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ABSTRACT

Although this project report emphasizes 1968-1969, the fourth year of Dayton's Early Childhood Education Program (ECE), it also refers to experiences ongoing from 1965 when ECE was initiated. The 1968-1969 program was a continuation of efforts to provide concentrated and continuous learning experiences for 3-, 4-, and 5-year-old children in perceptual, motivational, and social skills according to a previously developed plan. A second goal was to help parents provide a supportive home environment conducive to positive family development. The program served 2,934 economically disadvantaged children. The first part of the report explains the goals and nature of the children's pre-kindergarten classroom program and the parent program, discusses the organization and staff roles, curriculum, and the part played by kindergarten in the ECE program. Also outlined are the activities of the social service staff and the ECE nurse, the nutrition program, and the parent program. The remainder of the document is a compilation of three separate resumes which provide detailed information on (1) psychological evaluation of ECE including tests used and data analysis, (2) a longitudinal research report of a sensorimotor skills program, and (3) NEW VISIONS--a children's art museum where young children are encouraged to explore the artifacts. (WY)

RESUME:

EARLY CHILDHOOD EDUCATION Program And Its Components:

Psychological Evaluation
Sensorimotor Skills Program
NEW VISIONS -- A Children's Museum

Barbara Schnelle, Coordinator

PROJECT REPORTS

Volume 4, Book 1, 1969

Division of Research
DEPARTMENT OF PLANNING AND DEVELOPMENT

DAYTON PUBLIC SCHOOLS
345 West First Street
Dayton, Ohio 45402

Wayne M. Carle, Superintendent

R E S U M É :

SENSORIMOTOR SKILLS PROGRAM

A Component of EARLY CHILDHOOD EDUCATION PROGRAM FY 1969
ESEA TITLE I

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SENSORIMOTOR SKILLS PROGRAM

Organized for the 1967-68 EARLY CHILDHOOD EDUCATION Project, the pre-planned daily classroom experiences in the sensorimotor area aimed at developing sensory acuity and motor skills in a varied sensory environment that would encourage individual growth.

Need for the Development of Sensorimotor Skills

In his book, "The Origins of Intelligence in Children" [1], Piaget states that the sensorimotor adaptions of the child's brain begin at birth and continue to about 6½ years of age. Piaget also states that no child should be denied experiences which would lead toward stimulation of the senses and bodily coordination.

Many child development specialists are in agreement that 40% of a child's adult brain capacity has been reached by the time he is 4 years old, and that, by the time he is 8 years old, 80% of the adult capacity has been reached.

A wealth of sensory experiences is important for the integrated functioning of the brain. Many children have been denied critical sensorimotor experiences because of one of the following conditions:

(1) Some type of cerebral dysfunction.

(2) A lack of natural childhood experiences due to cultural disadvantage.

(3) Emotional upset.

(4) Overprotective parents who stifle the child's natural instinct toward pursuing his own developmental processes.

The rationale for the ECE sensorimotor training is based on the hypothesis that, by providing daily training in sensorimotor areas during

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[1] Piaget, Jean, The Origins of Intelligence in Children, International University Press, 239 Park Avenue, N.Y. 10003. 1966.

the critical stages of sensorimotor adaptions from 3 to 5 years of age, many children will be able to overcome perceptual problems that hinder learning in the primary grades. This program is, thus, designed to prevent problems from occurring in the perceptual-motor areas.

Organizing for Sensorimotor Training in Pre-Kindergarten

Activities were planned which followed a developmental sequence in each of these sensorimotor areas:

(1) Body image, space and direction awareness
(2) Balance
(3) Basic body movement
(4) Symmetrical activities
(5) Eye-hand and eye-foot coordination
(6) Large muscle activities
(7) Fine muscle activities
(8) Form perception
(9) Rhythm

During the first year, 821 children were enrolled in the sensorimotor skills program of EARLY CHILDHOOD EDUCATION. In order that they might all receive the same type of instruction, a manual was developed: "Sensorimotor Training for Teachers and Parents of Pre-School Children".[2] Introduced early in the year as a guide to the head teachers for daily sensorimotor training, the manual was later commercially published.

In initiating the program, three sensorimotor consultants were assigned to the EARLY CHILDHOOD EDUCATION centers in the 5 schools having the greatest incidence of deprivation. Once a week these consultants demonstrated in each classroom, using activities described in the manual. An assignment of activities was made from the manual for the classroom teacher to integrate with other aspects of the ECE curriculum during the following week.

Training in auditory discrimination occurred throughout all of the areas listed above, as this was found to be one of the skills of greatest

[2] Braley, William, Geraldine Konicki, and Catherine Leedy: Sensorimotor Training for Teachers and Parents of Pre-School Children. Educational Activities, Inc., Freeport, N.Y. 11520. 1969.

difficulty for children who are deficient in sensorimotor skills.

Other aids developed during the first year were two movies, designed to help teachers and parents give better training in sensorimotor development. The first, an 8 MM film, shows children with specific handicaps, to aid in the identification of problems. The second, a 16 MM sound film, serves as a model for using the recommended training activities. The latter film, "Sensorimotor Training", was shown at the National Conference for Supervisors and Teachers of Elementary Physical Education in Washington, D.C., in 1968, and has been widely used at workshops in pre-school education throughout the country. (See APPENDIX for a listing of school systems and institutions making use of the film from 1967 to 1969.)

Sensorimotor Training during the 1968-69 School Year

Sensorimotor training became an integral part of the entire ECE curriculum in 22 centers during 1968-69. The manual, "Sensorimotor Training for Teachers and Parents of Pre-school Children", was introduced early in the year to the teachers who were responsible for daily training experiences.

Throughout 1968-69, two sensorimotor specialists and two aides helped teachers in the use of the manual by demonstrations during visits to their classes. Using a rotating schedule, each specialist and each aide were able to visit each center approximately four times each during the year.

The film, "Sensorimotor Training", which had been produced the first year was used as a training aid for the teachers and parents of children enrolled in the program.

A new aspect of the ECE sensorimotor program for 1968-69 was the swimming program planned in coordination with a three-member team from the American Red Cross Water Safety Instruction. Parents and teachers went with the children to Fifth Street YMCA Swimming Pool for this introduction to

swimming and water safety, with 707 three and four-year-olds taking part. An ice-skating program was introduced to more than 1,100 children from the ECE kindergarten centers. The personal account[3] of the three-member American Red Cross Water Safety Instruction team follows.

Introduction to "Water"

"The purpose of the program was part of an effort to vary children's sensorimotor activities and to let them try themselves out in new situations and new environments under proper supervision. . . .

"The children were small and the pool was 'deep'; thus, we would have to work on as near a one to one basis as humanly possible. Most of the children could stand down in the water, but found themselves chin deep even in the shallowest part of the pool.

"In addition to the ARC WSI's, the ECE center provided 8 to 10 staff members who worked in the pool. Each school brought teachers, aides, social workers, and a sprinkling of parents, most of whom worked the deck and dressing room areas.

"We had those parents who were not in the pool point out their child as soon as the kids were in the water. At the end of each session, the WSI's talked to as many parents as possible, showing them how they could continue to help their child and protect him in and around the water. Parents who worked in the water were asked to keep away from their own children, if possible, and they all cooperated in this. Here again, we had the parent point out their own child; toward the end of the period, we united mother and child and showed them what to do and how to handle their own. This often varied from what they had been doing with other children: different degrees of relaxation, coordination, independence, etc.

"We realized the inherent danger of introducing a pre-schooler to water on a one occasion only basis. With this in mind, we did our best, as an EARLY CHILDHOOD staff member put it, 'to get the children out of the water in the same way they went in—slightly fearful and highly respectful of that liquidy stuff'. To this end we allowed no artificial supports to be used. The kids had to depend on adults for physical and moral support.

"We warned the children when they were getting beyond their depth, and, if they didn't heed the warning, told them they were on their own. If they jumped off the deck, we didn't catch them in mid-air, but pulled them up from under the water. A few brave souls even ventured onto the diving board—some even jumped in. We might add that only one ever repeated on the diving board.

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[3] Shirk, Pat, Betty Hole, and Harold Solomon: Introduction to Water—A Memo to Mike Ferrell, Assistant Director, Safety Program, Dayton Area Chapter, American Red Cross, 370 West First Street, Dayton, Ohio 45402

"When the classes departed, each teacher had a roll of the American Red Cross water safety posters under her arm to use in the classroom as follow-up on the dangers of being alone in the water.

"The WSI's really enjoyed these classes. The infants were fun to watch and work with, as they so obviously enjoyed the experience. Of the 707 children who participated, only about 8 or 10 didn't go into the water. Considering that only in very rare cases had these children been near a pool, this appeared as a fantastically high percentage of 'water ready' boys and girls.

"We began to look deep in an attempt to figure out why this program was so successful compared to the average tiny tot program and came to a few conclusions:

(1) The water was almost as warm as a bathtub, 87° to 89°. This resulted in relaxed muscles, allowing the children to move more freely.

(2) The children had been working and playing together for several months before they came to the pool, so if one started into the water, they all got into the act. They did not feel they were alone in trying out this awesome experience. This led to a couple of unexpected incidents. After telling the story of Arky, we asked the children to lie down on the deck so they could 'wash their hands, face, and hair', but one school skipped this procedure, one boy walking right into the water, a chain reaction setting in! We pulled an awful lot of kids out in a hurry!!!

We all noticed, with great glee, that often the saints in the class became the sinners, and the sinners became the saints more often than not. Class 'leadership' changed hands for this period. As soon as a class came on deck, we saw the noisy, most active and aggressive child become quiet, and this lasted most of the period. The normally quiet, thoughtful child was the one we kept our eyes on—that was the one who would walk right into the pool, jump off the side first, and insist on being left alone to 'do it by myself'.

(3) Those great big giants, commonly called adults, were not strangers to the small ones. Only the three WSI's were strangers, and they were a very small minority. Those adults playing around in the water, waiting for the boys and girls to come in, were their 'teachers' and parents who had been showing and demonstrating and encouraging them to try new mental and physical skills for many months.

"The only regret we had was that we could not take one group through a 4-6 week course, to see how rapidly they could cover the Beginner's skills. Watching the young ones, we felt that, with one exception, any one of these groups could have moved ahead much more rapidly than the average tiny tot classes, and we'd have liked to try and prove it!

"Swimmingly yours,
Pat, Betty 'n Harold"

The foregoing evaluation is indicative of the spirit of participation fostered in young children by the EARLY CHILDHOOD EDUCATION Program.

Scope of the Sensorimotor Program in ECE Centers

Classroom activities of the program were organized in developmental sequence to cover the nine sensorimotor areas outlined on page 2 of this resumé and described at length in the manual, "Sensorimotor Training for Teachers and Parents of Pre-school children."[4]

Developmental equipment supplied in each ECE center to make these activities possible included the following:

Paper and crayons (set for the class)
Walking board (1)
Balance boards (3)
Ladder (1)
Twist boards (3)

Mats (2)

Small bells (12)
Drums (1)
Rhythm Band Instruments
Masking
Rope: 25' lengths (2)
Geometric templates: Circle, square, triangle (4 sets)
Balloons (144)
Magnets (6)
Peg boards (2)
Clothes pins (12)

Puzzles (12 different)
Work bench (1)
Ring toss game (1)
Clay
Beads (6 sets)
Burlap and needles
Sewing and lacing board
"Chick 'N Egg" Game
"Billy and the Barrels" Game
Finger Paints

Chalkboard
Bean bags (12)
Playground balls: 8-inch (6)
Ping pong balls (6)
Rubber balls: 3-inch (6)
Whiffle balls (6)

Tape Recorder
Record Player

[4] Braley, op. cit.

Longitudinal Research Study

A longitudinal research study on the effects of sensorimotor training on four-year old children and its relationship to school achievement at the end of the first grade was begun in the EARLY CHILDHOOD EDUCATION program in 1967-68.

An experimental group of children was given sensorimotor training in ECE centers. A matching control group was arranged to be tested in the Miami Valley Child Developmental Centers. The latter group received no specialized sensorimotor training. A summary of the projected longitudinal design is given in TABLE 1 below.

TABLE 1. LONGTITUDINAL RESEARCH DESIGN TO DETERMINE THE EFFECTS OF SENSORIMOTOR TRAINING OF FOUR-YEAR-OLD CHILDREN AND ITS RELATIONSHIP TO SCHOOL ACHIEVEMENT AT THE END OF THE FIRST GRADE.

Phase	Age Level To Be Tested	Groups Tested	Purpose
1967-68 Phase I	Pre-kindergarten (4-year-olds)	Experimental group in ECE being given sensorimotor training; control group in Miami Valley Child Developmental Centers receiving no specialized training in this field.	To determine the effect of 7 months' training in sensorimotor areas during pre-kindergarten.
1968-69 Phase II	End of kindergarten year (5- to 6-year-olds)	Same individuals from the experimental and control groups as above.	To determine if effect of sensorimotor training continues through kindergarten, or is obscured by effects of maturation.
1969-70 Phase III	End of first year of school (6- to 7-year-olds)	Same individuals from the experimental and control groups as above.	To determine the relationship, if any, of early sensorimotor training on first grade achievement.

