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ABSTRACT

This report evaluates Higher Ground, an ESEA Title I project conducted in and by the metropolitan public schools of Nashville, Tennessee. The project focused on five activity areas: reading improvement programs, kindergarten programs for 5-year-olds, health and nutrition services, outdoor education, and multidisciplinary team intervention. Information about the individual costs of these activities as well as brief commentaries and cost figures for eight additional activity areas are also documented. A summary of project activities and conclusions about the effectiveness of the programs are included. Related documents are EA 003 692 and EA 003 720. (JF/EA)

Project HIGHER GROUND
Evaluation Report
FY 1969-1970

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INTRODUCTION

Project HIGHER GROUND

Introduction

Major goals of the Metropolitan Nashville Public Schools compensatory education ESEA Title I Project HIGHER GROUND are (1) upgrading the achievement gains of pupils in the project area schools and (2) improving the personal and social adjustment of pupils in the project area schools. To achieve these two major goals the overall basic needs of pupils must be met. Motivation directs all human behavior toward the satisfaction of needs, giving priority to the most pressing need felt at any given time. A hungry child cannot center his motivation drive on learning until he is fed. An extremely anxious child cannot center his motivational drive on learning until his extreme anxiety is alleviated.

Since psychology evolved as a science around the turn of the century, workers in this field have given attention to basic human needs as instigators of behavior. As early as 1918 Woodworth[1] recognized motivation as a psychological principal and by 1926 Tolman[2] was speaking of fundamental drives. Tolman spoke in terms of appetites and annoyances, defining appetites as tendencies to seek relief from an uncomfortable inner state and annoyances as tendencies to eliminate threat from without. In 1930 Watson and Spence[3] provided a helpful formulation of need priorities using

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[1]Woodworth, R. S., Dynamic Psychology. New York: Columbia University Press, 1918.

[2]Tolman, E. C., Can Instinct Be Given up in Psychology? Journal of Abnormal and Social Psychology. 1922, 17, 139-152.

[3]Watson, G. B., & Spence, R. B., Educational Problems for Psychological Study, Appendix A. The A B C of Educational Psychology. New York: The Macmillan Company, 1930, 326.

movement from and movement toward as behavioral consequences of motivational drive to satisfy needs as they were felt at a given time. They placed physical well-being first. In 1938 Murray[4] presented an elaborate grouping of needs giving organic needs primary status. The most well-known need hierarchy is that presented by Maslow[5] in 1943. Since that time, his need hierarchy has come to be generally accepted by educators as well as psychologists. In summary, Maslow's need hierarchy takes the following priority order: physiological needs, safety needs, needs for belongingness and love, esteem needs, needs for self-actualization, cognitive needs, and finally aesthetic needs.

Historical descriptions of the development of great civilizations such as that of Egypt and Babylonia parallel the hierarchies advanced by Watson and Spence, Murray, and Maslow in providing for physical well-being first and moving on up progressively to a high cultural level. There is thus an historical background and extensive theoretical formulations accompanied by research findings which support a serious consideration of the overall needs of children and the means for satisfying these needs in priority order before maximum learning can take place.

Component activities of Project HIGHER GROUND evolved through a consideration of the basic needs of children and a recognition that the physical well-being and emotional stability of children are prerequisite to effective classroom learning. Thus physical and emotional needs of

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[4]Murray, H. A., Explorations in Personality. New York: Oxford University Press, 1938, 79.

[5]Maslow, A. H., A Theory of Human Motivation. Psychological Review. 1943, 50, 370-396.

students were of primary consideration and implicit in all direct efforts toward compensatory education is the provision for successful experiences for boys and girls in the project area. It is well understood and accepted that such an approach is mandatory for the more deprived children for whom ESEA Title I funds are provided. The overview of separate component activities of Project HIGHER GROUND which follows is presented in basic need priority order as judged by the ESEA Title I compensatory education staff.

OVERVIEW OF COMPONENT ACTIVITIES

Project HIGHER GROUND

Overview of Component Activities

Health and Nutrition: Well-balanced hot lunches were provided an average of 1,750 project area pupils per month. Eligibility was established through a graduated family income criterion or, in some instances, substantiated extenuating circumstances in the family.

Clothing was provided approximately 4,000 needy children in the project area through the cooperation of ESEA Title I, Metro Schools, and PTA groups. (Cost: $80,000.00)

Pupil Personnel: Additional attendance teachers, psychologists, social workers, social work aides, and supportive supervisory and clerical assistance were made available in the project area schools. Thus the worker-pupil ratio was considerably lowered in order that the larger number of referrals on deprived children could be followed through.

Tutorial services and all needed related instructional materials were provided 163 resident children in St. Mary's Villa, Monroe Harding Home, Madison Children's Home, and the Metropolitan Children's Home. In addition, residents of Metropolitan Children's Home had a "one room" school setting within a Metro local school and a clinical child psychologist and child psychiatrist provided consultant services to the St. Mary's Villa staff through evaluation and study of individual children in the Villa. Children in these four homes attend Metro schools and all personnel providing special services to them through ESEA Title I funds worked very closely with the schools which they attended. (Cost: $173,441.55)

Cultural Enrichment: Additional experiences in music, art, and drama were made available to 12,500 selected pupils in the project area. Special consultant teachers in music and art served elementary schools. In

secondary schools piano accompanists were provided for vocal groups and school-centered little theaters were formed to present dramatic productions. These same productions were presented throughout the summer in the various project area communities with large audience attendance. (Cost: $52,261.15)

Kindergartens for Five Year Olds: Approximately 1,550 children in the project area were provided kindergarten experiences. The lowest income family children had priority placement although the kindergarten program was not exclusive to all other children in the project area. Major goals of the program were (1) to provide maximum language experience and (2) to broaden social relationships. Well-equipped classrooms convenient to the children enrolled were provided. In this component transportation costs were also furnished children in the Metropolitan Nashville Public Schools Follow Through Program. (Cost: $249,441.06)

Diagnostic Education of Deprived Children and Youth: Through diagnostic data secured on project area pupils data processing provided local schools with categorical diagnostic breakdowns to give more extensive information on individual pupils. The diagnostic breakdowns indicated effective grouping procedures and appropriate curriculum materials for these groups. Information provided on individual pupils in each category indicated the appropriate instructional level of each individual pupil. Approximately twelve elementary and secondary schools received and effectively used this diagnostic education service.

In addition, instructional staff used the diagnostic education materials in summer workshops to help teachers in local schools become better prepared for the instruction of specific pupil populations placed in their charge at the beginning of the school year. For this work individual pupil data sheets on specific school populations were provided as requested.

