. Others argue that the teacher's verbalization must be in response to
something the child has said or done—an answer to his question or an expansion of his spontaneous verbalization. In a Skinnerian program the necessary element is that there shall be some desirable consequence for the child in his attending to, understanding, and using language (p. 47).

The Responsive Follow Through Program

Background and Objectives

The Responsive Follow Through Program (see Appendix A) is an outgrowth of the New Nursery School, which was started by Dr. Glen Nimnicht and his associates in Greeley, Colorado (Meir, Nimnicht, and McAfee, 1968). The concern of the New Nursery School was to provide a carefully designed "autotelic responsive environment" for Spanish-surnamed preschool children. In 1968 Nimnicht, who had become affiliated with the Far West Laboratory for Educational Research and Development, was asked to sponsor Follow Through programs in fifteen communities nationwide.

The two major objectives of the Responsive Follow Through Program are to help children develop a healthy self-concept as it relates to learning in the school and the home, and to develop their intellectual ability (Nimnicht, 1971). To effect these goals, the classroom is organized as a responsive environment, built on the principles set forth by Moore (1963):

1. It permits the learner to explore freely.
2. It informs the learner immediately about the consequences of his actions.

3. It is self-pacing, i.e., events happen within the environment at a rate determined by the learner.

4. It permits the learner to make full use of his capacity for discovering relations of various kinds.

5. Its structure is such that the learner is likely to make a series of interconnected discoveries about the physical, cultural, or social world.

An additional principle of the responsive environment is that classroom activities are *autotelic*, that is, the activities are self-rewarding and do not depend upon rewards or punishments unrelated to the activity (Nimnicht, 1971).

**Language Development**

The language program used in the Responsive Follow Through Program is based upon a language experience approach to language instruction. Such an approach uses the language and thinking of the child as the basis for instruction in language skills. The program encourages teachers to eventually form their curricula to meet their own needs and those of their children (Biestman, 1971). The goal is for teachers to build upon the "spontaneous language" of the children by writing their own lesson plans, teaching
concepts, skills and words that are related to the child's language and vocabulary, and relating what the child learns in language and reading to other areas of the classroom.

The teacher also has the role of a verbal mediator in the classroom. Nimnicht explains, "... you do not just put (a child) in a rich environment and expect good things to happen because he is now getting sensory experience. It has to be interpreted; there has to be someone providing verbal mediation for him to understand what he is seeing and perceiving" (Maccoby and Zellner, 1970, p. 44).

The Learning Booth

At the kindergarten level of the Responsive Follow Through Program, an important part of a child's experience is the Learning Booth. Two or three times a week, a booth attendant (typically a person hired from the community) asks a child if he would like to "play with the typewriter." If the child says "yes," the attendant takes him to a booth equipped with an electric typewriter and related materials. With the guidance of the booth attendant the child begins by exploring the typewriter, then progresses through various phases of Learning Booth activities at a pace determined by his own interests and accomplishments (see Appendix B). The philosophy of the Learning Booth has been set forth in the Guide for Learning Booth Attendants (Barnes, Abbey, Pechman, Rogers, and Warner, 1970):
The main purpose of the Learning Booth is to help a child learn to solve problems and find answers by himself. A child who depends on himself to learn has learned how to learn. Most problems presented in the booth are about reading, but teaching reading is not the main purpose of the booth. If a child also learns to read while he is learning how to solve problems, that is a bonus.

A child will learn how to learn if a booth attendant does not question him, but answers his questions and responds to him and his actions. In this way, children are likely to make discoveries about the typewriter and letters and numerals. But more important, he is likely to develop the confidence to tackle problems and the skills to solve them.

A child is allowed to choose to come to the booth. He is not required to stay for a set time. We want him to come because the booth experience itself is rewarding.
CHAPTER II

LANGUAGE AND THE CULTURALLY DIFFERENT CHILD

Theoretical and Research Background

For more than a decade, much has been written concerning the effects of social class on language development, both in terms of general language functioning, and specific language competencies.

Bernstein (1961) has presented the notion that children from the lower-working class tend to experience a "pattern of difficulties" in coping with school. These difficulties occur in such language related areas as reading, extending vocabulary, writing, and verbal comprehension. He suggests that the reason for these difficulties is that the society in which lower-working class children grow up is "limited to a form of spoken language in which complex verbal procedures are made irrelevant by the system of non-verbal, closely shared, identifications which serve as a backdrop to speech" (p. 231). The result of this experience is that the child uses a language characterized by rigidity of syntax, restricted organization, and lack of elaboration.

Strodbeck (1964), in comparing the social structure of the dependent poor and the middle class, has suggested
that the major difference between the language of these two
groups lies in the fact that middle class social structure
necessitates elaborate conversation, whereas the feeling of
fear and powerlessness experienced by the dependent poor
mitigates against language expression.

Hess and Shipman (1968) have demonstrated social
class differences in maternal verbal output and suggest that
these differences contribute to performance differences on
cognitive tasks between children from the upper middle
classes and working class children.

Bereiter and Engelmann (1966) have concluded that
"the language deficiency of disadvantaged children is not
just one among a number of handicaps, but is the central
handicap from which many of the others derive" (p. 13).
They feel that culturally different children have mastered
the social uses of language, but not the cognitive uses.
Therefore they argue that the language of these children
must be altered to permit such cognitive uses to develop.