Conclusions of Phase I

Phase I of this longitudinal study was reported in "Resumé: EARLY CHILDHOOD EDUCATION, Dayton City School District, FY 1968." Using an analysis of variance design showing the effects of age levels within the pre-kindergarten group, the effects of training, and the interaction, the study[5] concluded that, for pre-kindergarten children:

(1) Age levels had a significant effect on sensorimotor performance at the end of pre-kindergarten experiences.

(2) Treatment, or training in specific sensorimotor skills, had a significant effect on sensorimotor performance, for pre-kindergarten children.

(3) The effects of age level, or maturation, and training in sensorimotor skills interacted to a significant degree at the end of the pre-kindergarten period.

Both treatment and the treatment X levels sources of variance proved significant at the .1% level, while the age levels source of variance was significant at the .5% level.

It was recognized during the first phase that kindergarten experiences would foster the learning of sensorimotor skills for all children and that maturation would continue to be a factor for those who had not had the benefit of sensorimotor training in pre-kindergarten, as well as for those who had received such training in the EARLY CHILDHOOD EDUCATION Program. It was also recognized that the early advantage for pre-schoolers might not continue during kindergarten and the first year of school. The report[5] of Phase I added this pertinent evaluation regarding the residual effects of sensorimotor training:

> "There is a possibility, of course, that the early advantage for pre-schoolers may be submerged within the next year or two of kindergarten and first year of school. If this should happen, then, based upon the results of Phase I, the existential rationale for the sensorimotor

[5] Division of Research, Resumé: EARLY CHILDHOOD EDUCATION FY 1968, Dayton City School District, Dayton, Ohio. 1968.

training could still be applied: that a child's pre-school training in body awareness and in the developmental sensorimotor skills do provide natural activities, involving many successes, and that this training gives him, in the beginning, 'a sound base upon which to build the perceptual skills which will be needed in future classroom activities.'"

Phase II of the Longitudinal Study

At the end of their kindergarten year in 1969, the same children from the experimental and control groups of Phase I were again given the Sensorimotor Survey Test. (See APPENDIX for a copy of the instrument.) Because some children could not be found enrolled in Dayton or nearby, the number of subjects was cut from 76 to 65 for both experimental and control groups.

These null hypotheses were advanced, similar to those of the FY 1968 study:

(1) That no significant difference exists between the experimental and control groups, at the end of the kindergarten period, due to early sensorimotor training.

(2) That no significant difference exists in sensorimotor skills between the age levels at the end of the kindergarten period.

(3) That the interaction of training and age levels as sources of variances is not significant.

Phase I and Phase II raw scores for the 65 children in the experimental group are shown in TABLE 2, while those for the 65 matching children in the control group are given in TABLE 3. The scores are grouped by age levels. Group O contains the oldest subjects whose birthdays occurred in January, February, March, or April, noted "1-2-3-4." Group X is the middle group of subjects whose birthdays fall during May, June, July, or August. Group Y is the youngest group with birthdays in September, October, November, or December. All of the subjects were born in 1963.

The tabulation by age levels and by treatments was to facilitate the computation of the analysis of variance to show the effects of the age levels, sensorimotor training in the pre-kindergarten year, and their interaction.

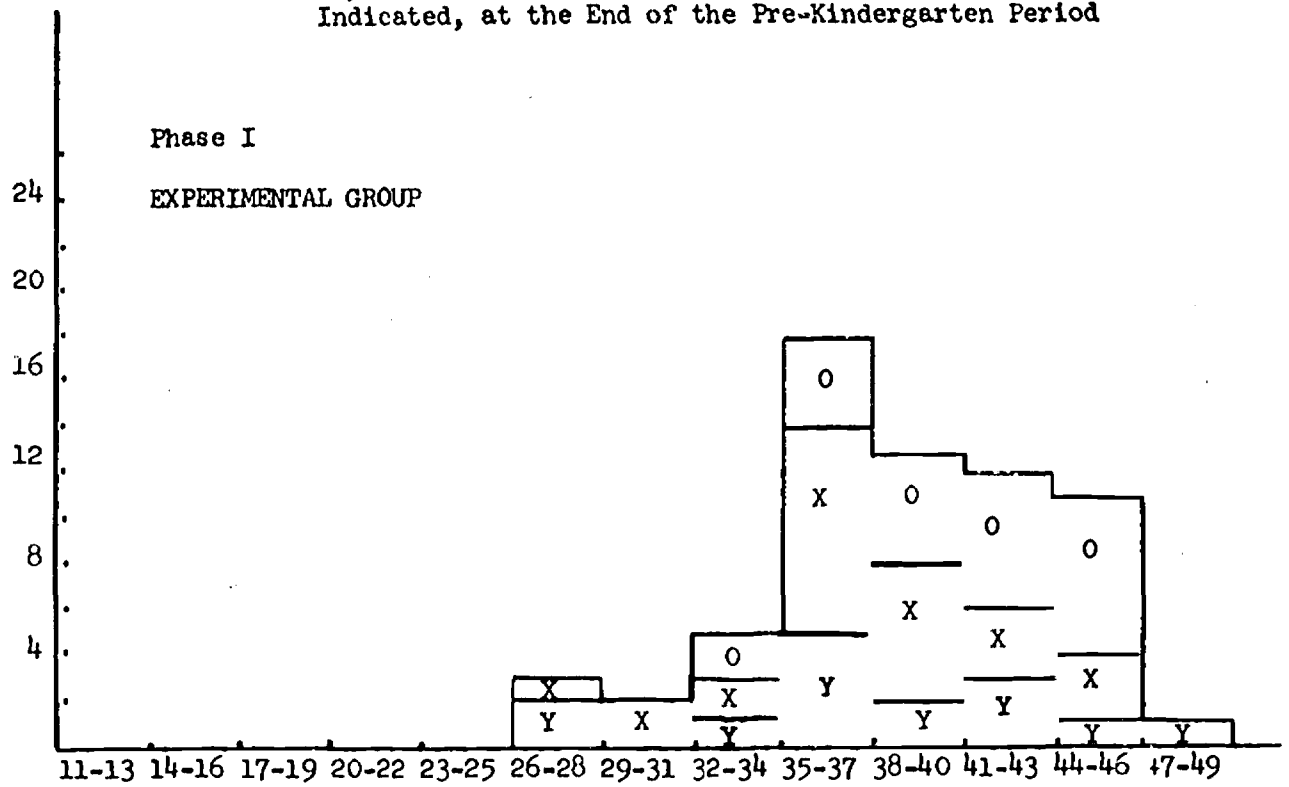
TABLE 2. SCORES OF PHASES I AND II OF SENSORIMOTOR SURVEY OF EXPERIMENTAL GROUP BY AGE LEVELS AT END OF KINDERGARTEN YEAR, JUNE 1969 N = 65

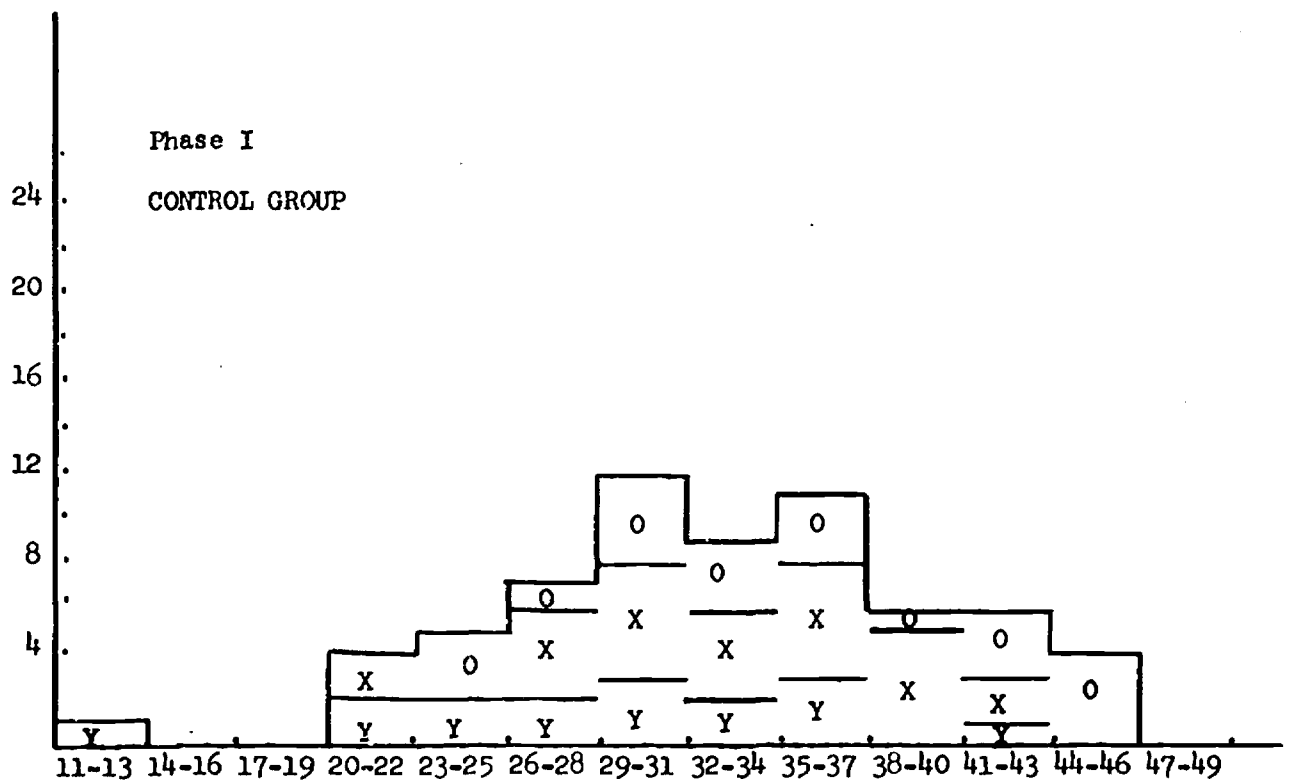
Levels by Birth Month	PHASE I				PHASE II			
	Subjects (Boys)	Score	Subjects (Girls)	Score	Subjects (Boys)	Score	Subjects (Girls)	Score
1-2-3-4	15	42.0	5	36.0	15	44.5	5	39.5
	17	42.0	13	46.5	17	48.0	13	47.0
GROUP O	21	41.0	29	41.5	21	48.5	29	45.0
	31	33.5	55	35.0	31	43.5	55	48.5
	43	46.0	67	38.0	43	47.5	67	45.5
	45	43.0	87	44.0	45	47.0	87	48.5
N = 14 + 10	57	44.5	89	35.5	57	48.5	89	44.5
= 24	63	43.0	103	36.0	63	44.0	103	45.0
	75	38.5	109	38.0	75	44.0	109	46.0
	77	34.0	127	44.5	77	47.5	127	48.5
	79	39.0			79	47.0		
	91	38.0			91	47.0		
	145	44.5			145	48.0		
	149	44.0			149	47.0		
5-6-7-8	1	32.0	7	35.0	1	39.5	7	44.5
	3	41.5	23	44.0	3	48.5	23	47.0
GROUP X	33	39.0	37	35.5	33	45.0	37	44.5
	35	28.0	41	40.0	35	41.0	41	47.5
	83	37.0	51	35.5	83	45.0	51	42.0
	93	39.0	65	35.0	93	45.0	65	48.5
N = 12 + 14	95	45.0	69	37.0	95	48.0	69	46.5
= 26	101	30.5	71	38.0	101	37.5	71	47.5
	117	35.0	99	39.0	117	38.5	99	44.0
	121	36.0	111	40.5	121	48.0	111	46.0
	131	36.5	123	34.0	131	46.0	123	46.5
	133	41.0	125	31.5	133	48.5	125	46.5
			137	44.0			137	44.0
			141	41.5			141	49.0
9-10-11-12	9	42.5	11	35.5	9	48.0	11	43.0
	25	33.0	19	37.0	25	39.5	19	46.0
GROUP Y	49	35.5	81	36.5	49	46.0	81	48.5
	53	27.5	151	42.0	53	39.5	151	45.0
	59	38.5			59	44.0		
	61	41.0			61	46.0		
N = 11 + 4	73	27.0			73	32.5		
= 15	85	45.5			85	45.5		
	97	48.0			97	48.0		
	107	43.0			107	48.0		
	135	35.0			135	46.0		

TABLE 3. SCORES OF PHASES I AND II OF SENSORIMOTOR SURVEY OF CONTROL GROUP BY AGE LEVELS AT END OF KINDERGARTEN YEAR, JUNE 1969 N=65