Since this component contains the data necessary for evaluation, the

total cost of Project HIGHER GROUND evaluation is included in the total cost of Diagnostic Education of Deprived Children and Youth. (Cost: $57,179.65)

Outdoor Education: This program was designed to extend classroom learning to the out-of-doors and was at all times coordinated with regular classroom experiences. Through the use of a mobile van the coordinator of the program worked with all sixth grade children throughout the project area, with emphasis placed on the more deprived school areas, and assisted all sixth grade project area teachers in extending the curriculum to out-of-doors enrichment. An assistant coordinator ran a rural nature center which was visited by classrooms of pupils throughout the year. In the spring many of the most deprived inner-city children were given a week's experience in resident camping and formal schooling combined. (Cost: $27,117.25)

Reading: Reading centers staffed with a specialized reading teacher and all needed equipment and materials were provided each of eleven secondary schools in the project area. These reading teachers worked with approximately 1,320 pupils (in groups of fifteen), served as consultants to other teachers in the schools, and assisted with in-service in their own and other schools. In addition, home visitation was emphasized to an extent which secured real parent involvement in the program. The coordinator of the program was equipped with broad training and experience in both developmental and remedial reading and superior skills in personal and social relationships. (Cost: $110,733.68)

Materials for Underachievers: High-interest, low vocabulary subject area materials were provided all underachieving junior high project area pupils. This material was developed by professional personnel having curriculum competencies at the junior high level and a broad understanding

of underachiever characteristics. Both commercial resources and creative efforts were utilized. A teacher guide book was constructed for use with the completed materials. (Cost: $1,565.15)

Work Education Experience Program: This program was designed for potential dropouts at the junior high level. The maximum teacher-pupil ratio was one to twenty-five to facilitate individual instruction. Program content emphasized basic fundamental educational skills, preparation for work, and work experiences. Approximately 900 pupils were served. (Cost: $46,672.08)

Basic Education for Dropouts: This was a cooperative effort with the Metropolitan Action Commission whereby dropout boys and girls under eighteen obtained basic education in night classes under the supervision of the Director of Adult Education. Most of the enrollees came from the out-of-school division of the Neighborhood Youth Corps although the offering was not limited to Youth Corps enrollees. Also, dropouts who were nineteen years of age were given GED test preparation and test administration without cost to them. (Cost: $3,115.05)

Community Education Aides: Five aides chosen from the community and given pre-service and in-service training worked in one secondary school and its four feeder schools as school-home liaison contacts. The aide assigned to each school was supervised by the principal of that school and worked closely with both the principal and teachers. The main objective of the community educational aide program was that of sharply increasing parent involvement in the teaching-learning process in both the school and home setting. Approximately 1,400 pupils were served. Priority service was given to the more deprived students having school or school-home difficulties. (Cost: $12,044.60)

Learning Resource Teachers: Twenty-six master teachers were given pre-service and continuing in-service training as learning resource teachers and assigned to twenty-eight elementary schools in the project area. The resource teacher identified with the teachers in each local school as a helper rather than assuming a line and staff role. Major objectives of the learning resource teacher program were (1) helping upgrade the instructional program of the school as a whole and (2) helping teachers adjust educational programs to meet the special needs of individual children and groups of children. Particular emphasis was placed on the language arts since this is a major area of deficiency in deprived children. (Cost: $233,528.39)

Learning Materials Clerks: After having pre-service training, eleven learning materials clerks were placed in each of twelve secondary schools in the project area. They assisted teachers in securing and using supplementary educational materials and equipment, including audio-visual aids. Regularly scheduled in-service was a continuing provision for the materials clerks. Typing, filing, and general clerical work were also a part of their work responsibilities. Diverse competencies were therefore required. (Cost: $39,871.87)

EVALUATION

Project HIGHER GROUND

Achievement of Project Area Pupils
As Compared to the Achievement of Non-Project Area Pupils

Low yearly achievement gains of school children from low income areas as compared to those of school children from higher income areas have long been observed. The ESEA Title I project area of Metropolitan Nashville Public Schools is no exception. From the first grade on there has been an annual progressive cumulative deficit in the achievement scores of pupils from the project area as compared to pupils from the non-project area, with the more deprived pupils in the project area being lowest of all in comparison. A major goal of the compensatory education Project HIGHER GROUND is that of decreasing this socio-economic achievement discrepancy. To meet this goal special instructional programs have been designed to meet the special educational needs of the more deprived pupils. At the same time, provisions have been made to meet the more basic physical and emotional needs of these pupils in order that optimal learning can take place.

Based on the premise that a truly compensatory education program will upgrade the achievement gains of deprived pupils, the annual system wide group achievement test results have been computed yearly for project area pupils and non-project area pupils separately. These data breakdowns were not favorable to the achievement gains of project area pupils as compared to non-project area pupils until the 1968-69 school year. At that time achievement data on pupils grades two through eight showed that project area pupils made greater achievement gains from the 1967-68 school year to the 1968-69 school year than did non-project area pupils in Word Knowledge, Reading, Arithmetic Computation, and Arithmetic Problem Solving. Language

gains were the same. Tabulating overall achievement gains for these two groups from Table I which follows shows that these gain differences were as follows: Word Knowledge 0.1 of a school year in favor of project area pupils; Reading 1.2 school years in favor of project area pupils; Arithmetic Computation 0.8 of a school year in favor of project area pupils; and Arithmetic Problem Solving 0.6 of a school year in favor of project area pupils.

A comparison of achievement gains of project area pupils from the 1968-69 school year to the 1969-70 school year with those of non-project area pupils over the same period of time showed the gains of project area pupils to be greater than those of non-project area pupils in Word Knowledge, Language, Social Studies, and Science. Tabulating overall achievement gains for these two groups from Table II which follows shows that these gain differences were as follows: Word Knowledge 0.6 of a school year in favor of project area pupils; Language 0.8 of a school year in favor of project area pupils; Social Studies 1.0 school year in favor of project area pupils; and Science 0.4 of a school year in favor of project area pupils.

The pupil population reported on includes the total school population grades two through eight, taking into account fluctuations incurred by the administration of certain sub-tests at grade intervals rather than at every grade level. Tables I and II show the irregularity of achievement data from grade level to grade level in some areas. Over the three school year period the project area pupil population grades two through eight ranged from approximately 17,150 to 13,050. Over this same period of time the non-project area pupil population grades two through eight ranged from approximately 41,620 to 45,720. The decrease in the project area numbers with a parallel increase in non-project area numbers was due to more rigid

application of ESEA Title I participation eligibility. Pupil absenteeism would reduce the pupil population of the project area by approximately 12% at any given time and the non-project area by approximately 10% at any given time. If, therefore, an average figure were taken for the range of project area pupils and this number were decreased by 12% a figure of 13,288 could be used for the average number of pupils on which achievement data are based. The same computational procedure used for non-project area pupils, using a 10% decrease, gives a figure of 39,303 for the average number of non-project area pupils on which achievement data are based.