A number of research studies have pointed to
specific differences between the language of children from
different social classes. Loban (1963) found that the
speech of low socioeconomic status children is charac-
terized by (1) the use of fewer structural patterns (e.g.,
subject-verb-object) and (2) the use of fewer optional
constructions within the available patterns. Lesser,
Fifer, and Clark (1965) found differences in vocabulary
comprehension between first grade children from different social classes and ethnic groups, even though the test employed words common to the lower class children's urban environment. Kraus and Rotter (1968) devised an experimental situation necessitating verbal interaction between two children. The task involved ordering blocks on a peg, and to solve the problem, children had to describe the blocks in terms of shapes inscribed on their surfaces. They found that lower-class children performed more poorly on the task, both as senders and receivers of verbal information.

Thus the picture that emerges is one of a restricted language, both structurally and functionally. And implicitly, there is the suggestion that the language of the lower-class child is somehow less adequate than the language of children from the middle or upper classes.

The Deficiency-Difference Controversy

The central theoretical issue which emerges from a consideration of social class disparities in language is the issue of whether or not lower-class children possess a deficient language, or one that is different from middle-class English, yet adequate to meet the demands of their own community (see Yoder, 1970).

The basic assumption of the deficiency point of view is that middle-class English should be used as the criteria for judging successful language functioning. A language
which varies from middle-class English is considered deficient, and consequently subject to modification, primarily because it is believed that the deficient language acts as a cognitive liability for the child in the classroom.

Those who adhere to a language difference point of view (Houston, 1970; Labov, 1972) feel that the significance of language differences related to social class and ethnic group has been misunderstood. Labov explains that "this position holds that inner-city children do not necessarily have inferior mothers, language, or experience, but that the language, family style, and ways of living of inner-city children are significantly different from the standard culture of the classroom, and that this difference is not always properly understood by teachers and psychologists" (p. 59). He criticizes the deficit theory which has been used as the basis for large-scale intervention programs, stating:

The concept of verbal deprivation has no basis in social reality; in fact, black children in the urban ghettos receive a great deal of verbal stimulation, hear more well-formed sentences than middle-class children, and participate fully in a highly verbal culture; they have the same basic vocabulary, possess the same capacity for conceptual learning, and use the same logic as anyone else who learns to speak and understand English. The myth of verbal deprivation is particularly dangerous because it diverts the attention from real defects in our educational system to imaginary defects of the child . . . (p. 60).

The deficiency—difference issue has implications both for language instruction, and for the evaluation of
language programs. Instruction which is based on the deficiency conception will aim to modify and restructure the language which the child brings to the classroom. Instruction based on the difference view will build on the child's own language, perhaps modifying this language once a strong language base has been developed.

Evaluation which is carried out in the deficiency framework is likely to focus on the child's ability to speak, read and write middle-class English, and utilize the testing procedures which have been developed to assess such abilities. Evaluation undertaken from the difference framework is more likely to be experimental in nature, focusing on different criteria of successful language performance, and utilizing less rigid testing situations.

Finally, there are the potential consequences for the child. It is the goal of deficiency-oriented educators to give the child a language (i.e., middle-class English) which they feel will enable him to function on a level with his middle-class peers. Bereiter and Engelmann (n.d.) state:

For such a child it is not merely the "He don'ts" and the dropped consonants, or even the limited vocabulary of his language that constitute his language handicap. By his inability to make full use of language as a tool in learning and thinking, he is prevented from taking full advantage of the opportunities for education and advancement that are at last being made available to him (p. 6).
They go on to say,

Although this deficit in language mastery has its roots in social conditions that lie beyond the school, from the teacher's point of view it is an educational deficit that can be treated like any other educational deficit. It can be removed, providing the teacher understands clearly what it is she is trying to teach and providing she uses activities that foster the needed learning (p. 6).

Labov (1972), however, strongly criticizes intervention programs which have such modification of the child's language as their goal because he believes the deficiency theory upon which they are based is a misconception. It is his contention that such a program will ultimately fail because it does not recognize the validity of the child's own language, and that this failure will be construed as meaning that the child himself is deficient in some way. This is essentially the logic Jensen (1969) uses in arguing that the reason intervention programs have not been successful in raising the IQ of low-income black children is that these children as a group are genetically inferior in terms of IQ to middle-class white children.

The deficiency-difference issue, as Cazden (1968) has emphasized, is one which deserves careful investigation by the educational community, entailing both a better understanding of non-standard dialects, and the development of assessment instruments which "do not distort our assessment of children who speak a non-standard dialect" (p. 248).
Limitations of Language Testing

It is implied in the preceding section that traditional measures of language development may be inappropriate for testing the progress of culturally different children in an intervention program. This is particularly the case when the educational program in question operates from a difference framework, and utilizes a language experience approach to language instruction. Because such an approach does not focus on modifying the child's vocabulary, sentence structure and pronunciation to resemble that of middle-class English, it is highly inappropriate to measure the child's language development in terms of these criteria, which are the criteria upon which most standardized language tests revolve.