Levels by Birth Month	PHASE I				PHASE II			
	Subjects (Boys)	Score	Subjects (Girls)	Score	Subjects (Boys)	Score	Subjects (Girls)	Score
1-2-3-4	2	29.0	6	32.5	2	40.5	6	47.5
	16	45.0	14	44.0	16	45.5	14	47.0
GROUP O	18	32.0	30	29.0	18	42.0	30	42.5
	22	24.5	38	43.0	22	49.0	38	44.0
	32	34.5	56	42.5	32	44.0	56	45.0
	46	24.5	68	42.0	46	41.5	68	44.5
	58	30.0	90	46.5	58	44.5	90	42.5
N = 13 + 9	64	25.0	104	40.5	64	29.5	104	47.0
= 22	76	27.5	128	36.0	76	36.0	128	47.0
	80	37.5			80	46.5		
	92	31.0			92	38.0		
	146	35.0			146	48.0		
	150	46.0			150	46.0		
5-6-7-8	4	39.0	8	34.5	4	46.0	8	44.5
	34	27.5	42	36.0	34	41.0	42	48.0
GROUP X	36	30.0	52	36.5	36	38.0	52	46.5
	44	28.5	66	38.0	44	40.5	66	47.0
	78	39.0	70	42.5	78	46.5	70	46.5
	84	28.0	72	33.0	84	46.0	72	43.0
	94	36.0	88	36.0	94	42.5	88	48.5
N = 13 + 14	96	26.0	100	32.0	96	40.0	100	40.5
= 27	102	22.5	110	31.5	102	43.5	110	46.5
	118	40.5	112	34.5	118	45.0	112	48.0
	122	37.5	124	29.5	122	40.5	124	42.0
	132	21.0	126	29.0	132	34.5	126	38.5
	134	41.0	138	31.0	134	42.5	138	48.0
			142	38.0			142	39.0
9-10-11-12	10	23.5	12	30.5	10	43.5	12	46.0
	26	36.5	20	21.5	26	41.5	20	38.5
GROUP Y	50	26.5	24	23.0	50	39.5	24	44.0
	54	42.0	82	34.0	54	43.5	82	44.0
	60	36.0	152	12.5	60	44.0	152	27.5
	62	20.0			62	28.5		
	74	30.5			74	44.5		
N = 11 + 5	86	36.5			86	42.5		
= 16	98	29.0			98	42.0		
	108	32.0			108	44.5		
	136	26.0			136	41.5		

Figure 1. Distribution of Sensorimotor Scores in Longitudinal Study, Experimental vs. Control Group, with Age Level Subjects Indicated, at the End of the Pre-Kindergarten Period





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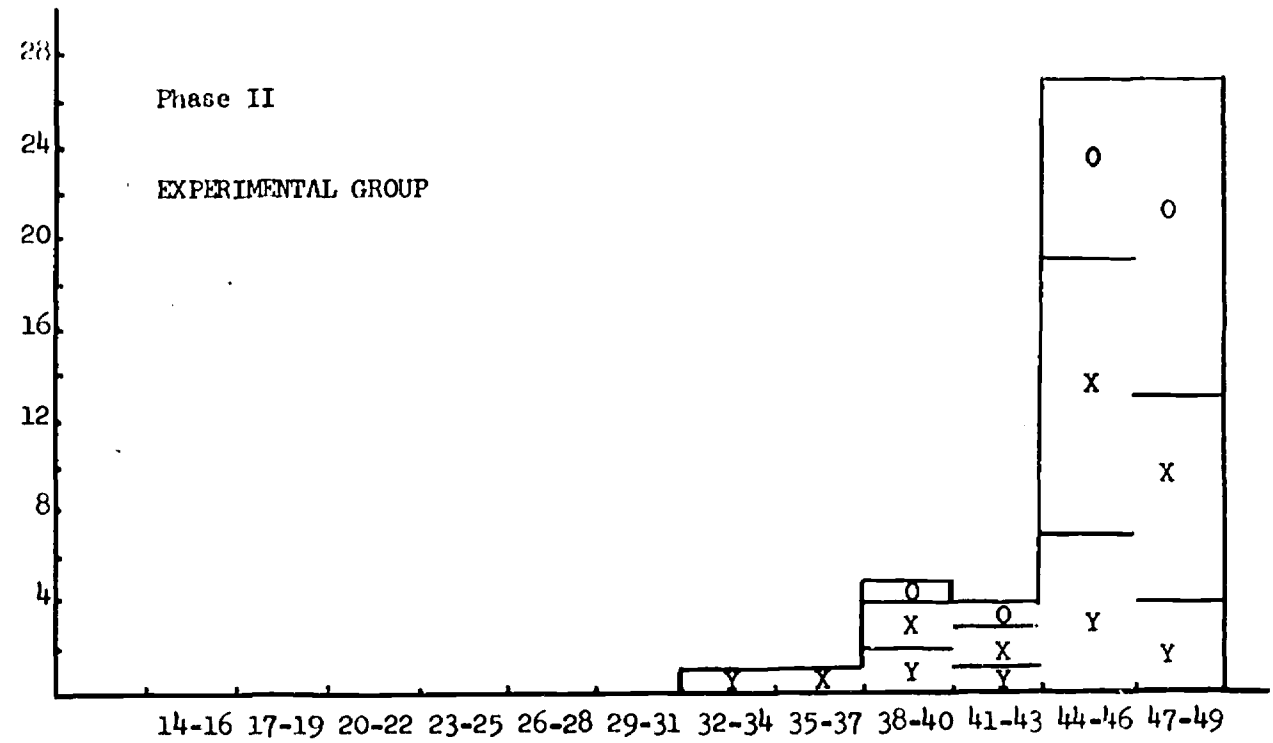


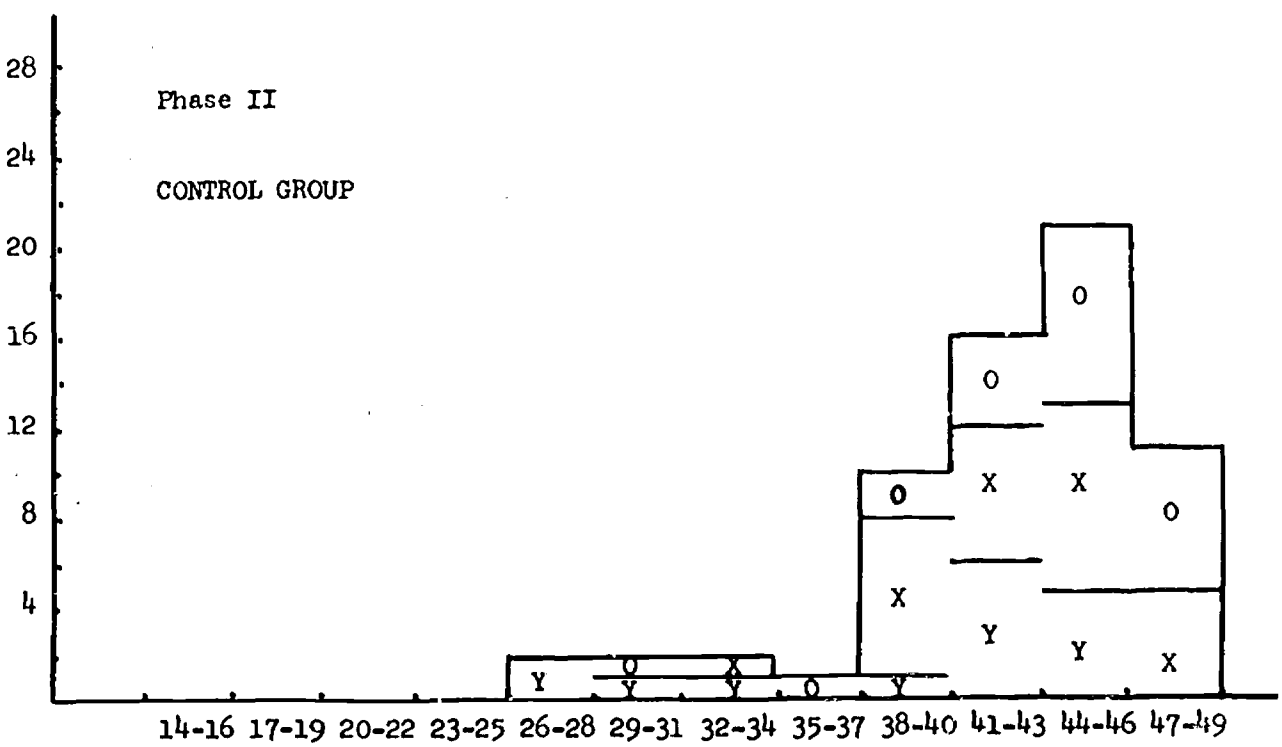
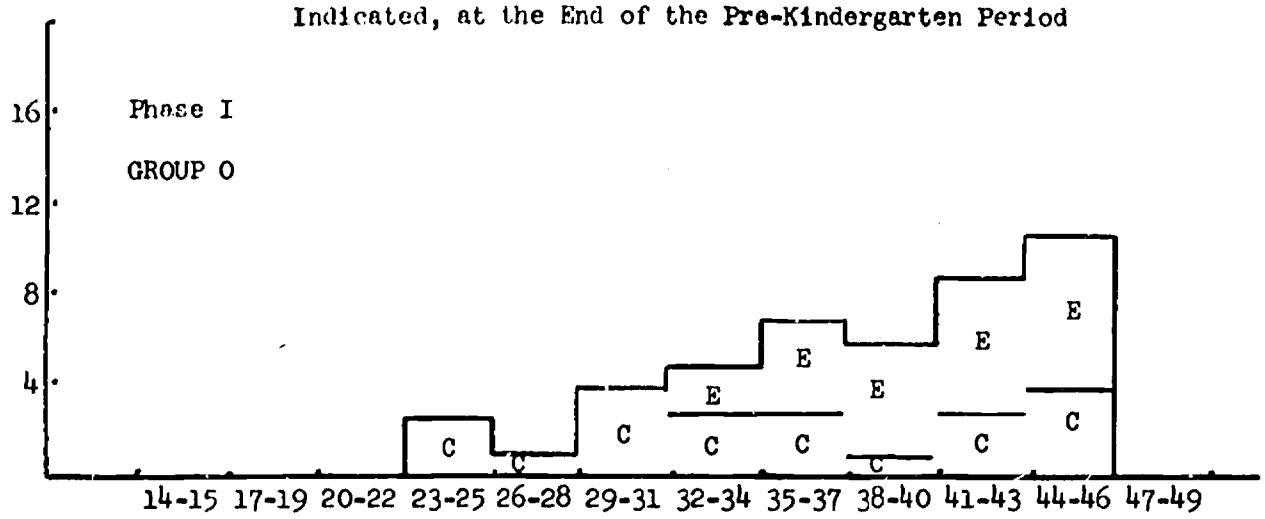
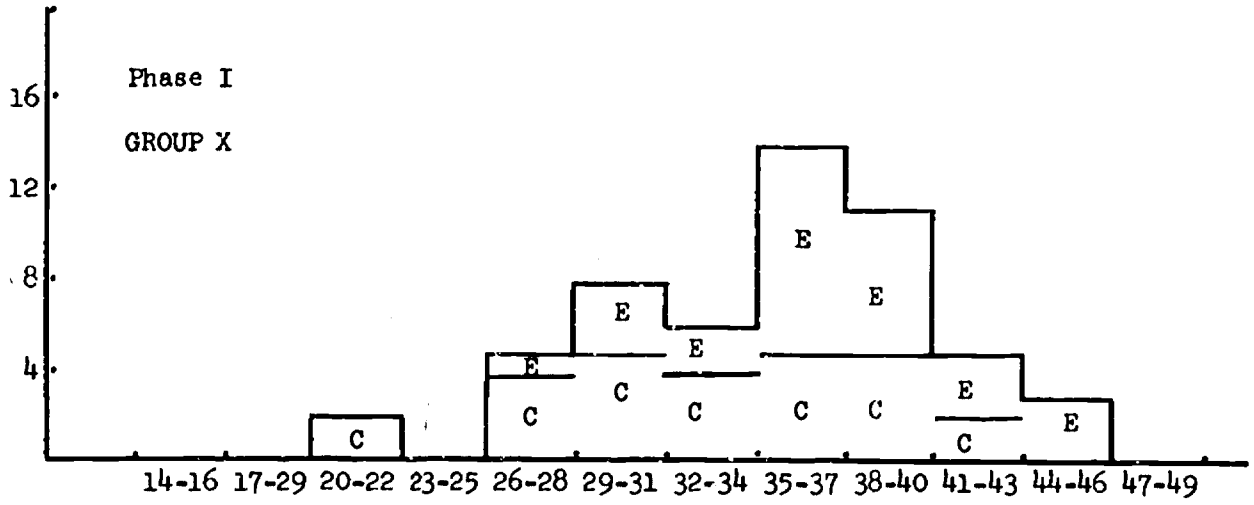


Figure 3. Distribution of Sensorimotor Scores in Longitudinal Study by Age Level Groups, with Experimental and Control Subjects Indicated, at the End of the Pre-Kindergarten Period