In drawing conclusions from the grade equivalent information given on Tables I and II, which compares the project area pupil achievement gains with non-project area pupil achievement gains, it should be kept in mind that any one of the same grade levels represented over the three school year period was comprised of different pupil populations each of these three years (i.e., second grade pupils during the 1967-68 school year were third grade pupils during the 1968-69 school year and fourth grade pupils during the 1969-70 school year; third grade pupils during the 1967-68 school year were fourth grade pupils during the 1968-69 school year and fifth grade pupils during the 1969-70 school year; and so on up through the grades reported on). Thus gains in achievement of both the project area pupils and non-project area pupils were general and not specific to a particular pupil population at a given grade level over the three school years. This indicates a general upgrading of the educational achievement of pupils in the project area as compared with pupils in the non-project area rather than the upgrading of a specific group of children receiving consistent educational program assistance followed over this period of time.

Since all pupils were moving up one grade each year, it may be concluded that from the time of the implementation of compensatory education in the Metropolitan Nashville Public Schools until the school year 1967-68 non-project area pupils were approaching higher achievement levels in relation to grade placement than were project area pupils; whereas, from the 1967-68 school year to the 1969-70 school year project area pupils were in the main approaching higher achievement levels in relation to grade placement than were non-project area pupils. A continuation of this achievement progress pattern of project area pupils as compared to non-project area pupils would increasingly diminish the achievement discrepancy between these two socio-economic levels.

TABLE I

METROPOLITAN NASHVILLE PUBLIC SCHOOLS
SYSTEM-WIDE TEST RESULTS*

Grade 2 (2.1 Grade Placement)

	Word Knowledge		Reading		Total Arithmetic	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS
1967-68	1.7	2.2	1.8	2.2	1.8	2.3
1968-69	1.8	2.3	1.9	2.3	1.9	2.4
Difference	+.1	+.1	+.1	+.1	+.1	+.1

Grade 3 (3.1 Grade Placement)

	Word Knowledge		Reading		Arithmetic Comp.		Arith. Prob. Solv.	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS	PAS	non-PAS
1967-68	2.4	3.2	2.5	3.2	2.4	3.0	2.5	3.0
1968-69	2.4	3.3	2.5	3.3	2.4	2.8	2.6	3.1
Difference	0	+.1	0	+.1	0	-.2	+.1	+.1

Grade 4 (4.1 Grade Placement)

	Word Knowledge		Reading		Language		Arith. Comp.		Arith. Prob. Solv.	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS	PAS	non-PAS	PAS	non-PAS
1967-68	3.2	4.4	3.2	4.3	3.2	4.6	3.3	3.9	3.1	3.9
1968-69	3.3	4.3	3.2	4.2	3.2	4.3	3.2	3.8	3.2	4.0
Difference	+.1	-.1	0	-.1	0	-.3	-.1	-.1	+.1	+.1

*Grade Equivalent Scores used throughout
**Project Area Schools

Grade 5 (5.1 Grade Placement)

	Reading		Arithmetic Comp.		Arith. Prob. Solv.	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS
1967-68	4.0	5.3	4.6	5.0	4.4	5.1
1968-69	3.8	4.7	4.7	5.1	4.4	5.1
Difference	-.2	-.6	+.1	+.1	0	0

Grade 6 (6.1 Grade Placement)

	Reading		Language		Arithmetic Comp.	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS
1967-68	4.7	6.4	5.2	6.6	5.2	5.8
1968-69	4.5	6.1	5.1	6.5	5.3	5.7
Difference	-.2	-.3	-.1	-.1	+.1	-.1

Grade 7 (7.1 Grade Placement)

	Reading		Language		Arithmetic Comp.		Arith. Prob. Solv.	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS	PAS	non-PAS
1967-68	4.8	7.2	5.2	6.9	5.7	6.5	5.9	7.2
1968-69	5.1	7.1	5.3	7.0	5.8	6.6	5.8	6.8
Difference	+.3	-.1	+.1	+.1	+.1	+.1	-.1	-.4

**Project Area Schools

Grade 8 (8.1 Grade Placement)

	Word Knowledge		Reading		Language		Arith. Comp.		Arith. Prob. Solv.	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS	PAS	non-PAS	PAS	non-PAS
1967-68	6.1	8.8	5.4	8.2	5.9	7.6	6.2	7.4	6.4	8.1
1968-69	5.8	8.5	5.7	8.2	6.0	8.0	6.3	7.1	6.5	7.9
Difference	-.3	-.3	+.3	0	+.1	+.4	+.1	-.3	+.1	-.2

**Project Area Schools

TABLE II

METROPOLITAN NASHVILLE PUBLIC SCHOOLS
SYSTEM-WIDE TEST RESULTS*

Grade 2

	Word Knowledge	
	PAS**	non-PAS
1968-69	1.8	2.3
1969-70	1.9	2.4
Difference	+.1	+.1

Grade 3

	Word Knowledge	
	PAS**	non-PAS
1968-69	2.4	3.3
1969-70	2.7	3.4
Difference	+.3	+.1

Grade 4

	Reading	
	PAS**	non-PAS
1968-69	3.2	4.2
1969-70	3.1	4.6
Difference	-.1	+.4

Grade 6

	Language		Social Studies	
	PAS**	non-PAS	PAS	non-PAS
1968-69	5.1	6.5	4.4	6.0
1969-70	4.4	5.9	4.5	6.0
Difference	-.7	-.6	+.1	0

Grade 7

	Language	
	PAS**	non-PAS
1968-69	5.3	7.0
1969-70	5.3	6.7
Difference	0	-.3

Grade 8

	Word Knowledge		Language		Social Studies		Science	
	PAS**	non-PAS	PAS	non-PAS	PAS	non-PAS	PAS	non-PAS
1968-69	5.8	8.5	6.4	8.3	5.3	7.6	6.0	8.2
1969-70	6.1	8.7	6.5	8.1	5.4	7.3	6.0	8.0
Difference	+.3	+.2	+.1	-.2	+.1	-.3	0	-.2

* Grade Equivalent Scores used throughout
** Project Area Schools

Reading Improvement Program

The Special Reading Program of Project HIGHER GROUND provides a reading center staffed with a reading specialist in each of the eleven secondary schools in the project area. In these centers are the various equipment, materials, and supplies needed to facilitate the reading improvement of individual pupils and groups of pupils.

The reading specialist teachers in the centers were selected from master teachers in the school system and given a comprehensive four-week workshop experience in reading before the program was implemented. Objectives of the workshop were (1) providing information on all approaches to reading improvement and (2) providing experiences which utilized this information. Continuing in-service has been a part of the program.

Each teacher (1) worked daily with four groups of fifteen pupils each, as well as helping individual pupils as time permitted, (2) assisted all teachers in the local school setting in incorporating reading improvement into subject area courses, (3) carried on a home-visitation program, and (4) provided consultant services to other schools in the project area through in-service participation. Priority placement in the special reading classes was given to the seventh and tenth grades respectively, although pupils in higher grades were included as priority class enrollment allowed. Reading achievement and IQ score criteria were used to establish pupil eligibility.