In selecting a measurement instrument for this study, an effort was made to find a suitable instrument given the objectives of the Responsive Follow Through Program. Many instruments were reviewed, with the final choice being the Language Facility Test (Dailey, 1968). The instrument is described in Chapter III, but it should be mentioned that the major factor in selecting the test was the incorporation of a 9-point scoring system which Dailey maintains provides a measure of oral language facility which is not based on the child's information, vocabulary, pronunciation, and grammar. However, because there is a lack of validity information concerning the test, the risk
remains that the instrument does not measure what it
purports to measure. Thus the question of the validity of
the Language Facility Test is a limitation of this study.

Although the Language Facility Test does provide
scoring criteria which differ from traditional criteria of
oral language facility, it nevertheless utilizes a tradi­
tional standardized approach for collecting the language
data. An examiner unknown to the child takes the child to
a testing place, and after briefly establishing rapport with
the child, begins the testing session. The same questioning
procedure is repeated for each child, with no variation
permitted in the case of a child who does not respond to the
specified questions. Labov (1972) criticizes this approach
to gathering language data, which he feels places the child
(especially the black child when the interviewer is white) in an "asymmetrical" situation. He reports how changes in
the social situation, such as including another child, can
alter substantially the verbal responses of a child. Thus
it is recognized that standardized testing procedures may
hamper the measurement of oral language facility, and hence
the data collection procedures present a limitation of this
study.
Hypotheses

Following the discussions presented in Chapter I and in this chapter, it is appropriate to examine four null hypotheses in the present research:

1. There is no difference between Follow Through and Non-Follow Through children in oral language facility.
2. There is no difference between black and white children in oral language facility.
3. There is no difference between boys and girls in oral language facility.
4. There is no significant correlation between Learning Booth achievement and oral language facility.
CHAPTER III

RESEARCH DESIGN AND FINDINGS

Sample

The subjects were 56 kindergarten children who lived in a large industrial city in the northwestern United States. Thirty-two of the children (FT children) participated in the Responsive Follow Through Program. The remaining 24 children (NFT children) attended adjacent schools, but were not a part of the Responsive Follow Through Program. Both the FT and NFT groups were evenly divided by sex, and each group was composed of equal numbers of black and white children. An attempt was made to hold income level constant for all subjects. All FT children were from families who met the Office of Economic Opportunity poverty guidelines for participation in Project Follow Through. Of the 24 NFT children, 8 came from families whose income was below poverty guidelines, 9 were from families whose income was above these guidelines, and for 7 children, income information was unavailable.

Ten kindergarten classrooms, accommodating some 300 children from the community, participated in the Responsive Follow Through Program. The FT children were selected at random from five of these classrooms. The five classrooms
from which subjects were drawn were designated as high implementation classrooms by the Follow Through Program Director and a Program Advisor familiar with all the kindergarten teachers. This meant that the teachers and teaching assistants in these classrooms were successfully implementing the principles of the Responsive Program. Additionally, all FT children had previously participated in the Responsive Head Start Program. It was felt that selecting children who had been in the Head Start Program, and who were now in high implementation Follow Through classrooms, would provide the clearest opportunity to test the effects of the Responsive Program.

The NFT children were drawn from three kindergarten classrooms in two different schools. Neither of the schools are associated with the Responsive Program, but were judged to be relatively comparable to the Follow Through schools on the basis of location, facilities, and children served. An effort was made to randomly select NFT children from among those who had not been in Head Start, to avoid the possibility of Head Start experience contaminating the findings. In the end, the NFT sample contained three children who had been in Head Start and five children for whom this information was unavailable. However, the majority (16) of the group had not had Head Start experience.
Method

The data were collected by a single experimenter, a white female. Each child was asked by the experimenter if he or she would like to come and tell stories. All the children were amenable to this idea, except for one child who later agreed to come after being assured that the experimenter was not going to give her a shot. The child and the experimenter then went to the testing location. Testing facilities ranged from a small janitor's closet to a sound-proof conference room.

After briefly establishing rapport with the child, the experimenter asked the child his name and the number of brothers and sisters he had. She then queried, as directed by the test administration manual, "Do you like to hear stories?" followed by, "Could you tell me a story about a picture if I show it to you?" If the answer was "Yes," the subject was given the first picture and the experimenter said, "Good, tell me a story about this picture." If the child said "No," the experimenter went ahead and presented the picture encouraging the child by saying, "See if you can tell me a story about this picture."

After presenting the child with the picture, the experimenter began transcribing the child's responses. If the child did not respond after about 30 seconds, the experimenter prompted him by saying, "Tell me what you see in the picture." When further prompting was needed, the
experimenter asked the child, "What are they doing in the picture?" and finally, "What else can you tell me about the picture?"

The same questioning procedure was followed for the second and third pictures. The testing session usually lasted about ten minutes, although the test was untimed. All sessions were recorded on a cassette tape recorder.

The three pictures used in the testing were selected from twelve supplied with the test kit. The first was a black and white photograph of a racially-mixed group of children playing on a wooden slide in front of a school building. The second was a line drawing of a boy sitting on a rock by the ocean, pointing at an airplane. The third was a scene by a Spanish master portraying a mother, father, and young son inside a dark house. The three pictures were chosen on the basis of the experimenter's judgment as to which pictures would be most relevant to the children to be tested. This was felt to be permissible in as much as the manual reports that the means, standard deviations, and factorial content of the twelve pictures are very similar.