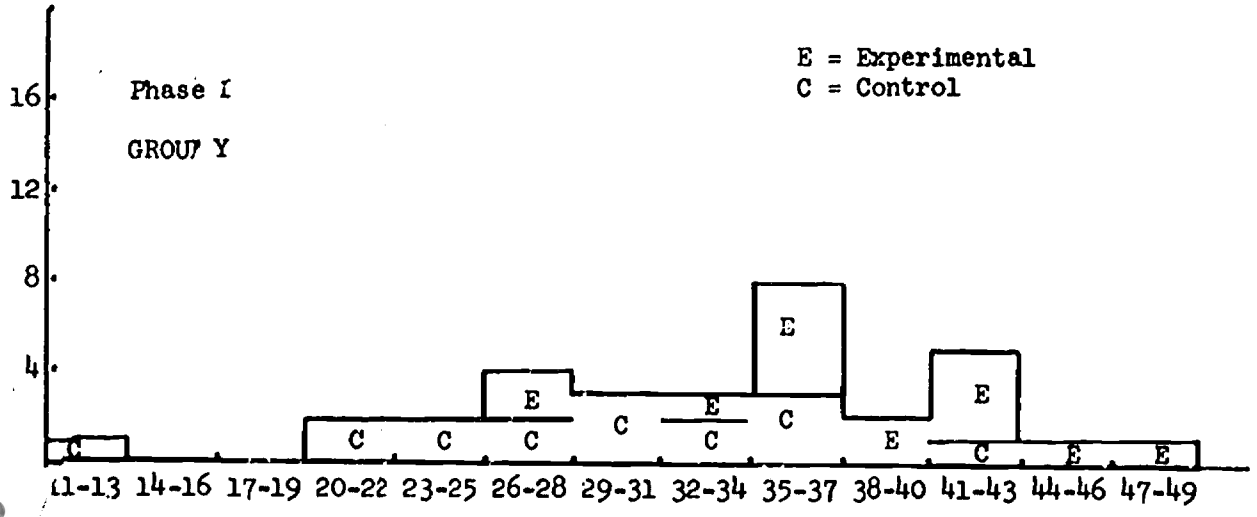
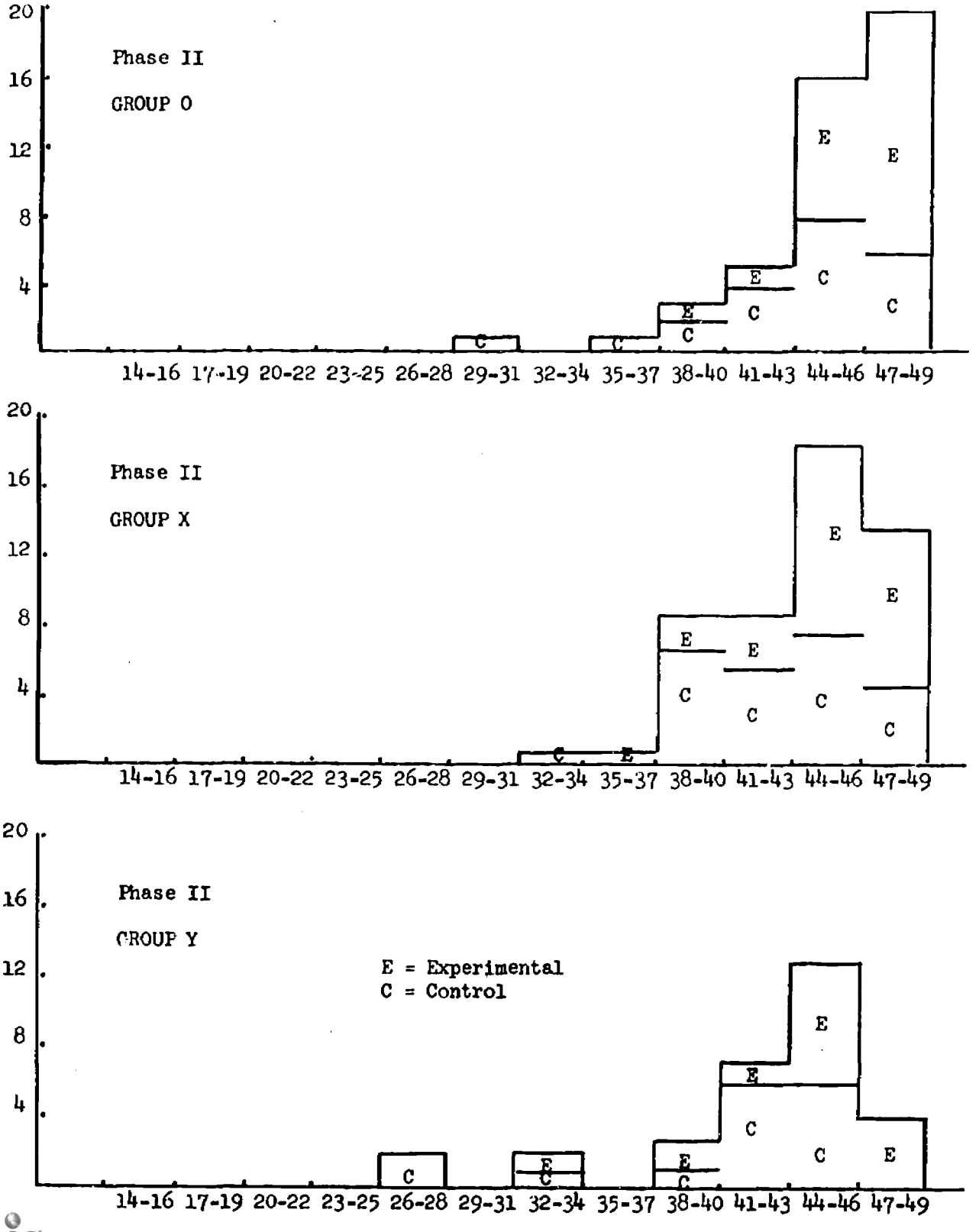


Figure 4. Distribution of Sensorimotor Scores in Longitudinal Study by Age Level Groups, with Experimental and Control Subjects Indicated, at the End of the Kindergarten Period



Figures 1 and 2 show the distribution of the scores for Phase I and II respectively, contrasting the experimental and control groups.

Figures 3 and 4 show the distribution by age levels for Phases I and II respectively; experimental and control subjects are indicated in these graphs.

Because of the attrition of subjects, the analysis of variance, levels and treatments design, was re-run for the 130 subjects for Phase I. This replication of the post pre-kindergarten study substantiated the statements of significance made in the 1968 report. The summary of Phase I is given in TABLE 4 below.

TABLE 4. SUMMARY OF ANALYSIS OF VARIANCE OF PHASE I OF SENSORIMOTOR SURVEY ADMINISTERED AT END OF PRE-KINDERGARTEN, JUNE 1968 N = 130

Source of Variance	Sums of Squares SS	Degrees of Freedom df	Mean Square SS/df ms	F Ratio F	P
Total	5,690.47	129	—	—	
Levels	446.17	2	223.08	8.34	> .001
Treatments	745.38	1	745.38	27.86	> .001
Treatments X Levels	1,182.48	2	591.24	22.11	> .001
Error	3,316.44	124	26.75	—	

A second analysis of variance was run using the scores of the Phase II sensorimotor survey given to the same 130 subjects in the experimental and control groups as those represented in the first phase above. The summary of the Phase II results is given in TABLE 5 below.

TABLE 5. SUMMARY OF ANALYSIS OF VARIANCE OF PHASE II OF SENSORIMOTOR SURVEY ADMINISTERED AT END OF KINDERGARTEN, JUNE 1969 N = 130

Source of Variance	Sums of Squares SS	Degrees of Freedom df	Mean Square SS/df ms	F Ratio F	P
Total	1,103.80	129	—	—	
Levels	116.67	2	58.34	9.53	> .001
Treatments	115.82	1	115.82	18.93	> .001
Treatments X Levels	111.39	2	55.70	9.09	> .001
Error	759.92	124	6.12	—	

In interpreting the F ratios of TABLE 5, it was determined from the F distribution Table in James L. Bruning's "Computational Handbook of Statistics" (Scott Foresman 1968) that:

At the .1% level (.001), an F ratio of $9.53 > 6.91$, therefore, significant.

At the .1% level, an F ratio of $18.93 > 10.83$, therefore, significant.

At the .1% level, an F ratio of $9.09 > 6.91$, therefore, significant.

As the F ratios of Phase II proved to be significant, the three null hypotheses were not sustained for Phase II of the sensorimotor survey at the end of the kindergarten period.

Conclusions Drawn from the Phase II Study

As a result of the analysis of variance of the Phase II study, the following conclusions have been made:

(1) In sensorimotor performance at the end of the kindergarten period, age levels, or maturation, still had a significant effect.

(2) Treatment, or early pre-kindergarten training in sensorimotor skills, maintained a significant effect on the sensorimotor performance of the experimental group at the end of the kindergarten period.

(3) The effect of age level, or maturation, and early pre-kindergarten training in sensorimotor skills, interacted to a significant degree at the end of the kindergarten period.

These conclusions are even more important when it is recognized that the subjects of the control group had the opportunity of participating in kindergarten programs which, in many cases, included class activities in the sensorimotor areas. Yet a significant difference persisted in the experimental group whose subjects had had the advantage of carefully planned early sensorimotor training in the pre-kindergarten.

That a significant difference persisted, also, in age levels, regardless of training, points up the necessity for early childhood educators to recognize maturation as a factor in sensorimotor skills at both pre-kindergarten

and kindergarten ages, requiring some attention to be given to individual needs.

Stated in non-statistical terms, the conclusion appears warranted that children who have had training and experiences in a wealth of sensorimotor activities before kindergarten approach their first year of school with an advantage in this area over those children who have lacked the early sensorimotor training.

Limitations of the Study

The locally-devised instrument measuring sensorimotor awareness has not yet had norms established, but, in this study, the use of an analysis of variance design makes the use of norms unnecessary.

This survey has been designed as a pilot study of perceptual-motor objectives, programming, and evaluation, from pre-kindergarten through the first year of school, one of the types of research recommended by the Perceptual-Motor Symposium conducted by the American Association for Health, Physical Education, and Recreation in May, 1968. The Dayton program for developing sensory and motor skills in three-, four-, and five-year-old children was one of the action programs presented at this symposium and is described in its report, "Perceptual-Motor Foundations: A Multidisciplinary Concern."[6]

One aspect of the discussion at the AAHPER symposium centered on the significance to be placed on the role of movement experience in learning and was summarized in the report in this way:

> "The prime concern in motor learning is to develop effective motor behavior in whatever situation an individual finds himself. Interest in perceptual abilities centers mainly on their influence in learning and performing motor tasks." [5]

[6] Hanson, Margie R. (editor), Perceptual-Motor Foundations: A Multidisciplinary Concern, Proceedings of the Perceptual-Motor Symposium sponsored by the Physical Education Division of the American Association for Health, Physical Education, and Recreation, National Education Association Center, Washington, D.C., May 8-10, 1968.

Further statements by members of the symposium are pertinent to the Dayton longitudinal research study:

"Caution is advised against building physical education on the basis of developing better readers until more evidence is available.

"If physical education programs are 'good', they will contribute to sensorimotor needs basic to reading programs. . . .

"If it is demonstrated that motor development influences perceptual and cognitive abilities, then physical educators should be responsible for programs to enhance this development."[7]

A Look Ahead to Phase III of the Study

The plan for Phase III is to administer in May 1970, at the end of the subjects' first year in school, a reading test and, possibly, a handwriting scale and an auditory discrimination test, to the subjects of the experimental and control groups. It is recognized that there will likely again be some attrition of subjects, due to family mobility. Whenever such a loss occurs in either group, the other member of the matched pair in age and sex is also dropped from the other group; this keeps the groups relatively equal in respect to age and sex.

An analysis of variance design will again be used to determine if age levels and the treatment of pre-kindergarten sensorimotor skill development in the experimental group as sources of variance account for significant differences in achievement between experimental and control groups at the end of their first year of school.

The ECE sensorimotor consultants and the research coordinator in the division of research of the Dayton Public Schools all realize that the effect of the early gains in sensorimotor development may become submerged as the two groups are studied for achievement in other learning areas. Such an outcome would not, however, negate the value of the pre-kindergarten sensorimotor program for its own sake: that of contributing to the developmental tasks of physical skills, wholesome self attitudes, and socialization.

[7] Ibid.