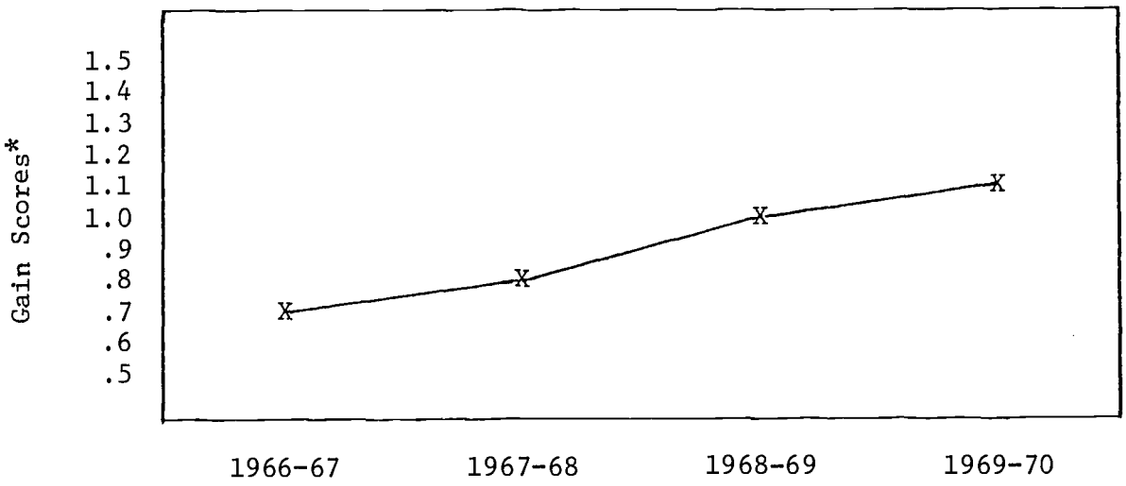
During the first year the Special Reading Program was implemented participating pupils made a mean reading achievement gain of .7 of a school year, which was considered exceptionally good for youngsters who had experienced difficulty in reading since school entrance. During the second year of the program participating pupils made a mean reading achievement gain of .8 of

a school year. Analyses comparing the reading achievement gains over the two-year period 1966-67 and 1967-68 given in Appendix A shows this to be a significant difference.

Also included in the analyses are correlations of IQ categories with reading achievement for the 1967-68 school year. Only at the IQ category 100+ did the correlation reach significance. However, contrary to the first year the program was implemented when eligible pupils were randomly assigned to the reading classes, each following year eligible pupils with the higher IQ scores have received priority placement in the special reading classes.

During the 1969-70 school year the mean reading achievement gain of pupils participating in the special reading program was 1.1 of a school year. The continued increase in the reading achievement gain of pupils in the Special Reading Program of Project HIGHER GROUND is most rewarding and the gains achieved exceed expectations of professional personnel involved in planning the program. The graph shown below gives a visual representation of the mean reading achievement gains made by pupils in the Special Reading Program over the last four-year school periods.

Reading Gains Over a Four-Year Period



* Months of a School Year

Special Elementary Reading Program

The special elementary reading program, a downward extension of Project HIGHER GROUND, served third, fourth, and fifth grade children from three schools, Warner, Caldwell, and Inglewood, during the 1969-70 school year. As with the secondary reading program, eligibility was established on the basis of IQ (Otis Lennon Intelligence Test) and achievement (Metropolitan Achievement Test) criteria. An IQ of 70 or above; a grade equivalent of 2.5 or below on any of the reading subtests, Word Discrimination (WD), Word Knowledge (WK), and Reading (Rdg); and teacher recommendation were needed to qualify for placement in the program. The program for third graders was experimental in that techniques of teaching reading were adapted to the visual, auditory, and kinesthetic strengths and weaknesses of individual pupils.

Special emphasis for evaluation was placed on the third grade program through a collaborative effort between George Peabody College and the Metropolitan schools. The principal investigator for the program was Dr. Donald Nevillle, Professor of Education and Psychology at Peabody. Excerpts from Dr. Neville's research are included for this report.

The purpose of the project was twofold: 1) to establish the overall effectiveness of the reading center program and 2) to gather data on the validity of the Test of Modality Aptitude in Reading (TOMAR). The former question has two components. First, was the overall program effective and second, were any of the three teaching methods (visual, auditory, and kinesthetic) clearly superior? The latter question has one component. Did those children taught to their pure strengths, pure weaknesses, combination strengths, or combination weaknesses make differential gains

on reading related activities when compared with a group of children without well-defined patterns who were randomly assigned to classes?

After a pool of children had been selected the Metropolitan Achievement Test (MAT) Elementary Form B was administered as a preintervention measure in December 1969. In January 1970, all previously selected children were given the TOMAR and assigned to visual, auditory, or kinesthetic classes based on their TOMAR profile; those children without profiles were assigned to classes randomly to bring the class size to fifteen. The reading center teacher at each school conducted a visual, an auditory, and a kinesthetic class. In the visual class, visual cues were emphasized, auditory (phonic) cues were emphasized in the auditory class, and in the kinesthetic class proprioceptive cues were emphasized. Parenthetically for clarification, all children in the experimental program were in the regular homeroom reading program prior to placement in the reading center.

The reading center program was effective overall. Warner children made significant grade equivalent gains on all measures, WD (0.4), WK (0.4), Rdg (0.5), and Spelling (Sp) (0.7). Caldwell subjects gained on WK (0.3) and Sp (0.4) and Inglewood children on WK (0.4) and Rdg (0.3).

The results for visual (V), auditory (A), and kinesthetic (K) classes were less clear cut. At Warner, A and K classes made significant gains on WK. Visual classes gained on WK; V and K classes gained on Rdg; and all classes gained on Sp. At Caldwell, K classes gained on WK and Sp and at Inglewood the only class to gain was A and the only gain was on Rdg.

As a partial test of the validity of the TOMAR, the gains of five groups were compared; pure strength, pure weakness, combination strength, combination weakness, and the no-pattern group. The analysis revealed that pure strength, combination strength, and no-pattern groups gained

significantly while pure weakness and combination weakness groups did not.

Children at all schools gained in WK and Rdg as measured by the MAT. When the V, A, and K classes were analyzed within schools, the results were not clear cut. Visual, A, and K classes were not equally effective within schools. At Warner children in the A and K classes gained in WK while those in V did not. At Caldwell only the K class gained, while at Inglewood only the A class gained. There are several possible explanations for these results: teachers may have differed in their abilities to present visual, auditory, and kinesthetic methods. Initial abilities differed somewhat between V, A, and K classes within schools. These factors may have affected the within-school comparisons.

Some indication of the validity of the TOMAR was evidenced by the differential gains made by the groups taught to strengths, indicating that identifying a child's strengths and teaching to them may be effective.

The data must be interpreted with caution; first, because the small number of children limit the generalizations that can be made and second, because no provision was made for a non-classified control group. When the study is repeated next year, provision for non-classified control subjects should be made.