**Data Collection Instruments**

Language Facility Test

The primary instrument used in this study was the Language Facility Test (Dailey, 1968), which was designed to meet the need of evaluating preschool intervention
programs. The test was chosen for this study largely on the basis of the rationale offered by the author of the test:

In order to evaluate preschool programs, a test of the ability to use oral language is needed. Such a test should take no more than ten minutes, and should be one which the average teacher can administer and score. It should provide a measure of language facility which is independent of vocabulary, pronunciation, and grammar (p. 1).

A standardized administration of the test utilizes three of twelve pictures supplied with the test kit. The child is shown each picture in turn, and responds to questions asked by the examiner. Responses are recorded by the examiner, and later scored on a 9-point scale. The responses to each picture receive a separate score, making the total number of point possible 27. The scoring criteria outlined in the manual are as follows:

9---A well-organized story with imagination and creativity. Need not be original. May use well-known fictional or historical characters.

8---A complete story, but not a well-organized one.

7---An interpretation of some elements of implied action or intentions, as deduced from or suggested by the picture but not a complete story.

6---A detailed description of what is happening, but nothing about past or future action or intentions. At level 6 all or nearly all of the elements of the picture will be covered, in contrast to level 5 where only some selected elements will be covered.
5—A partial description consisting of two or more sentences with some description of movement or action as seen in the picture.

4—Two or more sentences describing persons or objects but no verb of action or indication of interaction between a person and an object.

3—A complete sentence that makes sense.

2—Compound responses, two or more words at a time, a single word describing action, or more than one single-noun response.

1—One single-noun response.

0—No response—garbled speech, or only pointing at picture.

Examples of responses scored at each level are presented in Appendix C.

The manual reports inter-rater reliability coefficients, inter-item correlations, and test-retest reliability coefficients. Obtained inter-rater reliabilities are reported to range from .88 to .94. Average inter-item correlations based on the scores of 630 elementary children were .70, indicating a reliability of .86 for the three-picture form of the test. Reported test-retest coefficients ranged from .46 for a group of 112 pre-kindergarten children tested at a 15-week interval to .90 for a group of 10 middle-class nursery school children tested at a 5-week interval.
In general, the majority of the reliability findings supported the choice of the instrument.

Reliability information was also obtained for the sample tested in the study. After the tapes and the experimenter's notes were reviewed and a complete transcript prepared for each child, the set of 56 transcripts was scored independently by two raters, each of whom had thoroughly read the scoring directions presented in the manual. An inter-rater reliability coefficient was calculated using each subject's total score. The calculation yielded an inter-rater reliability coefficient of $r = .86$. It should be mentioned that before further analyses were performed, however, the two raters discussed the ratings where disagreement had occurred and arrived at a consensus score for these ratings. The consensus scores obtained through this process are used in all analyses reported in this study.

As an estimate of the reliability of the instrument for this sample of children, a Spearman-Brown inter-item correlation coefficient was calculated. The reliability coefficient obtained through this procedure was $r = .76$, an acceptable reliability for a measure used in a group survey (Thorndike, 1971). The corrected coefficient was $r = .78$ (Wick, 1973). The negligible difference between these two values indicates that restriction of range of the scores was not a significant problem.
The manual also reports correlations of the test with other measures. For example, the correlation between the Language Facility Test and the Stanford-Binet Intelligence Scale for 43 inner-city first graders was $r = .11$. The Stanford-Binet is a highly verbal test acknowledged to be biased in favor of the speaker of standard English. Thus the low correlation between the two instruments, while by no means establishing the validity of the Language Facility Test, at least leaves open the possibility that is is measuring different aspects of language facility than those tapped by traditional standardized instruments. As a word of caution, it should be pointed out that the low correlation reported may have been due in part to the limited ability range of the subjects tested (Stanford-Binet $\bar{X} = 88.9$; S.D. = 12.3).

Learning Booth Data

The second source of data for the study were the Learning Booth records. The collection of Learning Booth data is a daily task performed by the booth attendant. Each time a child plays in the booth, the attendant records the total time spent by the child and the Phase-Step at which he typed. At the end of the year, the total time spent in the booth and the final Phase-Step achieved are calculated for each child. These are the two measures which will serve as
the basis for the analysis of Learning Booth achievement reported in this paper.

It has been found that there is little correlation between a child's performance in the Learning Booth and his score or a short form of the WPPSI (Rayder, 1972). Given this finding and the low correlation between the Language Facility Test and the Stanford-Binet, it was deemed appropriate to investigate the correlation between Learning Booth performance and language facility as measured by the Dailey test to determine whether those two measures tap common elements not measured by traditional intelligence tests.

Statistical Analyses

Analysis of Variance

A three-way analysis of variance was done on the total score and on each picture score. The independent variables were program (FT v. NFT), ethnic group (black v. white), and sex. The matrix in Figure 1 depicts the analysis of variance design and indicates the number of subjects in each cell. Although age of subjects was assumed to be controlled through random selection, a three-way analysis of covariance was performed on the total score with age as the covariate.

Additionally, since it had not proved possible to hold income level constant across all subjects, a one-way
Figure 1. Three-Way Analysis of Variance Design (Program x Ethnicity x Sex)

Analysis of variance was done on the total score with income level as the independent variable. The analysis was performed across FT and NFT groups, and there were three levels of the income variable: above OEO guidelines, below OEO guidelines, and no information.