A P P E N D I X

SHOWINGS OF SENSORIMOTOR FILM: "SENSORIMOTOR TRAINING FOR TEACHERS AND PARENTS OF SCHOOL CHILDREN" DURING SCHOOL YEAR 1968-1969 AND SUMMER OF 1969

(Film produced by EARLY CHILDHOOD EDUCATION Program, ESEA TITLE I, Dayton City Schools, 348 West First Street, Dayton, Ohio 45402)

I. Presentations at major conferences and workshops:

National Conference for Supervisors and Teachers of Physical Education, Washington, D.C.
Midwest Regional Physical Education Convention, Charleston, West Virginia
Regional Conference for Perceptual-Motor Learning, St. Paul, Minn.
Learning Disabilities Workshop, Cleveland, Ohio

II. Shipped by request for clinics and inservice training to these school systems:

Bethlehem, Pennsylvania (2)
Los Angeles, California
Roseville, Minnesota
Hueytown, Alabama
Enterprise, Alabama
Farmington, Connecticutt
Skokie, Illinois
Wisconsin State, LaCrosse, Wisconsin (2)
East Stroudsville, Pennsylvania
Kilburn, New Jersey
Harrisburg, Pennsylvania
University of Oklahoma
Pikeville College, Pikeville, Kentucky

III. Ohio Showings

Butler County HEAD START Orientation
State Department of Education
University of Dayton
Dayton Council for Nursery Schools
Woodman Pre-School, Dayton
Troy Day Care Center, Troy
Mad River HEAD START
Kettering Foundation /I/D/E/A/
Yellow Springs Community Center
Kirkmont Presbyterian Pre-School
Wright State University
Marion Local Schools
Grace Methodist Mothers, Dayton
Christ Methodist Mothers, Dayton
Lorain
Warrensville
Parma
Vermillion

IV. Summer Workshops and Bookings (1969)

Claremont, California
Muncie, Indiana
Waterbury, Vermont
Enterprise, Alabama
Pikeville, Kentucky
Muskingum College
Miami University
Ohio University
Cortland State
Ohio State University
Kent State University
Phillipsburg Pre-School
Northmont Kindergarten Teachers
7 Dayton elementary schools
EDPA Institute, Western Washington State College
Central State Workshop for Disadvantaged Children

V. Purchase of the film in Canada

Province of Manitoba
Province of Ontario

SENSORY MOTOR AWARENESS SURVEY FOR 4 AND 5 YEAR OLDS Date of Test_____.

Name_____Sex_____ Birth_____Center_____

Body Image. ½ point for each correct part; 9 points possible.

_____ 1. Ask the child to touch the following body parts:

head_____	ankles_____	ears_____	stomach_____
toes_____	nose_____	legs_____	chin_____
eyes_____	feet_____	mouth_____	waist_____
wrists____	chest_____	fingers___	shoulders____
back_____	elbows_____		

Space and Directions. ½ point for each correct direction; 5 points possible.

_____ 2. Ask the child to point to the following directions:

front_____ back_____ up_____down_____ beside you_____

Place two blocks on a table about one inch apart. Ask the child to point:

under_____ over_____ to the top_____to the bottom_____ between_____

Balance. Score 2 points if accomplished.

_____ 3. Have the child stand on tiptoes, on both feet, with eyes open for eight seconds.

Balance and Laterality. Score 2 points for each foot; 4 points possible.

_____ 4. Have the child stand on one foot, eyes closed, for 5 seconds. Alternate feet.

Laterality. Score 2 points if the child keeps his feet together and does not lead off with one foot.

_____ 5. Have the child jump forward on two feet.

Rhythm and Neuromuscular Control. Score 2 points for each foot if accomplished six times; 4 points possible.

_____ 6. Have the child hop on one foot. Hop in place.

Rhythm and Neuromuscular control. Score 2 points.

_____ 7. Have the child skip forward. Child must be able to sustain this motion around the room or for approximately 30 feet.

Integration of Right and Left Sides of the Body. Score 2 points if cross patterning is evident, for each.

_____ 8. Have the child creep forward.

_____ 9. Have the child creep backwards.

Eye-Foot Coordination. Score 2 points if done the length of tape or mark.

_____ 10. Use an eight-foot tape or chalk mark on the floor. The child walks in a cross-over step the length of the tape or mark.

Fine Muscle Control. Score 2 points if paper is completely crumpled.
Score 1 point if paper is partially crumpled.
Score 0 points if child needs assistance or changes hands.

_____ 11. Using a half sheet of newspaper, the child picks up the paper with one hand and puts the other hand behind his back. He then attempts to crumple the paper in his hand. He may not use his other hand, the table, or his body for assistance.

Form Perception. Score 1 point for each correct match.

_____ 12. Using a piece of paper with two inch circles, squares and triangles, ask the child to point to two objects that are the same.

Form Perception. Score 1 point if circle is identified correctly.
Score 2 points if the triangle and square are identified correctly.

_____ 13. Ask the child to identify by saying, "Point to the circle."
_____ "Point to the square."
_____ "Point to the triangle."

Hearing Discrimination. Score 1 point if the child taps correctly each time.

_____ 14. Ask the child to turn his back to you. Tap the table with a stick three times. Ask the child to turn around and tap the sticks the same way.

_____ Ask the child to turn his back to you. Tap the table again with the sticks (two quick taps, pause, the two more quick taps.) Have the child turn back to you and tap out the rhythm.

Eye-Hand Coordination. Score one point for each successful completion.

_____ 15. A board is used with three holes in it. The holes are 3/4, 5/8, and 1/2 inches in diameter. The child is asked to put his finger through the holes without touching the sides.

R E S U M É :

PSYCHOLOGICAL EVALUATION

A Component of EARLY CHILDHOOD EDUCATION PROGRAM FY 1969
ESEA TITLE I

John A. Davis, Ph.D
Research Consultant

Division of Research
DEPARTMENT OF PLANNING AND DEVELOPMENT

DAYTON PUBLIC SCHOOLS
348 West First Street
Dayton, Ohio 45402

Wayne Carle, Superintendent

CONTENTS

TABLES

The EARLY CHILDHOOD EDUCATION Program in the Dayton School District has now completed its fourth year of operation with the result that at least two thousand children are now enrolled in kindergarten or the first grade who are "graduates" of EARLY CHILDHOOD EDUCATION. The range of ages in the present program and the fact that many of the previous enrollees are now involved in regular classroom activities offered an opportunity to evaluate the program in several ways this year. It is of obvious interest and importance to assess the effects of the program on the children currently enrolled, but it is of equal importance to evaluate the relatively longer-term effects, i.e., upon entrence into kindergarten and at the end of kindergarten. The evaluation during 1968-69 took advantage of the program's history and this report will cover three separate phases:

1. The three-year-olds in the program
2. A sample of four-year-olds
3. A sample of kindergarten children with and without EARLY CHILDHOOD EDUCATION experience.

Since the program currently enrolls primarily four-year-olds, the results of that phase and the kindergarten phase will be presented first and the more limited assessment of three-year-olds last.

I. PHYCHOLOGICAL EVALUATION OF FOUR-YEAR-OLDS

During the 1968-69 school year, 1018 four-year-old children were enrolled in the Dayton EARLY CHILDHOOD EDUCATION Program. These children attended classes in 22 different centers. Since it was obviously not feasible to evaluate all children in the program, a sampling procedure was used which included some children from each of the 22 centers which were under the instruction of at least 25 different teachers. In the initial

sample the number of children selected from each school was based upon the proportion of children from each school in the total program, thus insuring as much as possible that not only would all schools be represented but that they would be represented on a proportional basis.

Three factors were chosen as relevant variables to investigate with this group of children—race, sex, and age. Each factor contained two levels, with children whose birthdays fell on April 1, 1964, or later, designated as younger four-year-olds, and those whose birthdays fell before April 1, 1964, as older four-year-olds. It was felt that the program might have differential effects, depending upon whether the child was relatively older or younger. A pre- and post-evaluation design was used since the objective was to assess changes occurring during the education program which could logically be attributed to the program. The lack of a control or comparison group was recognized as a limitation in evaluating the results, but some attempts to provide indirect evidence in support of the data will be presented later.

Children from each school were chosen randomly within the limits of the experimental design. The initial sample consisted of 157 children. Based upon previous experiences, it was anticipated that the attrition rate due to moving out of town (and usually out of the state) would be fairly heavy among white children and it was anticipated that a reasonable allowance had been made for that contingency. However, as in the previous year, a disproportionate and unexpected loss occurred in one category (younger white females where 8 of 19 moved) reducing the post-evaluation sample to 88 children in order to maintain the experimental design which had been established. These 88 children came from 18 different schools.

Each child was administered seven different tasks or criterion instruments. Since one of the major objectives of the EARLY CHILDHOOD EDUCATION program is to develop basic language, several of the tasks were directly related to the language area while the others assessed visual-motor skills,

body awareness, and auditory discrimination. Each child was administered the Peabody Picture Vocabulary Test, the Draw-A-Man Test, a developmental test of Visual-Motor Integration, an abbreviated form of the Wepman Auditory Discrimination Test, the Cattell Incomplete Man Test and two parts of the Illinois Test of Psycholinguistic Abilities (ITPA): the Auditory Vocal Association Test and the Auditory Decoding Test. These seven tasks were chosen because, with the exception of the DAP and Cattell which represent unstructured and structured versions of the same task, each measures a somewhat different area of functioning related to the objectives of the program, and tasks which would not be directly trained by the program.

It was also necessary to consider the optimal testing time for such young children. Previous experience had indicated that about 30 minutes represented the upper limit.

All children were tested within a three-week period, approximately two weeks after classes were actually formed and had gained some semblance of order and stability. Post-testing occurred during the last two and a half weeks of the program. This testing was accomplished by four psychology graduate students who were thoroughly acquainted with the tasks and the methods of administration and scoring.

Approximately 40-50 minutes were required with each child, considering the time necessary to gain a minimum of rapport, locating children, returning them to class, and the actual testing on the seven tasks. A total of some 280 hours (independent of travel time) was spent in the evaluation of the 245 children (157 pre-tested and 88 post-tested.)

Description of Tasks and Scoring

The Peabody Picture Vocabulary Test (PPVT) purports to provide an estimate of a child's verbal intelligence based upon measuring his "hearing vocabulary." The child is not required to verbalize and may simply point

to one of four picture choices when the stimulus word is given by the examiner. Scoring was done according to the standards given in the manual. The "ceiling" is established when the subject misses any six of eight consecutive items. Raw scores were converted into mental age scores.

The test of visual-motor integration consisted of a series of geometric forms to be copied by the child. The forms were arranged in order of increasing difficulty beginning with a vertical line and progressing through a horizontal line, circle, vertical-horizontal cross, right oblique line, square, a left oblique line, oblique cross, triangle, open square and circle, and three-line cross. Each form was scored either "passing" or "failing", according to standards outlined in a simple manual developed for this purpose. A child's score was simply the number of forms correctly copied.

The Auditory Vocal Association test measures the ability to relate spoken words in a meaningful way. It is basically an analogies test in which the child must complete a statement by supplying an analogous word, e.g., "John is a boy; Mary is a _____." Scoring followed the rules indicated in the ITPA manual which establishes a ceiling following six consecutive item failures. The raw scores were converted into mental age scores for computational purposes.

The Auditory Decoding Test assesses the child's understanding of the spoken word and is essentially a controlled vocabulary test, e.g., "Do you smoke?" "Do you run?" Scoring was based upon the rules contained in the ITPA manual. The ceiling level is reached when four in any eight consecutive items are failed.

The Auditory Discrimination Test is a test designed by Wepman consisting of 40 pairs of words which the examiner reads aloud. Some of the pairs of words are alike and some are different, the task of the child is to respond in some way that they are the same or different. The original list

of 40 pairs had previously proved to be too long to maintain children's interests and attention and the list was reduced to one half its length by randomly choosing items. The task was scored according to the number of items answered correctly and raw scores were used in computations.

The Draw-A-Person task is one of the oldest and most widely used tasks of intelligence, which is also related to maturation and body awareness. The Goodenough scoring system outlined in her 1926 book was used and scores were converted to mental age norms as indicated in the same book.

The Cattell Incomplete Man Test is also a very traditional test developed by Cattell in the 1930's. It portrays a partly completed man with the instruction for the child to "make the rest of him." For this evaluation, each identifiable part drawn was given one point and total score was based upon the number of parts completed.

Results

The data for the seven tasks were initially analyzed using analysis of variance in a 2 x 2 x 2 fixed factorial design with race, sex, and age as the three major factors, each having two levels. Difference scores between pre- and post-school evaluations were used as cell entries. For other analyses, pre- and post-school mean scores and mean difference scores were also computed.

The ANOVA's for each of the seven tasks are presented in [illegible] 1-7. Since 88 subjects were used in each analysis, an F-ratio (1, [illegible] of 3.96 is required at the .05 level and 6.96 at the .01 level. [illegible] strik-ing feature of these analyses is the lack of differential ef[illegible] to any of the three main factors. Only the Draw-A-Person and Vi[illegible] Integration Tests showed any significant F-ratios and in both [illegible] y were associated with higher order effects, with the signific[illegible] reaching only the minimal acceptable level of $p < .05$. It is [illegible] dent

that none of the three main factors — race, sex, or age — operates in any predictably consistent way to produce significant changes on any of the seven criterion tasks. The DAP showed a very high order effect (triple interaction) which presents a typical interpretive problem. In general, it indicates that the race x sex interaction is not the same for different levels of the age factor. The practical significance of this finding is difficult to assess in view of the complex nature of the interaction.

The two factor interaction of race and sex on the Visual-Motor Integration Test means in general terms that the effect of race is not independent of the sex factor. More specifically it suggests that Negro males and White females showed the largest gains as measured by the DAP technique.