The Kindergarten Program

Approximately fifteen hundred and fifty five year old children participated in a Kindergarten Program having as its major overall goal that of better preparing these children for success in the first grade. An aide was provided each kindergarten teacher and the teacher-pupil ratio was twenty-five to one, with each teacher serving two kindergarten groups daily. Classrooms were located as conveniently as possible to pupils enrolled. Activities of the Program were carried on in both the school setting and out-of-school resource settings. The lowest income family children had priority placement in the kindergarten program, although others desiring entrance were not excluded.

The evaluation report on the Kindergarten Program serving approximately fifteen hundred children included in the Project HIGHER GROUND Evaluation Report for the 1968-69 school year had used the group of children attending kindergarten as an experimental group and the remaining number of children of comparable age in the project area as a control group. It can be seen in Appendix C that the results of a *t* test used to compare the Readiness Test scores secured on the two groups upon entering first grade showed the Readiness Test scores of the experimental group to be significantly higher than that of the control group at the .001 level of confidence. Since the kindergarten population was composed chiefly of the more needy children in the project area, this finding lent special emphasis to the effectiveness of the Kindergarten Program.

In the present report for the 1969-70 school year the evaluation of the Kindergarten Program serving the approximately fifteen hundred and fifty children was based on the large percentage of elementary schools in the

project area having upward shifts in the Readiness Test scores of entering first graders. As can be seen on Table IV which follows, the first grades of twelve of the thirty-one elementary schools in the project area moved up one Readiness Test score within a range of five possible scores. The first grade of one school moved down one Readiness Test score. Computing these gains, using the total thirty-one elementary schools in the project area, showed a 36 percent overall Readiness Test score gain. The major portion of moves were from D (Low Normal) to C (Average). Since such an increase in readiness for school could not be assumed to occur without intervention treatment, strong support is again lent to the effectiveness of the Kindergarten Program in better preparing children for first grade experiences in the school setting.

TABLE IV

FIRST GRADE READINESS TEST SCORES*

School	1968-69	1969-70
Berry	C	C
Buena Vista	E	D
Caldwell	D	D
Carter-Lawrence	C	C
Clemons	D	C
J. Early	C	C
Elliott	C	C
Fall	C	C
Fehr	C	C
Ford Greene	C	D
Hamilton	D	C
Haynes	C	C
Head	D	C
Howard	D	D
Inglewood	C	C
Johnson	D	D
Jones	D	C
Kirkpatrick	D	C
Lockeland	C	C
McCann	C	C
McKissack	C	C
Meigs	C	C
Murrell	C	C
Napier	D	C
Park Avenue	D	C
Pearl	D	C
Ross	C	C
Shwab	D	C
Turner	C	C
Warner	D	C
Wharton	D	C

* A = Superior
B = High Normal
C = Average
D = Low Normal
E = Low

Health and Nutrition

Well-balanced hot lunches were provided an average of 1,750 pupils per month in the project area at a cost of $80,000. To evaluate the nutritional status of these pupils receiving ESEA Title I free lunches a 12 percent random sample was drawn, and an evaluation team measured and weighed each pupil in the sample. To assess the nutritional status of the pupils these collected data were compared to the newest national norms. (The national norm figures by sex and age were secured from the Department of Public Health.) Table V shows the mean height and weight of pupils receiving free lunches along with national norms for children of the same sex and age.

Two tests of statistical significance shown on Table VI were done using the height and weight data secured on the sample. First, the discrepancy of the age-norm predictions and the obtained scores were tested to see if there were any differences from the national norms. The test used here was a t-test that had the difference between the obtained mean and the predicted mean in the numerator and the standard error of estimate divided by $\sqrt{N}$ in the denominator. The t values were all significant, but height and weight were in different directions: both boys and girls were shorter and stockier than the national norms. This finding might indicate prior malnutrition (height loss) but current nutrition (weight gain).

Second, the variations in scores from year to year were tested for significance and it was found that both boys and girls were significantly discrepant from national norms regarding height but not weight. While the older children were shorter than the norms, the younger children were not.

Results of the last analysis tend to negate prior malnutrition as the major factor contributing to the increasingly significant difference between the ESEA Title I pupils receiving free lunches and the national norms on height unless there is an early critical nutritional stage for potential height. Also, the significant difference between the two populations on weight in the first analysis could be due to a high carbohydrate diet as well as current nutritional status. Both findings have significance for helping students gain an increased understanding of nutritional requirements for potential growth, good health, and energy level.

TABLE V

MEAN HEIGHT AND WEIGHT OF ESEA TITLE I FREE LUNCH PUPILS AND CORRESPONDING NATIONAL NORMS

Age	6	7	8	9	10	11	12	13	14	15	16	17
Female N	2	41	40	50	51	46	35	32	30	20	10	4
Female Height	45.0	47.4	49.8	52.1	54.7	56.6	58.8	60.5	61.6	62.5	64.3	64.0
Norm	45.5	47.5	50.0	52.0	54.0	56.5	59.0	61.5	63.0	63.5	63.5	63.5
Female Weight	38.5	49.0	57.6	62.0	74.0	82.8	92.1	105.4	106.8	116.0	125.3	109.2
Norm	45	50	56	61	68	76	87	98	108	113	116	118
Male N	1	22	33	38	44	31	31	37	30	18	6	3
Male Height	45.0	47.3	49.1	52.1	53.9	55.2	56.8	60.2	63.1	64.1	69.2	67.0
Norm	45.5	47.0	50.0	52.0	54.5	56.5	58.0	60.5	63.5	65.5	67.5	68.5
Male Weight	43.0	50.2	55.9	63.1	69.6	71.9	77.5	93.4	114.7	120.6	154.2	128.7
Norm	46	51	57	63	70	76	83	92	105	120	130	138

TABLE VI

COMPARISONS OF THE HEIGHTS AND WEIGHTS OF ESEA TITLE I FREE LUNCH PUPILS WITH NATIONAL NORMS

	Male		Female	
	height	weight	height	weight
t-test for Overall Difference between Norms and Free Lunch Pupils	-5.01*	5.62*	-3.30*	5.46*
F-test for Year-to-Year Discrepancies of Norms from Free Lunch Pupils	16.08*	.019	21.95*	1.71

* $p < .01$

Outdoor Education

Two major aspects of the outdoor education program were evaluated in the late spring--consultant services and the nature center.

Consultant Services

In May 1970 a staff developed questionnaire was sent to 110 teachers who had received outdoor education consultations. A total of 52 questionnaires were completed for a return rate of 47 percent.

Obtained results showed that all teachers felt that the outdoor education experiences helped their classes. Credit was given to the actual activities and the special equipment which was made available. Several teachers specifically said that the outdoor activities resulted in positive student involvement. The desire for continued outdoor education consultation was unanimous. In fact, the respondents generally wanted the outdoor education program expanded. Some indicated the desire for more consultants, both for the schools and as guides at the center. Some wanted live animals brought to the school. Others requested more educational media, including supplies and equipment and in-service in outdoor education.