Correlation

It was originally intended that scores on the Language Facility Test would be correlated with the two measures of Learning Booth achievement (total time in booth and final Phase-Step achieved) for the FT children. Two problems were encountered: differing periods of booth operation in the three Follow Through schools made it impractical to group FT subjects together for the analysis, and no variability among subjects was found in the final Phase-Step data. As a result, a single correlation coefficient was calculated between language facility total.
scores and total time in booth for a group of 16 FT children who attended the same school.

Results

Analysis of Variance

Owing to the exploratory nature of the study, the maximum acceptable alpha level was set at .10. Even this generous confidence limit yielded few statistically significant findings (see Tables 1 and 2).

The three-way analysis of variance on the total score produced no significant main effects and one significant interaction effect (Sex X Program, p < .10). The results were comparable when the analysis was performed with age as the covariate (Sex X Program, p < .10).

When the analysis was done on each of the three pictures, only picture #3 yielded significant differences (Sex, p < .10; Sex X Program, p < .05).

The one-way analysis of variance with income level as the independent variable and total score as the dependent variable did not yield a significant F-ratio (see Table 3).

The analyses fail to indicate a difference between FT and NFT children in terms of their language facility. Likewise, children tend to score about the same whether they are black or white, and whatever their sex. Income level does not appear to affect language facility. Since all the above OEO guidelines children were in the NFT
Table 1. Three-Way Analysis of Variance (Program x Ethnicity x Sex) for Total Score and Pictures #1, #2, and #3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td>Program (A)</td>
<td>1</td>
<td>.00</td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Ethnicity (B)</td>
<td>1</td>
<td>15.02</td>
<td>1.30</td>
<td>.26</td>
</tr>
<tr>
<td></td>
<td>Sex (C)</td>
<td>1</td>
<td>11.16</td>
<td>.97</td>
<td>.33</td>
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<tr>
<td></td>
<td>A x B</td>
<td>1</td>
<td>.48</td>
<td>.04</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>A x C</td>
<td>1</td>
<td>34.38</td>
<td>2.98</td>
<td>.09*</td>
</tr>
<tr>
<td></td>
<td>B x C</td>
<td>1</td>
<td>2.16</td>
<td>.19</td>
<td>.67</td>
</tr>
<tr>
<td></td>
<td>A x B x C</td>
<td>1</td>
<td>11.01</td>
<td>.95</td>
<td>.33</td>
</tr>
</tbody>
</table>

| Picture #1   | Program      | 1  | .01    | .00 | .95         |
|              | Ethnicity    | 1  | 2.16   | 1.18| .28         |
|              | Sex          | 1  | .16    | .09 | .77         |
|              | A x B        | 1  | .01    | .00 | .95         |
|              | A x C        | 1  | 2.99   | 1.57| .22         |
|              | B x C        | 1  | .16    | .09 | .77         |
|              | A x B x C    | 1  | 2.38   | 1.30| .26         |

| Picture #2   | Program      | 1  | .66    | .34 | .56         |
|              | Ethnicity    | 1  | .88    | .46 | .50         |
|              | Sex          | 1  | .02    | .01 | .92         |
|              | A x B        | 1  | .66    | .34 | .56         |
|              | A x C        | 1  | 1.43   | .74 | .39         |
|              | A x B x C    | 1  | 2.26   | 1.29| .28         |

| Picture #3   | Program      | 1  | .54    | .26 | .61         |
|              | Ethnicity    | 1  | 2.16   | 1.06| .31         |
|              | Sex          | 1  | 7.88   | 3.88| .05*        |
|              | A x B        | 1  | 2.05   | 1.00| .32         |
|              | A x C        | 1  | 8.82   | 4.35| .04*        |
|              | B x C        | 1  | .88    | .43 | .51         |
|              | A x B x C    | 1  | .07    | .04 | .85         |

*Considered significant.
Table 2. Three-Way Analysis of Covariance on Total Score with Age as Covariate

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program (A)</td>
<td>1</td>
<td>4.25</td>
<td>.40</td>
<td>.53</td>
</tr>
<tr>
<td>Ethnicity (B)</td>
<td>1</td>
<td>5.75</td>
<td>.54</td>
<td>.47</td>
</tr>
<tr>
<td>Sex (C)</td>
<td>1</td>
<td>7.85</td>
<td>.73</td>
<td>.40</td>
</tr>
<tr>
<td>A x B</td>
<td>1</td>
<td>4.87</td>
<td>.45</td>
<td>.50</td>
</tr>
<tr>
<td>A x C</td>
<td>1</td>
<td>36.74</td>
<td>3.43</td>
<td>.07*</td>
</tr>
<tr>
<td>B x C</td>
<td>1</td>
<td>7.24</td>
<td>.68</td>
<td>.42</td>
</tr>
<tr>
<td>A x B x C</td>
<td>1</td>
<td>12.53</td>
<td>1.17</td>
<td>.29</td>
</tr>
</tbody>
</table>

*Considered significant.

Table 3. One-Way Analysis of Variance on Total Score with Three Levels of Income

<table>
<thead>
<tr>
<th>Source</th>
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<th>MS</th>
<th>F</th>
<th>p less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>1</td>
<td>19.4075</td>
<td>1.69</td>
<td>.78</td>
</tr>
</tbody>
</table>
sample, this finding attests to the comparability of the FT and NFT groups on this variable.