Table 8 presents the pre- and post-school mean scores and the mean increases for the same 88 children on each of the seven tasks. These results indicate that there was general growth on each of the tasks, although the significance of the increases cannot be validly interpreted since there is no control or comparison group against which to compare them. However, it is of more than incidental interest and practical significance that the largest and most consistent gains occurred in language related areas, as measured by the Peabody, Auditory Vocal Association Test, Auditory Decoding Test and the Auditory Discrimination Test. These gains ranged from 13.7 months on PPVT, 8.2 months on the Auditory Vocal Association Test, 6.0 months on the Auditory Decoding Test, and 5.4 words on the Auditory Discrimination Test.

Children in the present sample averaged about $4\frac{1}{2}$ years of age upon entry into the EARLY CHILDHOOD EDUCATION Program and at the end of the program averaged about 5 years 2 months of age. Normative data on how much growth can be anticipated on each of the tasks used in this evaluation are not available. Growth on cognitive or other tasks does not occur in linear

TABLE 1. ANALYSIS OF VARIANCE OF PEABODY PICTURE VOCABULARY TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	8,447.669	87		
Race	88.000	1	88.000	—
Sex	40.909	1	40.909	—
Age	104.727	1	104.727	1.06
Race x Sex	49.499	1	49.499	—
Race x Age	20.045	1	20.045	—
Sex x Age	92.045	1	92.045	—
Race x Sex x Age	163.644	1	163.644	1.66
Within	7,888.800	80	98.610	

TABLE 2. ANALYSIS OF VARIANCE OF DRAW-A-PERSON SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	6,210.639	87		
Race	45.102	1	45.102	—
Sex	.102	1	.102	—
Age	.920	1	.920	—
Race x Sex	12.375	1	12.375	—
Race x Age	245.556	1	245.556	3.53
Sex x Age	54.102	1	54.102	—
Race x Sex x Age	287.282	1	287.282	4.13*
Within	5,565.200	80	69.565	

* $p < .05$

TABLE 3. ANALYSIS OF VARIANCE OF VISUAL-MOTOR INTEGRATION TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	377.050	87		—
Race	2.227	1	2.227	—
Sex	.045	1	.045	—
Age	.409	1	.409	—
Race x Sex	18.181	1	18.181	4.14*
Race x Age	4.545	1	4.545	1.04
Sex x Age	.000	1	.000	—
Race x Sex x Age	.043	1	.043	—
Within	351.600	80	4.395	

* $p < .05$

TABLE 4. ANALYSIS OF VARIANCE OF AUDITORY-VOCAL ASSOCIATION TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	9,581.555	87		
Race	74.556	1	74.556	—
Sex	166.374	1	166.374	1.43
Age	1.375	1	1.375	—
Race x Sex	.011	1	.011	—
Race x Age	.556	1	.556	—
Sex x Age	13.920	1	13.920	—
Race x Sex x Age	7.083	1	7.083	—
Within	9,317.680	80	116.471	

TABLE 5. ANALYSIS OF VARIANCE OF AUDITORY DECODING TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	26,184.800	87		
Race	441.011	1	441.011	1.46
Sex	19.102	1	19.102	—
Age	923.010	1	923.010	3.06
Race x Sex	48.011	1	48.011	—
Race x Age	405.920	1	405.920	1.34
Sex x Age	42.284	1	42.284	—
Race x Sex x Age	145.062	1	145.062	—
Within	24,160.400	80	302.005	

TABLE 6. ANALYSIS OF VARIANCE OF CATTELL INCOMPLETE MAN TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	498.279	87		
Race	1.636	1	1.636	—
Sex	16.409	1	16.409	2.92
Age	.409	1	.409	—
Race x Sex	6.545	1	6.545	1.16
Race x Age	8.909	1	8.909	1.59
Sex x Age	.045	1	.045	—
Race x Sex x Age	14.726	1	14.726	2.62
Within	449.600	80	5.620	

TABLE 7. ANALYSIS OF VARIANCE OF AUDITORY DISCRIMINATION TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	3,383.670	87		
Race	82.102	1	82.102	2.08
Sex	25.102	1	25.102	—
Age	6.011	1	6.011	—
Race x Sex	21.011	1	21.011	—
Race x Age	31.920	1	31.920	—
Sex x Age	57.284	1	57.284	1.45
Race x Sex x Age	1.920	1	1.920	—
Within	3,158.320	80	39.479	

TABLE 8. PRE- AND POST-SCHOOL MEAN SCORES AND MEAN CHANGE SCORES FOR SEVEN CRITERION TASKS

TASKS	Pre-School Mean	Post-School Mean	Mean Change
Peabody	40.3 Months	54.0	+ 13.7
Draw-A-Person	49.1 Months	52.4	+ 3.3
Visual-Motor	3.5 Designs	5.3	+ 1.8
Auditory Vocal	44.6 Months	52.8	+ 8.2
Auditory Decoding	46.0 Months	52.0	+ 6.0
Cattell	3.5 Parts	5.7	+ 2.2
Auditory Discrimination	5.5 Words	10.9	+ 5.4

fashion, i.e., equal growth units over time, so that one cannot ordinarily make the assumption of equal chronological and mental age increases. However, the PPVT is constructed with an IQ of 100 arbitrarily assigned to the mean raw score for each age level, converting the raw score distributions to a standard score scale. Thus, IQ's from age to age are comparable and one can use the IQ tables in the Peabody Manual to assess the raw score increment needed with increasing age to maintain the same score.

Converting and averaging the raw scores on the PPVT into a single score represented by the mean indicates that the mean IQ for the 88 children was 80 at the time of the initial testing and 90 on the post-testing. This increase indicates that the sample of children in the EARLY CHILDHOOD EDUCATION Program did not simply maintain its standing but increased hearing vocabularies by 10 points. It would appear unlikely that this increase could logically be attributed to maturation or some other extraneous factor.

Another form of indirect support is suggested by a study cited by Dunn, Horton and Smith in their manual for the Peabody Language Development Kits (Level #P, 1968). They cited data collected on four- and five-year-olds in day care centers in the Nashville area. The daily programs were said to be typical of the approach used in day care centers in that area and must have much in common with the present EARLY CHILDHOOD EDUCATION Program. Control and experimental groups were available, with the experimental group receiving daily lessons from the Level #P of the Peabody Language Development Kit (PLDK). They were compared on the PPVT and other tests following a seven-month treatment period. The increases in PPVT performance were 12.0 and 7.8 IQ points for the experimental and control groups, respectively. These mean differences were not evaluated statistically, but are offered by the developers of the PLDK as evidence of the kit's efficacy for the development of language skills. The 10 point increase on the PPVT in the EARLY

CHILDHOOD EDUCATION Program compares quite favorable with the 12 point change noted in the experimental group and the 7.8 point change in the control group. The experimental group in the Nashville study was given very specific language training on a language teaching device which is clearly very directly associated with the PPVT—in fact, the developer of the PPVT is also the senior author of the PLDK. In the present ECE Program, there was no training on the criterion task yet increases of 13.7 months, or 10 IQ points were found.

It must be recognized that, despite the gains recorded during the seven month training period, the children in the present sample are on the average still below "grade level" on the various tasks. These children, whose average age is now 62 months, average on the PPVT only 54 months; 52.4 months on the DAP, 52.8 months on the Auditory Vocal Association Test; 52.0 months on the Auditory Decoding Test; and at about 50 to 54 months on the Visual-Motor Integration Test.

II. PSYCHOLOGICAL EVALUATION OF KINDERGARTEN

The assessment of kindergarten children, with and without previous EARLY CHILDHOOD EDUCATION Program experience, offered an excellent opportunity to evaluate the impact of the EARLY CHILDHOOD EDUCATION Program on cognitive skill development. Despite demonstrated gains in the previous year and in the present program, the alleged benefits of this program could only be inferred by reference to other programs or by similar indirect reasoning. It was easy to locate a number of schools in the Dayton School District where those with and without pre-kindergarten experience were available. Seven schools were chosen as representative of children who had previously been in the EARLY CHILDHOOD EDUCATION Program, schools which also had available comparable children who had not been enrolled in any pre-school programs. The schools chosen were Ruskin, Washington, McNary Park, Whittier, Highview, Louise Troy and Emerson. Unfortunately, because of misplaced data, it was not possible to utilize children from Emerson in the analyses.

It was decided that the factors of major interest for this evaluation were sex, race, and, of course, whether or not the child had previously been enrolled in the EARLY CHILDHOOD EDUCATION Program. Children were chosen randomly within each school and were unknown to the persons who made the selection from class lists. It was again decided to evaluate test results by analysis of variance using a three-factor, two-level, fixed factor design.

None of the children in the "no-school" group had been in any pre-school program so far as could be verified by record, teacher or parents' reports. It was decided to evaluate children as soon as possible following their entrance into kindergarten and as late as possible during their final month in kindergarten. The initial evaluation would provide a critical comparison for the effects of pre-kindergarten training as well as the possible differential effects of race and sex plus combinations of these three factors.

The post-kindergarten testing would allow an evaluation of these same factors, and whether any differences revealed on the first testing would be sustained following kindergarten.

Description of Tests and Scoring

Considerations which entered into the selection of tasks were:

1. Group as opposed to individual administration because of personnel limitations.
2. Length of testing time available both because of classroom restrictions and ability to maintain children's attention and interests.

Personnel limitations made it infeasible to administer more than a single instrument for each evaluation and one which could be managed by persons with only a limited amount of training. The tests were administered by the teacher consultants and social workers following a period of training and explanation by a psychologist. Children were tested in small groups of 5 or 6 within a three-week period during October, 1968, and within a two-week period at the end of May, 1969. Approximately 7 months intervened between the two test administrations.

The Kuhlmann-Anderson Test, 7th Edition, Booklet K, Revised 1965, is a classical "intelligence test" and provides an IQ which is defined as "an index of the degree of a pupil's mental ability, or academic potential, in comparison with a representative sampling of pupils of the same chronological age." (Manual, p-26) The test consists of eight parts, each of which provides a score, but IQ's and other standard measurements are provided only for the total score. The tests involve picture completion, locating the incorrect part in a picture, classifying objects which belong together, identifying objects which fit various orally described specifications, completing designs, matching figures, counting and following directions.

The Metropolitan Readiness Tests, Form A, 1965, were used for the terminal evaluation. They measure the extent to which school beginners have

developed in the several skills and abilities that contribute to readiness for first-grade instruction. Six tests are included in the MRT:

1. Word Meaning, a 16-term picture vocabulary test.
2. Listening, a 16-item test of ability to comprehend phrases and sentences instead of individual words.
3. Matching, a 14-item test of visual perception involving the recognition of similarities.
4. Alphabet, a 16-item test of ability to recognize lower-case letters of the alphabet.
5. Numbers, a 26-item test of number knowledge.
6. Copying, a 14-item test which measures a combination of visual perception and motor control.

Conversion scores are provided on each of the six sub-tests and the total but percentile ranks and stanines are provided only for the total score.

Results

The data for both the initial and post-testing were analyzed using analysis of variance in a 2 x 2 x 2 fixed factorial design with race, sex, and school as the three factors, each having two levels (Negro-White; Male-Female; Pre-kindergarten-No Pre-kindergarten). IQ's were used as cell entries for the Kuhlmann-Anderson while the total unconverted scores were used for the Metropolitan. 128 children were used in the Kuhlmann-Anderson analysis and 96 of that number for the Metropolitan.

The ANOVA for the Kuhlmann-Anderson is presented in Table 9. Reference to Table 9 reveals only one significant F-ratio, associated with the main effect of schooling. The F of 5.81 is significant at $p < .02$ (1,120 d.f.; $F_{.025} = 5.15$). The means associated with this main treatment effect are 92.06 and 86.17 for the Pre-kindergarten and No Pre-kindergarten groups, respectively. The mean difference of 5.9 IQ points which attains a very acceptable level of statistical significance is interpreted as supporting the effectiveness of the EARLY CHILDHOOD EDUCATION Program on the development

of cognitive skills as measured by the tasks on the Kuhlmann-Anderson. This difference suggests that children who have received the types of experiences offered in the EARLY CHILDHOOD EDUCATION Program enter kindergarten functioning at a higher level of cognitive development than children who have not had such experiences.

It might be argued that those children who did not have Pre-kindergarten experiences are in some significant ways different from those who have enrolled and that the IQ difference is attributable to these uncontrolled or unrecognized characteristics and not to the effects of the EARLY CHILDHOOD EDUCATION Program. While such an argument can never be completely refuted, such an assertion seems highly improbable. Those children with and without EARLY CHILDHOOD EDUCATION experience came from the same schools and investigations of various background characteristics revealed no consistent differences. As a matter of fact, the manner in which children were selected for the EARLY CHILDHOOD EDUCATION Program would suggest that they had relatively fewer social, financial, and other resources than those who were not selected. Since in many school areas, the number of children applying for the EARLY CHILDHOOD EDUCATION Program was typically greater than the accomodations, definite selection entered into admission. Typically, the children who were not selected come from relatively better social and economic circumstances and many of these same children are in the present No Pre-kindergarten group.