Teachers expressed a strong need for an outdoor education program; however, most teachers want the outdoor education consultant to conduct the program rather than do it themselves.

Nature Center

Another staff developed questionnaire was sent to 162 teachers who had visited the nature center with their classes. Of the total number sent 73 forms were completed for a return rate of 45 percent. Responses were generally positive toward the nature center. Most teachers indicated that the nature trails and the guided activities were instrumental in

teaching the concepts involved. Most teachers, however, felt that they could not do justice to the trails by themselves and they want more help.

Plans for next year call for the use of cassette tape recorders with tapes for each station on the trail. This will obviate the need for intensive teacher preparation and will help standardize the experience for the children. Plans also are under way for utilizing volunteers at the nature center and for developing special pamphlets for both teachers and students.

MULTIDISCIPLINARY TEAM INTERVENTION

Pearl Elementary School

Although the multidisciplinary team of workers serving for the past two years at Pearl Elementary School (a project area school) was not an ESEA Title I activity, and thus not a component of Project HIGHER GROUND, it would seem to be of value to report the achievement gains of Pearl during the 1969-70 school year as compared to other randomly selected project area elementary schools.

The multidisciplinary team consisted of seven graduate students, from first to third year of training, and a practicing school psychologist from the school system. Members of this team concerned themselves with problems being encountered by teachers in the school and drawing the school and community in closer contact and increased mutually directed participation. No effort was made to measure the effect of the multidisciplinary team in the Pearl setting during its first year of operation. However, favorable reports of local school staff in securing assistance needed through this team prompted measurement for the effect during the 1969-70 school year.

Using grades two and six as being representative, seven other project area schools were randomly chosen with which to compare the achievement gains of grades two and six during the 1969-70 school year in these schools with the achievement gains of these same grades at Pearl Elementary School during the same period of time.

Table VII, giving the results of grade two comparisons, shows the mean reading achievement gain for the seven named schools randomly chosen to be 0.4 of a school year, while the mean reading achievement gain of

Pearl was 1.4 school years; in arithmetic the mean gain of the seven schools was 0.5 of a school year, while the mean arithmetic gain of Pearl was 1.3 school years.

Table VIII, giving the results of grade six comparisons, shows the mean reading achievement gain of the seven schools to be 0.3 of a school year, while Pearl had a reading achievement gain of 1.0 school year; in language the seven schools had a mean gain of 0.5 of a school year, while Pearl had a mean language gain of 1.0 school year; in arithmetic the seven schools had a mean gain of 0.3 of a school year, while Pearl had an arithmetic achievement gain of 1.0 school year.

The socio-economic level variances of the schools were assumed to be controlled through the random selection process, thus leaving achievement gain differences to treatment difference in the various schools. Since the only defined treatment variability was that of the multidisciplinary team at Pearl Elementary School, it is assumed that the interaction of this team with pupils, local school staff, and the community contributed to the gain. However, it seems important to stress along with this assumption that the principal of the school was desirous of the team, open to ideas of both the local school faculty and the team, and a facilitation of those ideas chosen for implementation.

TABLE VII

ACHIEVEMENT OF RANDOMLY SELECTED PROJECT AREA SCHOOLS AS COMPARED TO THE ACHIEVEMENT OF PEARL ELEMENTARY SCHOOL

Grade 2

Project Area Schools	Mean Grade Equivalent Scores M.A.T. PRIMARY II			
	READING		TOTAL ARITHMETIC	
	Pre-Test	Post-Test	Pre-Test	Post-Test
Buena Vista	1.9	2.3	1.8	2.4
John Early	2.1	2.4	2.2	2.7
Ford Greene	2.2	2.6	2.4	2.9
Howard	1.7	2.2	2.3	2.7
Kirkpatrick	1.9	2.5	2.4	3.1
Meigs	2.4	2.7	2.9	3.2
Warner	1.7	2.2	1.9	2.7
Mean G. E. Scores	2.0	2.4	2.3	2.8
Difference	+0.4		+0.5	
Pearl	2.2	3.6	2.7	4.0
Difference	+1.4		+1.3	

TABLE VIII

ACHIEVEMENT OF RANDOMLY SELECTED PROJECT AREA SCHOOLS AS COMPARED TO THE ACHIEVEMENT OF PEARL ELEMENTARY SCHOOL

Grade 6

Project Area Schools	Mean Grade Equivalent Scores Comprehensive Tests of Basic Skills, Level 2					
	READ. COMP.		TOTAL LANG.		ARITH. COMPUT.	
	Pre	Post	Pre	Post	Pre	Post
Buena Vista	3.4	3.9	3.3	3.5	4.4	4.4
John Early	5.8	5.3	5.5	6.0	5.4	5.6
Ford Greene	4.9	5.1	4.4	5.9	5.0	5.4
Howard	3.4	4.1	3.3	4.2	4.4	4.6
Kirkpatrick	4.7	5.0	5.0	4.9	5.2	5.5
Meigs	4.7	5.1	5.4	5.1	5.2	5.5
Warner	5.5	5.6	5.2	5.8	4.3	5.0
Mean G. E. Scores	4.6	4.9	4.6	5.1	4.8	5.1
Difference	+0.3		+0.5		+0.3	
Pearl	5.5	6.5	4.7	5.7	4.2	5.2
Difference	+1.0		+1.0		+1.0	

SUMMARY AND CONCLUSIONS

Project HIGHER GROUND

Summary and Conclusions

For the past two school years pupils in the project area have made greater gains on certain subtests of the system-wide achievement tests administered annually than have non-project area pupils. Each year the achievement test scores of these two pupil populations have been computed separately, based on the assumption that effective compensatory educational practices would result in overall achievement gains of project area pupils as compared to non-project area pupils. The rationale for this assumption is the consistently higher achievement test scores made by higher socio-economic level pupils than low socio-economic pupils; such a comparison with the goal of evening out the annual achievement of these two groups of pupils thus appears legitimate for evaluation purposes of the effectiveness of ESEA Title I expenditures.

Until two years ago the annual achievement gains made by non-project area pupils have been consistently higher than those made by project area pupils. However, from the 1967-68 school year to the 1968-69 school year project area pupils made greater gains than did non-project area pupils in Word Knowledge, Reading, Arithmetic Computation, and Arithmetic Problem Solving. Language achievement gains were the same. The greater gains made by project area pupils over those of non-project area pupils were as follows: Word Knowledge 0.1 of a school year; Reading 1.2 of a school year; Arithmetic Computation 0.8 of a school year; and Arithmetic Problem Solving 0.6 of a school year.

From the 1968-69 school year to the 1969-70 school year project area pupils made greater achievement gains than did non-project area pupils in Word Knowledge, Language, Social Studies, and Science. These greater gains

made by project area pupils were as follows: Word Knowledge 0.6 of a school year; Language 0.8 of a school year; Social Studies 1.0 school year; and Science 0.4 of a school year. These achievement data analyses are based on the scores of approximately 13,288 project area pupils and approximately 39,303 non-project area pupils. Included within the approximate number of project area pupils are those neglected and dependent children in four residential institutions receiving ESEA Title I compensatory education assistance and attending Metropolitan Public Schools daily. The numbers of such children served by ESEA Title I were approximately 220 for the 1968-69 school year and approximately 163 for the 1969-70 school year.