There is a slight indication that the program variable may interact with sex. FT girls scored higher than FT boys, and NFT boys scored slightly higher than NFT girls (see Appendix D for cell means and standard deviations). However, a Tukey post hoc multiple comparison of the four cell means yielded no significant comparisons at the .10 level of confidence.

There is some indication in the results that picture #3 elicits qualitatively different responses than pictures #1 and #2.

Correlation

The Pearson Product-Moment correlation coefficient for language facility total score and total time in booth was -.02, representing no correlation between the two measures. This finding indicates that the two measures are not tapping the same elements.

Comparisons of Results With Percentile Norms

Norms based on approximately 4,000 students sampled from eight eastern and southern states are provided in the manual. The norming sample spans ages three to twenty and is assumed to reflect ability levels found in the general population. The overall means of the FT and NFT groups (16.9 and 16.9, respectively) were compared to the norms.
A score of 16.9 falls at about the 82nd percentile for 6-year-old children (the median age of the FT group was 73 months and of the NFT group 71 months).

This percentile rank was unexpectedly high. Because the characteristics of the 6-year-old norming sample (size, socioeconomic status, etc.) are not specified in the manual, and because it is possible there exists a positive bias in the present scoring due to a misinterpretation of the scoring directions, the comparison should be viewed with reservations.

Conclusions

The results of the study are somewhat equivocal concerning the effectiveness of the Responsive Follow Through Program in the area of oral language facility. The finding of no difference between the FT and NFT children could mean that there is in fact no difference between these groups in terms of their language facility, or it could mean that the measure used to assess language facility was not sensitive to the differences which may exist between the children. It should be emphasized that there is a lack of validity evidence relating to the Language Facility Test, and that the testing situation was not as conducive for the children as might potentially be arranged.

Also, it is possible that the kindergarten level is too early to test the effects of the program in the area of
language development. The reason for selecting kindergarten children was that these children participate in the Learning Booth, and part of the purpose of the study was to investigate the relationship between Learning Booth performance and language facility. However, testing second or third grade children who have been in the program several years might have been a more fruitful venture. In any event, FT children, who presumably come from the poorest homes in the community, appear to be performing on a comparable level with NFT children, although there is unfortunately no data to indicate whether such was the case prior to the institution of Follow Through. Furthermore, both groups seem to be performing favorably when compared to the norming sample.

The finding of no difference between black and white children on the Language Facility Test lends support to the test author's assertion that the instrument measures language facility apart from the child's vocabulary, information, pronunciation, and grammar. Again, the lack of validity information about the test moderates against a hasty conclusion that the test is a culturally unbiased measure of language facility.

Based on numerous experimental findings which have demonstrated a superiority of girls over boys in terms of language skills, one might reasonably have expected a sex difference to appear in the results. Except in the case of picture #3 this did not happen (see Appendix C). The content
of picture #3 (family scene) suggests that girls scored more highly than boys due to the greater appeal of the picture for girls.

The finding of no difference in performance between income levels indicates that the income differences among the children sampled were probably not large enough to be reflected in the results. A true test of the effect of income on language facility would necessitate sampling children from the middle or upper income ranges, as well as the lower ranges.

Although it is possible that there is no relationship between a child's performance in the Learning Booth and his oral language facility, the data used to test this hypothesis proved to be inadequate. The lack of variability in the Phase-Step data indicates that this measure is much too imprecise to use for research purposes, at least with small samples. Perhaps it would be possible to devise a measurement task related to what a child is assumed to learn in the booth which would yield scores with greater within-subject variability. Although there was variability in the total time in booth data, this information is probably more nearly a measure of how much the child likes the Learning Booth. Such a measure could be potentially useful, but was probably not appropriate for the analysis performed in this study.
APPENDIX A

RESPONSIVE EDUCATIONAL PROGRAM*

Learning activities that are self-rewarding (autotelic) and an environment structured to be responsive to the child's needs, culture, and interests are the main principles in this model. The autotelic principle states that the best way for a child to learn is for him to be in an environment in which he can try things out, risk, guess, ask questions, and make discoveries without serious psychological consequences. Autotelic activities include tasks and games that help the child develop a skill, learn a concept, or acquire an attitude that can be usefully applied in some other endeavor.

This sponsor believes that rewards are intrinsic within an activity and that the child gets feedback from physical materials as well as human interactions. Thus, he need not depend solely on the authority of the teacher for rewards, punishments, or feedback. The child becomes self-directed and develops inner controls.

The goals of the model are for the child to make interrelated discoveries about his physical and social world and to develop a healthy self-concept. A healthy

*Stanford Research Institute (1972).
self-concept allows the child to accept himself and his culture, to make realistic estimates of his own abilities and limitations, and to have confidence in his own capacity to succeed. Such a child is willing to take risks, learns from his mistakes, and feels safe in expressing his feelings. He learns to apply all his resources—emotional, physical, and intellectual—to the process of solving problems within his environment.

In the Responsive Model classroom the child is free to explore within a carefully controlled environment containing learning centers and a variety of games and activities. There is freedom to choose activities within already established limits. What he chooses to do is more likely to become important to him, to stimulate affective involvement, and to pose real problems. The child searches for solutions to problems in his own way, using a variety of resources, both physical and human. The teachers guide his discovery of solutions. The child finds out if his solutions work. Solutions he discovers often fit together and lead to other discoveries. The child's reward is what he gains from the entire experience.