Inspection and comparison of the various individual cell means showed consistent differences between the four race-sex combinations on the school variable:

	Pre-Kindergarten	No Pre-Kindergarten
Negro-Male	89.6	83.1
Negro-Female	90.4	86.9
White-Male	92.2	90.0
White-Female	96.1	84.8

TABLE 9. ANALYSIS OF VARIANCE OF KUHLMANN-ANDERSON TEST SCOR

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	Ratio F
Total	23,846.989	127		
Race	347.820	1	347.820	1
Sex	20.320	1	20.320	—
School	1,110.382	1	1,110.382	5.81**
Race x Sex	67.570	1	67.570	—
Race x School	25.382	1	25.382	—
Sex x School	79.695	1	79.695	—
Race x Sex x School	290.820	1	290.820	1.52
Within	22,905.000	120	190.875	

** $p < .02$

TABLE 10. ANALYSIS OF VARIANCE OF TOTAL METROPOLITAN READINESS TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom fd	Mean Square	F Ratio F
Total	17,741.287	95		
Race	.093	1	.093	—
Sex	918.845	1	918.845	5.16*
School	372.093	1	372.093	2.09
Race x Sex	68.343	1	68.343	—
Race x School	162.760	1	162.760	—
Sex x School	283.593	1	283.593	1.59
Race x Sex x School	269.976	1	269.976	1.52
Within	15,665.584	88	178.018	

* $p < .05$

TABLE 11. ANALYSIS OF VARIANCE OF METROPOLITAN WORD MEANING TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Total	547.456	95		
Race	10.010	1	10.010	1.83
Sex	.093	1	.093	—
School	21.093	1	21.093	3.85
Race x Sex	4.593	1	4.593	—
Race x School	.510	1	.510	—
Sex x School	.010	1	.010	—
Race x Sex x School	29.259	1	29.259	5.34*
Within	481.888	88	481.888	

* $p < .05$

TABLE 12. ANALYSIS OF VARIANCE OF METROPOLITAN LISTENING TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Total	589.939	95		
Race	9.375	1	9.375	1.54
Sex	3.375	1	3.375	—
School	22.041	1	22.041	3.63
Race x Sex	5.041	1	5.041	—
Race x School	2.041	1	2.041	—
Sex x School	7.041	1	7.041	1.16
Race x Sex x School	7.041	1	7.041	1.16
Within	533.984	88	6.068	

TABLE 13. ANALYSIS OF VARIANCE OF METROPOLITAN MATCHING TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	981.149	95		
Race	5.510	1	5.510	—
Sex	14.260	1	14.260	1.51
School	38.760	1	38.760	4.10*
Race x Sex	.510	1	.510	—
Race x School	10.010	1	10.010	1.06
Sex x School	14.260	1	14.260	1.51
Race x Sex x School	65.007	1	65.007	6.87*
Within	832.832	88	9.464	

* $p < .05$

TABLE 14. ANALYSIS OF VARIANCE OF METROPOLITAN ALPHABET TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	1,643.801	95		
Race	88.166	1	88.166	5.28*
Sex	35.041	1	35.041	2.10
School	.666	1	.666	—
Race x Sex	7.041	1	7.041	—
Race x School	28.166	1	28.166	1.69
Sex x School	9.375	1	9.375	—
Race x Sex x School	5.042	1	5.042	—
Within	1,470.304	88	16.708	

* $p < .05$

TABLE 15. ANALYSIS OF VARIANCE OF METROPOLITAN NUMBERS TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Total	1,329.416	95		
Race	19.260	1	19.260	1.44
Sex	52.510	1	52.510	3.92
School	27.093	1	27.093	2.02
Race x Sex	11.343	1	11.343	—
Race x School	6.510	1	6.510	—
Sex x School	21.093	1	21.093	1.58
Race x Sex x School	12.759	1	12.759	—
Within	1,178.848	88	13.396	

TABLE 16. ANALYSIS OF VARIANCE OF METROPOLITAN COPYING TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom fd	Mean Square	F Ratio F
Total	719.[illegible]	95		
Race	9.375	1	9.375	1.43
Sex	100.041	1	100.041	15.21**
School	.041	1	.041	—
Race x Sex	1.041	1	1.041	—
Race x School	9.375	1	9.375	1.43
Sex x School	22.041	1	22.041	3.35
Race x Sex x School	.372	1	.372	—
Within	578.600	88	6.575	

** $p < .01$

The 11.4 IQ point difference between the White Female with and without pre-kindergarten is especially striking.

It is of interest to note that the mean IQ for the total group of 128 children was 89.1. This typical score is equivalent to the 25th percentile or within the fourth stanine.

Metropolitan Readiness Tests

The ANOVA's for the Metropolitan Readiness Tests are presented in Tables 10-16. Table 10 presents the results of the total Metropolitan score while the other tables contain the results of the six parts which comprise the total score: Word Meaning, Listening, Matching, Alphabet, Numbers, and Copying.

Reference to Table 10 reveals only one significant F-ratio, that associated with the effect of sex ($p<.05$). The two means, 32.7 and 38.9 for males and females respectively, indicate that the total readiness scores made by girls are on the average 6.2 points higher than those made by boys and that this difference attains a minimum level of statistical significance and is, in that sense, a "real" difference. The effect of previous schooling, which was statistically significant at the beginning of kindergarten as measured by the Kuhlmann-Anderson Test is no longer maintained. The means for School and No-School were 37.7 and 33.8, respectively, but the difference of 3.9 points is no longer significant. Thus, it would seem that the significant cognitive acceleration produced by the EARLY CHILDHOOD EDUCATION Program apparent on kindergarten entrance has been reduced by the end of kindergarten. Although some difference remains it can be attributed to chance and confidence is diminished. The two tests employed do not measure identical areas (as no two tests ever do), but a correlation coefficient of 0.67 ($p<.01$) was obtained between them which indicates a substantial amount of commonality. In terms of content and purpose of the two tests, persons would be expected to make very similar scores unless some changes occurred in those taking the tests.

A review of the remaining tables reveals only five significant F-ratios scattered among the six different sections of the Metropolitan and only one of these associated with the effect of previous schooling. On three sections—Word Meaning, Listening and Matching—the schooling factor approached minimum significance and it was also involved in two higher order (triple) interactions.

Higher order interactions were involved with Word Meaning and with Matching ($p < .05$) and on the latter the school factor was also significant (those with Pre-kindergarten experience scored on the average 1.2 points higher than those without). On the Alphabet task race there was a significant factor with a difference of 1.9 points between the performances of Whites and Negroes (Whites > Negroes). On the Copying task a highly significant difference ($p < .01$) was revealed between Males and Females with Females scoring on the average of 2.1 points higher than Males. The two remaining tasks—Listening and Numbers—showed no differential effects of the three factors.

It should be noted that the average score made on the total test was 35.8 which is equivalent to only the 17th percentile or the 3rd stanine when compared with the standardization population. Table 17 presents the mean scores and differences on the six test sections between the present kindergarten group and the standardization group (Manual, Metropolitan Readiness Tests, p-9). These scores indicate that the total kindergarten group is significantly lower than the standardization group on five of the six test sections. On only the Listening section does the kindergarten group approach the median of the distribution.

An analysis of the total scores indicates that 19 children have scores below 24; 51 have scores between 24-44; and the remaining 26 have scores between 45-63. "Readiness status" corresponding to various ranges of total

scores is also provided in the Metropolitan manual. According to this table, those below a score of 24 have a readiness status of "low" which is described as "Chances of difficulty high under ordinary instructional conditions. Further readiness work, assignment to slow sections or individualized work, is essential." Those between 24-44 are regarded as "low normal" and are "Likely to have difficulty in first-grade work. Should be assigned to slow section and given more individualized help." Children scoring between 45-63 are regarded as "average" and are "Likely to succeed in first-grade work. Careful study should be made of the specific strengths and weaknesses of pupils in this group and their instruction planned accordingly."

Only 26 of the total group of 96 are considered likely to succeed in first-grade work and 19 are categorized as almost certain failures. Not a single child in the entire group of 96 attained a score beyond the average range. Table 18 presents the distribution of readiness status scores for the 96 children according to whether they had Pre-Kindergarten experience or not. It is apparent that almost twice as many children who had been in the EARLY CHILDHOOD EDUCATION Program, as compared with those who had not, attained scores which categorize them as likely to succeed in first grade work. A smaller number of those who had been in the EARLY CHILDHOOD EDUCATION Program scored in the "very low" category.

The possible statistical significance of this distribution of scores was evaluated by the Chi-Square test. A Chi-Square of 5.54 was obtained which almost achieved minimum statistical significance ($X^2=5.991$, $p<.05$, 2 d.f.) One cannot, therefore, reject the hypothesis of no difference between groups. However, some apparent "carry over" effect is observed even though one cannot place the same degree of confidence in the results.

TABLE 17. MEAN SCORES AND MEAN DIFFERENCES BETWEEN KINDERGARTEN AND STANDARDIZATION GROUPS ON THE METROPOLITAN READINESS TESTS

Tests	Kindergarten Means	Standardization Means	Mean Differences
Word Meaning	5.76	8.67	—2.91
Listening	8.48	8.89	—0.41
Matching	4.80	7.50	—2.70
Alphabet	5.96	9.39	—3.43
Numbers	7.76	12.02	—4.26
Copying	3.10	6.81	—3.71

III. PSYCHOLOGICAL EVALUATION OF THREE-YEAR-OLDS

The three year olds in the EARLY CHILDHOOD EDUCATION Program were evaluated initially at a very late point in the program and only about 2½ months intervened between the initial and final evaluations. These evaluations were designed only for screening purposes and there was no intention to examine the results statistically. The major interest in these evaluations was to determine the developmental levels of functioning for these children in the traditional areas of gross skills. The tasks chosen for inclusion in this screening instrument came from a variety of sources and are widely used and accepted measures. A copy of the evaluation instrument is included as Appendix A. The instrument was designed to be individually administered by classroom teachers since psychological examiners or child development experts were not available to handle this task.

It was intended to evaluate the results rather loosely whatever their form, but the final results were so undiscriminating that no meaningful conclusions could be drawn. In general, children were found to be able to complete almost all tasks successfully, at least on the terminal evaluation.

While there were children who were unable to pass some tasks, there was no consistent pattern of failures and the number of failures was so small as compared with the passes that no meaningful conclusions could be drawn. There are several possible explanations for the failure of this series of tasks to have more discriminating power. First, most of the children were approaching four years of age when the tasks were finally given and it may be that the tasks chosen did not provide a sufficient ceiling. Most of the tasks were appropriate for $2\frac{1}{2}$—$3\frac{1}{2}$ years and not enough provision was made for s .table tasks at higher age levels. A second possibility is the likelihood of unintentional bias, since children were evaluated by their own teachers. It seems quite probable that teachers intentionally and/or unwittingly enhanced the performances of their own children. Despite the relative simplicity of the tasks for the children's general ages, experience with similar groups of four-year-olds in previous (and current) years indicates that at that age they are not able to perform adequately on the same tasks when evaluated by more uninvolved or objective observers. In all probability, both the ease of the tasks and bias entered into these generally undiscriminating results. Hopefully, there is also the possibility that the initiation of such a remedial and/or accelerating program at these younger ages produces valid changes.

SUMMARY

It is very difficult to summarize such a mass of data into simple generalizations. The most likely and logical question to be asked by any person interested in the ways his tax dollars are being spent for such a federally supported program is "Does it work?" Unfortunately, and at the risk of sounding evasive or quibbling, any person trained in scientific methods would have to reply that he could not really answer that particular question, although he could easily appreciate the concern. The effects of such a program as EARLY CHILDHOOD EDUCATION depend upon what criteria or standards one chooses for evaluation and whether these are appropriate and consistent with the avowed objectives of the program. It would obviously be absurd to choose criteria which are wholly outside the purposes of the program and still expect to demonstrate any meaningful changes.

If one is permitted to rephrase the question into a series of subquestions related to the objectives of the program, it becomes possible to answer them in a more realistic and valid manner. The general purposes of the EARLY CHILDHOOD EDUCATION Program are to help children develop basic language (including perceptual skills) and also, to develop motivational and social skills. Motivational and social development were considered too difficult to measure quantitatively at the present time with the personnel and financial limitations. The general cognitive area was chosen as amenable to measurement and tasks were chosen which related to the program objectives as outlined in the previous sections.

Four-year-olds, who comprise the majority of children in the program, were measured on a variety of cognitive tasks involving language, visual-motor skills, auditory discrimination and body awareness. They were found to show some improvement on every task with the largest and most consistent gains occurring in language related areas. However, the unavailability of a control or comparison group (unavailable for the very practical reasons

that most eligible children were in the program and, if they were not, they were difficult to contact for the purposes of conducting pre- and post-evaluations) raises a valid question about the significance of such gains since they might be attributed to the passage of time and maturation or other factors. However, some indirect evidence was offered to suggest that the gains were "real" and could not easily be ascribed to chance or other factors unrelated to the program. Even with the advantages of the program, though, children were still found at the end of the program to be functioning 8-12 months below average on the various tasks.