As was pointed out in the component evaluation information section of the present report, the reading improvement program at both the elementary and secondary levels again was most directly effective in increasing measurable achievement. The continued increase in the reading achievement gain of pupils in the secondary special reading program is most rewarding and the gains achieved exceed expectations of those involved in planning the program. The special elementary reading program was effective, too, according to standardized achievement test results. Evidence was gained also to suggest that students who were taught to their perceptual strengths made greater achievement gains, in general, than did children who were taught to their perceptual weaknesses.

An analysis of the 1969-70 school year Metropolitan Readiness Test scores of entering first graders in project area schools revealed that twelve of the thirty-one elementary schools moved up one readiness level from the 1968-69 school year test results. There are five readiness levels possible on the Metropolitan Readiness Test. Only one school lost one level. The overall

analysis for the thirty-one elementary schools showed a 36 percent gain from the previous year which gives support to the kindergarten program as a major force in helping to prepare children for the first grade.

Subscribing to the belief that health and nutrition are essential for maximum learning some 1,750 pupils per month were provided free lunches through ESEA Title I. A random sample of 12 percent of these pupils was selected for comparison with national norms on height and weight. As indicated in the component evaluation section, it was found that both boys and girls were significantly discrepant from national norms regarding height (they were shorter) but not significantly different from national norms in weight. Older children were shorter than norms but younger children were not significantly different from the norms.

The Outdoor Education program continues to be popular with both teachers and pupils. All teachers polled regarded the program as helpful to their classes. Nearly all respondents credited the nature center visits as instrumental in teaching important concepts.

Specific mention was made in the component evaluation regarding the multidisciplinary team intervention program at one project area elementary school. The multidisciplinary team consisted of seven third grade graduate students led by a practicing school psychologist. While this program was not funded by ESEA Title I it does show how positive interaction of community resources can result in improved educational outcomes for boys and girls.

In conclusion, ESEA Title I has provided the Metropolitan Public Schools expanded opportunities to improve the educational programs for disadvantaged youth. This support has aided schools in organizing and implementing new instructional strategies as evidenced by increased team teaching, individualized

instruction through more prescriptive teaching, and through specialized staffing (multidisciplinary approach). The ESEA Title I thrust has provided for much professional growth, improved teaching conditions, pupil assistance, and specialized in-service education. In a large measure a part of this growth has been the development of more realistic, measurable objectives which move us toward a more stringent evaluation of these objectives.

APPENDIXES

Project HIGHER GROUND

APPENDIX A

EVALUATION OF THE 1967-68 SCHOOL YEAR READING IMPROVEMENT PROGRAM

Evaluation of the 1967-68 School Year
Reading Improvement Program

Previous to the 1967-68 school year pupil eligibility for participation in the Reading Improvement Program, Component #3, had been based on grade level achievement in relation to grade placement and an IQ score of 75 or above. For program eligibility during the 1967-68 school year both grade level achievement and specific IQ measures were used. After eligibility was established through grade level reading achievement scores pupils with higher IQ scores had placement priority. This procedure was used to establish the most efficient placement procedures in relation to achievement gains. Two major measurement objectives of the program for the 1967-68 school year thus became those (1) of demonstrating program effectiveness for reading achievement gain, and (2) determining if the more stringent IQ eligibility factor would support its continued use.

To measure the extent to which the first major objective was met the gains of pupils participating in the Reading Improvement Program during the 1967-68 school year were compared with the gains of pupils participating in the program during the 1966-67 school year. This method was used because the use of specific IQ scores for placement priority precluded the use of control groups. As can be seen on the following table, gains made by participating pupils during the 1967-68 school year were significantly higher than those made by participating pupils during the 1966-67 school year. Using a one-tailed t test, the resulting t ratio of 1.94 is significant at the .05 level of confidence.

66-67 Mean N = 435	67-68 Mean N = 624	Mean Difference	Standard Error Mean Difference	t ratio
.679*	.835*	.156	.0806	1.94**

* School months
** Significant at the .05 level of confidence

To determine the efficacy of using specific IQ scores as a placement criterion in addition to reading grade level achievement and an IQ cut-off point of 75 the following IQ categories were set up for participating pupil reading gain comparison analyses: 79 and below; 80 through 89; 90 through 99; 100 and above. Correlations incorporating pre-test scores, post-test scores, reading achievement gain, and IQ were then run for each IQ category and for the total participating pupil population.

The first table given below shows no significant overall correlation between IQ and reading achievement gain during the 1967-68 school year. Neither do the next three correlation tables for the first three IQ categories show any significant relationship. However, the last table which gives correlations for the IQ category 100 and above shows a relationship between IQ and reading achievement gain which, using a one-tailed test, is significant at the .025 level of confidence.

The inference might be drawn that the higher the IQ the greater the relationship to reading achievement gain. Since Title I funds are limited to deprived children who most regularly fall within the lower IQ ranges little support was given for imposing this additional criterion for priority placement in the Reading Improvement Program. However, support for the effectiveness of the program was shown through a significant increase in

the reading achievement gain of pupils participating during the 1967-68 school year over that of those participating during the 1966-67 school year. During the 1966-67 school year pupils participating in the program were shown to make significantly higher reading achievement than a control group receiving the regular school instructional program, which gives added emphasis to the effectiveness of the program through the gain comparison over the two-year period.

Total Pupil Population

N = 541 Variables	Pre (Fall 67) 1	Post (Spring 68) 2	Gain 3	I.Q. 4
1	1.000			
2	0.768	1.000		
3	-0.276	0.404	1.000	
4	0.426	0.464	0.088	1.000

I.Q. 79 and Below

N = 100 Variables	Pre (Fall 67) 1	Post (Spring 68) 2	Gain 3	I.Q. 4
1	1.000			
2	0.773	1.000		
3	-0.309	0.365	1.000	
4	0.097	0.148	0.080	1.000

I.Q. 80 through 89

N = 183 Variables	Pre (Fall 67) 1	Post (Spring 68) 2	Gain 3	I.Q. 4
1	1.000			
2	0.712	1.000		
3	-0.409	0.350	1.000	
4	-0.001	0.040	0.055	1.001

I.Q. 90 through 99

N = 181 Variables	Pre (Fall 67) 1	Post (Spring 68) 2	Gain 3	I.Q. 4
1	1.000			
2	0.724	1.000		
3	-0.266	0.472	1.000	
4	0.164	0.200	0.069	1.000

I.Q. 100 and Above

N = 77 Variables	Pre (Fall 67) 1	Post (Spring 68) 2	Gain 3	I.Q. 4
1	1.000			
2	0.543	1.000		
3	-0.366	0.583	1.000	
4	-0.179	0.119	0.305	1.000

APPENDIX B

SPECIAL ELEMENTARY READING PROGRAM

APPENDIX B

Special Elementary Reading Program

During the 1968-69 school year the Special Reading Program of Project HIGHER GROUND was extended downward to eligible third, fourth, and fifth grade pupils in three elementary schools. As with the secondary reading program, eligibility was established through reading achievement and IQ criteria. The elementary reading program was experimental in that techniques in the teaching of reading were adapted to the visual, auditory, and kinesthetic strengths and weaknesses of individual pupils. Due to the time required for diagnosing the sensory strengths and weaknesses of pupils in the program, pre-test achievement scores were not secured until the middle of November.