Learning sequences have been developed for the model, but each child may work at his own pace. There are no constraints to master given lesson content by a given time. It is assumed in the model that no single theory of learning can account for all the ways in which children learn. What
is considered essential is that a variety of educational alternatives be available to build on whatever background, cultural influence, or life style the child brings to school.

The sponsor of this model trains a person from the local community to act as Program Advisor. The Program Advisor conducts inservice training for all staff and parent groups and is responsible for carrying the model's program into the classroom. One aspect of the training includes developing career-directed jobs for parents as teacher assistants, typing booth attendants, and the like. The training program is the first concern in evaluating the model overall. An attempt is made to determine how effective the training program is in producing the changes in teacher behavior required to implement the model and whether the changed behavior indeed affects the growth of children toward the self-concept and intellectual objectives of the program.

Since the approach taken by the Responsive Model places equal responsibility for the child's education on the home, particularly heavy emphasis is placed on parent involvement. Parents are offered training during which they are familiarized with the program and trained to pursue its objectives in the home. A game and toy library is available for parent use, and it includes filmstrips and audio tapes that demonstrate how the toys and games should be used. The sponsor also offers a course to teacher-librarians so they
can further assist parents in the application of program materials.

In addition to the parents trained specifically for employment in the project, parents in general are invited to participate in classroom activity on a volunteer basis. This gives them the opportunity to become aware of the kinds of adult-child interactions that contribute to the child's success in school and to become familiar with the principles and the activities of the program. The purpose of the carefully planned parent involvement demonstrated by this model is to train parents for the leader- and policy-making roles the sponsor feels they should assume in the education of their children.
APPENDIX B

LEARNING BOOTH ACTIVITIES

Phase I—Free Exploration

The child plays with the typewriter while the booth attendant tells him what he is doing and the typewriter shows him what he has done. As the child strikes letters, numbers, and punctuation marks, the attendant names them. When a child hits more than one key at a time, the typewriter jams and is turned off by the attendant using an electric foot switch. The child discovers, therefore, that the typewriter works only when he strikes one key at a time. As far as the youngster is concerned, he is not learning the names of letters, numerals, and punctuation marks, but he is learning to associate abstract symbols and sounds. A child is ready to move from Phase I to Phase II when the booth attendant can answer "yes" to these questions: Has the child been in the booth at least three times? Does he usually type one key at a time? Does he use the return key correctly?

Phase II—Search and Match

Step 1

In Phase II the child matches letters on the keyboard with magnetic and printed letters. In both steps of
this phase, the typewriter remains off as long as the child searches for the letter shown by the booth attendant; the attendant turns the typewriter on as the child types the letter.

Step 2,

Step 2 of Phase II makes use of cards. One letter or numeral is on each card and the child searches the keys to match that letter or numeral. The child learns to match correctly because the typewriter and booth attendant respond only to correct matches.

**Phase III—Discrimination**

Step 1

In Phase III, Step 1, the child discriminates between two or more letters on cards which are shown to him. The booth attendant names one of the letters and the child must decide which letter to type. The first cards show letters that look very different, for example, C and X. Later cards have letters that look and sound alike such as C and G. Thus, the task gradually becomes difficult.

Step 2

In Step 2 of Phase III, the child matches capital letters with their corresponding small letters. The booth attendant writes one to four capital letters across the top of a chalkboard and the same small letters across the bottom
in a different color. The child draws a line from each capital to its corresponding small letter.

Step 3

Cards with capital and small forms of letters are used in Phase III, Step 3. The child learns to use the upper and lower case keys.

Step 4

The cards in Step 4 have only small letters printed on them. The child must find the corresponding capital letter on the typewriter.

Phase IV--Words and Stories

In Phase IV, the booth attendant begins to ask the child if he would like to type a word. If the child doesn't know what a word is, he is told that his name is a word. When the child tells the booth attendant a word, he prints it on a flashcard and lets the child type it using capital and small letters correctly. When the child recognizes eight to ten words, he is asked if he would like to write a story. As the child tells the story, the booth attendant prints it, reads it, and tells the child he may type the story if he wishes.
Phase V—Classroom-Related Activities

Step 1

In Phase V, Step 1, the child is presented with Durrell-Murphy cards. One card might show a picture of a cat and the words "pat," "sat," and "cat." The child types the word which best describes the picture.

Step 2

Step 2 is a variation of story writing in which the child writes a note to a friend in the classroom.

Step 3

Step 3 is word discrimination with phonograms. The child sees a card containing a phonogram matrix such as the following:

<table>
<thead>
<tr>
<th></th>
<th>map</th>
<th>rap</th>
<th>tap</th>
</tr>
</thead>
<tbody>
<tr>
<td>mug</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ran</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tong</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One word is covered and the rule is for the child to type that word. In the above phonogram, the child can discover what the word is if he notices that the beginnings are the same in each column and the endings are the same in each row.
APPENDIX C

SCORING EXAMPLES

0 -- No responses scored at this level.

1 -- No responses scored at this level.

2 -- No responses scored at this level.

3 -- There's a dog and a baby . . . and then a big man and a
woman . . . and a basket with clothes in it . . .
that's all.

4 -- A man, dog, woman, and a girl . . . I don't know
nothing else . . . a man and a dog and a girl and a
woman . . . I don't nothing else . . . she's sitting
down and she's, he's sitting up and she's laying down
. . . don't know nothing else.

5 -- There's a little boy there . . . and there's a guy in
there . . . and there's a girl in there . . . nothing
else . . . the guy's holding the boy . . . and the
girl's holding the boy . . . and the girl's knitting
her clothes . . . nothing else.

6 -- Boy . . . a boy looking at the birds and airplane . . .
and the boy's wearing pants and a cowboy hat and a
shirt and shoes . . . and birds, ducks . . . birds
flying, airplane, airplane's windows, airplane's wings
let's see . . . watching the airplane . . . and the
birds are watching the boy and some are watching the
rocks . . . that's all . . . the boy's pointing to the
airplane, and the bird's wing's pointing to the boy
. . . and the ducks are heading through that way . . .
and that's all I think.

7 -- He's at the beach . . . seeing airplanes . . . and
ducks . . . and he's pointing at something . . . and he
has a funny laugh . . . some of the ducks are getting
ready to fly, to fly south.

8 -- They're sliding down on a piece of wood fence . . . and
eye're in a line . . . they're taking turns . . . a
boy is standing watching them . . . and boy and a girl
is lying on a piece of fence . . . playing, they're
playing at school . . . their teacher's watching them . . . they're having fun . . . some have pants on and some have dresses on . . . they have windows in their school . . . sometimes they're bad . . . sometimes they're good . . . and . . . by the windows they have doors . . . sometimes they have swings and sometimes they have slides . . . sometimes . . . sometimes kids look out the window at school . . . sometimes they run in the hallway . . . sometimes the kids look out the door . . . sometimes . . . sometimes they play in the dirt . . . when they play in the dirt they be a bad girl, bad boy . . . yeah . . . sometimes their teacher says they don't supposed to play in the dirt . . . sometimes they play in the rock and the teachers says they don't supposed to play in the rock . . . sometimes they have to come in . . . sometimes they run in the hall and the teacher says they not supposed to run in the hall.

9 -- He's sitting on a rock and he's watching the birds and the ducks and playing . . . and he's trying to catch a duck . . . and he can't catch a duck any more because his mother told him don't go far away and now she's calling for him and he won't come and when he comes home he's gonna get a spanking from his mother . . . and he didn't do what his mother said and his mother got mad and when he came home he got a spanking . . . and then his mother called again and she came and his and then he got a spanking and they went to the store and his mother told him to wipe his tears and then his sister came and his sister was waiting outside in the car and then his mother said I think we should go to the store, yeah I think we should go to the store . . . and then they went to the store and when they got back the boy got another spanking . . . and the sister said, mother why do you keep on spanking brother, and she said, 'cause he's too naughty, he do what I told him to don't do, and then he say, I don't like mother any more, I'm gonna run away, and then mother gave another spanking, and he ran away and when he came back the next day he got fifteen spankings . . . and that's the end.
### APPENDIX D

**CELL MEANS AND STANDARD DEVIATIONS**

Cell Means and Standard Deviations for Three-Way Analysis of Variance on Total Score

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Black</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 8</td>
<td>n = 8</td>
<td>n = 6</td>
<td>n = 6</td>
<td></td>
</tr>
<tr>
<td>$\overline{X}$ = 16.0</td>
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<td>$\overline{X}$ = 18.6</td>
<td>$\overline{X}$ = 16.3</td>
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<td>s.d. = 3.1</td>
<td>s.d. = 4.9</td>
<td></td>
</tr>
<tr>
<td><strong>White</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 6</td>
<td>n = 6</td>
<td>n = 6</td>
<td>n = 6</td>
<td></td>
</tr>
<tr>
<td>$\overline{X}$ = 15.5</td>
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<td>$\overline{X}$ = 16.0</td>
<td>$\overline{X}$ = 16.5</td>
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</tr>
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<td>s.d. = 2.8</td>
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<td>s.d. = 3.2</td>
<td>s.d. = 3.3</td>
<td></td>
</tr>
</tbody>
</table>

Cell Means and Standard Deviations for Three-Way Analysis of Variance on Picture #3

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Black</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 8</td>
<td>n = 8</td>
<td>n = 6</td>
<td>n = 6</td>
<td></td>
</tr>
<tr>
<td>$\overline{X}$ = 4.9</td>
<td>$\overline{X}$ = 6.1</td>
<td>$\overline{X}$ = 6.3</td>
<td>$\overline{X}$ = 5.8</td>
<td></td>
</tr>
<tr>
<td>s.d. = 1.3</td>
<td>s.d. = 1.6</td>
<td>s.d. = 1.2</td>
<td>s.d. = 1.3</td>
<td></td>
</tr>
<tr>
<td><strong>White</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 6</td>
<td>n = 6</td>
<td>n = 6</td>
<td>n = 6</td>
<td></td>
</tr>
<tr>
<td>$\overline{X}$ = 4.6</td>
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<td>s.d. = 1.5</td>
<td>s.d. = 1.8</td>
<td>s.d. = 1.4</td>
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</tr>
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</table>
REFERENCES