Considering the lateness of securing pre-test achievement scores, the implementation of a new sensory approach to the teaching of reading, and the following intervention of the Christmas Holidays the mean achievement gains of pupils in the program represent a time investment of only a portion of the school year. However, at the same time pre-test achievement scores were secured on pupils in the special reading program, pre-test achievement scores were also secured on a comparable pupil population in order to establish a control group. Therefore, testing for the significance of the difference in the achievement gains of the pupils in the special reading program (experimental group) and the control group is a valid measure of the effectiveness of the program.

Analyses of the achievement gains of the experimental group and the

control group which follow show that there were significant differences in the two groups on Word Knowledge and Word Discrimination. There were, however, no significant differences in the two groups on Reading and Spelling.

Examination of the tables giving the pre-test and post-test means of the experimental and control groups which follow the analyses of achievement gains tables show that the two signficiant differences were in favor of the experimental group. Non-significant gains in reading and spelling were also in favor of the experimental group. On Word Knowledge the experimental group made .2 of a school year greater gain than did the control group; on Word Discrimination the experimental group made .2 of a school year greater gain than did the control group; on Reading the experimental group made .1 of a school year greater gain than did the control group; and on Spelling the experimental group made .1 of a school year greater gain than did the control group.

Both the analyses of gains and the pre-test and post-test mean tables include statistical data on Test Anxiety. The Test Anxiety Scale for Children (Sarasen, 1958) was used to secure measures on this variable. In the anslysis of gains the scores were handled in such a way that smaller scores indicate less Test Anxiety. On the analyses of gains tables it can be seen that there was a significant difference in the test anxiety of the experimental and control groups over the treatment period. Examination of the Test Anxiety mean scores of the two groups on the pre-test and post-test mean table shows that the control group exhibited more test anxiety on post-test than on pre-test and the experimental group exhibited less test anxiety on post-test than on pre-test. Thus while the test anxiety of the control

group was increasing significantly over the treatment period as compared to the experimental group the test anxiety of the experimental group was decreasing significantly over the treatment period as compared to the control group.

Analyses of Gains
Elementary Reading Program Participants

Word Knowledge

Source	Mean Square	D.F.	F-Ratio	P
Total	0.93	633		
Between	1.55	316		
Groups	13.34	1	8.81	0.004
Error (G)	1.51	315		
Within	0.32	317		
Trials	28.88	1	129.07	0.001
G by T	2.24	1	10.00	0.002*
Error (T)	0.22	315		

Word Discrimination

Source	Mean Square	D.F.	F-Ratio	P
Total	0.41	353		
Between	0.59	176		
Groups	2.90	1	5.04	0.025
Error (G)	0.58	175		
Within	0.23	177		
Trials	15.81	1	113.65	0.001
G by T	0.53	1	3.81	0.050*
Error (T)	0.14	175		

Reading

Source	Mean Square	D.F.	F-Ratio	P
Total	0.77	685		
Between	1.22	342		
Groups	14.48	1	12.29	0.001
Error (G)	1.18	341		
Within	0.32	343		
Trials	21.84	1	84.84	0.001
G by T	0.63	341	2.45	0.114
Error (T)	0.26			

Spelling

Source	Mean Square	D.F.	F-Ratio	P
Total	1.62	547		
Between	2.61	273		
Groups	10.74	1	4.16	0.040
Error (G)	2.58	272		
Within	0.63	274		
Trials	58.47	1	139.79	0.001
G by T	0.07	1	0.16	0.690
Error (T)	0.42	272		

Test Anxiety

Source	Mean Square	D.F.	F-Ratio	P
Total	45.15	687		
Between	69.12	343		
Groups	216.66	1	3.15	0.073
Error (G)	68.68	342		
Within	21.26	344		
Trials	35.37	1	1.68	0.192
G by T	81.47	1	3.87	0.047*
Error (T)	21.04	342		

Pre-test and Post-test Score Means of
Elementary Reading Program Participants

Subtest	Pre-test	Post-test
Word Knowledge		
Experimental	2.9	3.5
Control	3.3	3.6
Word Discrimination		
Experimental	2.8	3.3
Control	2.7	3.0
Reading		
Experimental	2.9	3.3
Control	3.3	3.6
Spelling		
Experimental	3.6	4.2
Control	3.9	4.5
Test Anxiety		
Experimental	15.50	14.35
Control	15.94	16.16

APPENDIX C

THE KINDERGARTEN PROGRAM

APPENDIX C

The Kindergarten Program

Approximately fifteen hundred five year old children participated in a Kindergarten Program designed to (1) increase language experiences and (2) broaden social experiences. The major overall goal of the program, however, was that of better preparing these children for success in the first grade. An aide was provided each kindergarten teacher and the teacher-pupil ratio was twenty-five to one, with each teacher serving two kindergarten groups daily. Classrooms were located as conveniently as possible to pupils enrolled. Activities of the Program were carried on in both the school setting and out-of-school resource settings. The lowest income family children had priority placement in the kindergarten program, although others desiring entrance were not excluded.

Since it would have been a most formidable task, if not an impossible one, to locate an appropriate comparison group of children not attending the Kindergarten Program during the time the Kindergarten was running, the effectiveness of the program was determined by comparing the Readiness test scores of all project area children entering first grade for the 1968-69 school year who had attended the Kindergarten Program (experimental group) with the Readiness test scores of remaining project area children entering first grade for the 1968-69 school year who had not attended the Kindergarten Program (control group). With children attending the Kindergarten Program being predominantly those from the lowest income families in the project area, the control group had an initial edge on the experimental group. Also, the number of children in the control group was extremely large as compared to that of the number in the experimental

group. Expectations had thus not gone beyond that of showing no difference between the Readiness test scores of the two groups. However, as can be seen on the table below which gives results of the analysis of the Readiness test scores of the two groups, the mean Readiness test score of the experimental group was significantly higher than that of the control group ($p < .001$). Since Readiness test scores are accepted as valid predictors of academic performance, the Kindergarten Program experiences thus apparently achieved the goal of better preparing participating children for success in the first grade.

	Control	Experimental	*t* ratio
N	2265.00	857.00	
Mean*	42.47	46.18	5.50**
s.d.	17.51	16.51	

* Raw scores

** $p < .001$