The assessment of kindergarten children, some of whom had previously been in the EARLY CHILDHOOD EDUCATION Program and some of whom had not, provided a further opportunity to evaluate the effectiveness of the EARLY CHILDHOOD EDUCATION Program on cognitive development. It was found that at the beginning of kindergarten, children with EARLY CHILDHOOD EDUCATION experience scored significantly higher on a standardized group intelligence measure than children who had not had such experience. At the end of kindergarten a smaller group of the same children was evaluated on a widely used first-grade readiness test (Metropolitan Readiness Tests) and, although those with EARLY CHILDHOOD EDUCATION experience still scored about four points higher than those without, the difference was no longer statistically significant.

Sex differences, however, did emerge. An analysis of the total scores categorized by EARLY CHILDHOOD EDUCATION experience vs. No ECE experience in terms of readiness status revealed that almost twice as many children who had been in the EARLY CHILDHOOD EDUCATION Program as compared with those who had not attained scores which categorized them as likely to succeed in first grade work. A smaller number of former EARLY CHILDHOOD EDUCATION children scored in the high probability of failure group as compared with those who did not attend the program. Although the null hypothesis for the

distribution could not be rejected (the results almost achieved minimum statistical significance), some obvious "carry-over" effect was observed. The scores for the total group, however, still place these children well below the average scores made by the standardization group and, with few exceptions, these children are not regarded as good prospects for success in first-grade work. The mean score for the total group is equivalent to only the 17th percentile or within the third stanine.

The present evaluation, based upon the current EARLY CHILDHOOD EDUCATION Program and children with previous ECE experience who are now in kindergarten, suggests that the EARLY CHILDHOOD EDUCATION Program "works" in the sense that it does increase the level of cognitive functioning during the program and that this increase carries over into kindergarten and, to a lesser degree, into first grade preparation. However, these children in general were found still to be functioning below average on the tasks administered at both pre-school and kindergarten levels. While some clear increases in functioning levels occur, the intervention of programs like EARLY CHILDHOOD EDUCATION are not able to offset fully the apparent debilitating effects of general poverty (it is noteworthy that almost no racial differences were found, suggesting that the impact of socioeconomic circumstances is the overriding factor) either because of the type of program, its limited duration (approximately 120-140 at only 3 hours per day), its failure to target special groups with specialized programs, or the lateness at which intervention first occurs. The growing body of evidence suggests that programs of intervention and remediation need to be introduced very early in the child's life, certainly by 2½ years of age, and perhaps beginning in infancy along with enhanced programs of pre-natal care. In view of this accumulating evidence it is perhaps even more significant testimony to the effectiveness of the EARLY CHILDHOOD EDUCATION Program that gains such as those demonstrated occurred at all.

A P P E N D I X

APPENDIX A

TEACHER SCREENING FOR THREE YEAR OLDS
EARLY CHILDHOOD EDUCATION DAYTON, OHIO 1969

DIRECTIONS FOR TESTING:

This test should be given to your three year old class 2 times:

1. March 3-7
2. May 26-30

It is important the test be given to all your three year old children only, on the dates listed above. When March tests are completed please file. When May tests are completed, please send tests to EARLY CHILDHOOD EDUCATION office by June 2.

Please prepare an isolated area — a small room close by in which to test each child individually.

* * * * * * * * * *

Have the following testing materials prepared and set up in testing area before you begin the actual testing.

1. 2 balls — (large) one for gross motor test
   (small) one for language test
2. 15 one inch cube blocks
3. 5 model cards for Fine Motor-Test
4. 5 8x11 blank sheets of paper for each child
5. 1 crayon (dark color)
6. Buttons-button holes
7. Picture — of child
8. Small table — 2 chairs

* E. = EXAMINER
* S. = STUDENT

R E S U M É :

NEW VISIONS — A Children's Museum

A Component of EARLY CHILDHOOD EDUCATION PROGRAM FY 1969
ESEA TITLE I

Martha Bains, Supervisor of Art, Dayton Public Schools
Consultant to the Museum

Division of Research
DEPARTMENT OF PLANNING AND DEVELOPMENT

DAYTON PUBLIC SCHOOLS
348 West First Street
Dayton, Ohio 45402

Wayne Carle, Superintendent

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TABLE

RESUMÉ OF NEW VISIONS 1968-1969

NEW VISIONS, an art museum designed for children, continued operations for its fourth year at Longfellow School from September 3, 1968, to June 6, 1969. The museum is a component of the EARLY CHILDHOOD EDUCATION Program, an ESEA TITLE I project of the Dayton Public Schools.

The primary purpose of this project is to provide planned learning experiences for children of pre-kindergarten and kindergarten centers in the target area of the economically disadvantaged. In the museum, they can explore the artifacts of our present society and those of past and different cultures. It is hoped that the use of varied approaches through the five senses will increase the children's awareness of themselves, their environment, and their heritage.

Entering NEW VISIONS

Coming in through the coatroom area, the children saw a large, colorful bulletin board of children using their five senses. Designed to make the entry more appealing, this visual impact was useful as an introduction to the sensory activities the children would experience on their tour of the museum.

A small gallery of Dayton school children's art work continued to be of special interest to visiting classes. It served as a stimulant to both children and their teachers to enlarge the range of art activities in their classrooms and provided a stimulus to assure additional art work for the gallery.

Exhibits: Ramp Area

Every effort was made to encourage the use of the senses in exploring the exhibits. Under the continuing guidance of the museum docents and the

cooperating teachers, children were urged to think and "find out" during their free explorations.

The free exploration period was followed by a group discussion, with everyone seated on the floor cushions in a loose semicircle. No formal presentation of artifacts per se was made by the docents. Instead, the discussion centered on those artifacts about which the children themselves expressed the most curiosity. As the children were encouraged to ask questions and discuss items of interest, they made further discoveries which they shared with the group.

Experiencing success and recognition by their discoveries and enriching their vocabulary through their museum experiences were a part of the conscious, but informal, plan of the docents. Age, maturity, and interests of the group determined the depth of involvement in these discovery sessions and the length of time spent in the area.

Our African World

The first exhibit on the ramp side of the museum consisted of carvings, woven materials, jewelry, everyday utensils, various drums, and other musical instruments from many parts of Africa. Authentic African recordings provided a related background of sound.

During the discussion period, children were guided into dialogue concerning some basic concepts of Africa and its art work:

(1) Africa is a large continent with many kinds of people and many cultures, so it is not wise to generalize or make sweeping statements about it.

(2) African sculptures and art work, with their exaggerated and distorted forms, were created in this manner because of the artist's idea and not because he could not carve or create realistically.

Children's favorite activities in the area were wearing jewelry, using African cloth as robes, and singing to the drum beat.

"Our African World" was on display from Sept. 3, 1968, through Nov. 1, 1968.

Oriental Display

An oriental display followed the African exhibit. It consisted of oriental artifacts and clothing, interspersed with contemporary ceramics, prints, metal sculptures, and woven materials. As the children entered the museum, they heard oriental music and smelled incense burning, as related sensory background experiences.

Wearing kimonos and hats, carrying parasols and fans, and using chopsticks were experiences used to assure involvement of all children. A favorite activity was having a parade, with children wearing the lion dance costume.

The oriental display was on exhibit from November 12, 1968, through March 14, 1969.

Appalachian or Southern Highlands Display

The third exhibit of the year used the theme: Appalachian or Southern Highlands. This display included items from the past, crafts from the Highland area, contemporary sculpture, woven materials, ceramics, and prints. Authentic recordings featuring the three-stringed dulcimer provided a related background of sound.

Discoveries concerning the "old and the new" always appealed to the children. To set the mood of the Appalachian culture, the children wore sun bonnets and aprons, ground coffee, and played the dulcimer.

This exhibit was on display from March 24, 1969, through May 22, 1969.

Sensory Experience: Maze Area

The introduction to the maze side of the museum was initiated with a repeat of the intimate semicircle in the sensory area. In the maze area, the children had many new experiences: hearing, touching, smelling, tasting, and seeing.

Efforts were made to draw out the timid and insecure child, to enlarge

his feeling of accomplishment, and to heighten his awareness in many areas. Many times the docents were able to establish a rapport and response from children who had been reluctant to talk in the classroom. A conscious effort was made to speak to children on their level and to ensure success in all the experiences the children had at the museum. With the guidance of the docents, but without actual interference, the children were given free time to explore the maze area.

As the exhibits on the ramp side of the museum changed, the learning opportunities on the maze side were also changed, in order to correlate the two areas, with many of the sensory experiences being directly related to the exhibit of the ramp side.

The final part of each visit was a puppet show featuring a little boy representing the culture on display. "Mai-Ling, Boy of the Orient" or "Jed, Mountain Boy" talked with his animal friends who emphasized the use of their five senses. The puppets' conversation induced the children to become part of the show; as they responded, they reviewed their own use of the senses during their museum visit.

NEW VISIONS Tours

Tours to the museum for pre-kindergarten and kindergarten were scheduled by the ECE office to begin in November, 1968, and to continue through March, 1969.

To make full use of the museum facilities prior to and following the visits from the ECE centers, announcements were sent to all TITLE I schools in the Dayton City School District that requests for tours would be accepted. In September and October, 1,353 children from grades kindergarten through seven visited the museum. In the latter part of March and in April and May, 1,266 children from grades kindergarten through eight took the NEW VISIONS tour.

A tabulation of the participants in NEW VISIONS activities and of the other visitors who came to view the program in action is given in the Table below.

TABLE I. PARTICIPANTS IN NEW VISIONS PROGRAM AND VISITORS, 1968-1969

Groups	Number of Groups	Number of Persons
Classes of EARLY CHILDHOOD EDUCATION Centers	112	1,565*
Classes of grades kindergarten through 8	102	2,754*
Parent groups from ECE Centers	11	77*
Workshops on African Art conducted by elementary art teacher consultant for teaching staff	6	15
Meeting of 10 art teachers	1	10
Observation by 10 UD art education students of NV tours (At request of Vincent Inconigilious, artist-in-residence at Dayton Art Institute, instructor at UD and LIVING ARTS)	1	10
Miami University classes studying inner-city schools	2	15
Wright State University classes	2	25
Afro-American Workshop conducted by elementary art consultant for a UD art class	1	16
Mount Saint John art class	1	6
Observation of tours by a Wright State University class in educational psychology	1	9
Ohio University students tour of NEW VISIONS museum	1	9
Observation of tours by supervisor of art of Kentucky State Department of Education, art consultants from Covington, Ky., and art resource teachers from Louisville, Ky.	1	5
Visit by art and drama teachers from Crossville, Tennessee, as an initial step toward a cultural arts program for TITLE III program: PROJECT UPPER CUMBERLAND	1	2
Observation of a tour by group from Prince George County, Md.	1	3
Staff members of West Carrollton City Schools	1	6
Observation of tours by staff members from Forest Hills School, Cincinnati	1	3

TABLE 1. (continued)

Groups	Number of Groups	Number of Persons
School official from Denver, Colorado	1	1
Visits from Case Western Reserve University, Cleveland	1	19
Staff members' tour of Longfellow School	1	48
Other students, teachers, and administration to visit and observe: from Central State, University of Florida, University of Dayton, Miami University, Wright State University, and Ohio University.	6	15*
Other visitors not identified with a particular group	20	20

TOTAL: TITLE I Students Pre-K and K	Parents	90
TITLE I students not in TITLE I program	College students	90
	Educators	189

* Approximate number

All during the year requests continued to come in to the art supervisor for information concerning the NEW VISIONS Program. Many requests were made for student tours of non-TITLE I schools and for students from other school districts. These have included: Miami Valley Child Development Centers, Fairborn, New Lebanon, Lewisburg, Bellbrook, Brookville, Mad River, Northmont, Xenia, Springfield, Franklin-Monroe, Medway, Hillel Academy, Fine Art Center of Middletown, parochial schools, and many city schools.

As parent groups in the ECE Program participated in the activities of NEW VISIONS and listened to the explanation by the docents of the aims and approaches used with young children, they gained a realization of the value and the necessity of developing sensory awareness in their own children. Many of the parent groups visited the museum late in the school year. The docents feel that it would be more advantageous to the children if parent visitations were scheduled earlier in the year to permit the parents to explore the same exhibit as the children, thereby having common topics for conversation at home.

Staff Responsibilities for NEW VISIONS

As NEW VISIONS continued to be an auxiliary unit of EARLY CHILDHOOD EDUCATION Program, the coordinator of ECE had a direct responsibility for the program, particularly scheduling of tours.

Although not actually a member of the NV staff, the art supervisor for the Dayton Public Schools served as director of the project, being responsible for its successful operation, for making all purchases, and for consultation when necessary.

Two docents shared the responsibility for maintenance of the museum and for planning and executing the program.

Program

The following features remained the same as in the previous year:

(1) Location of the museum: Longfellow School, 245 Salem Avenue, Dayton, Ohio 45406.

(2) Physical facilities of basement rooms.

(3) Assembled artifacts of different cultures.

(4) Program financed under ESEA TITLE I, with transportation for participating schools provided by TITLE I funds.

(5) Staff consisting of two docents.

Two aspects of the program were changed:

(1) Extended use made of the coatroom entry.

(2) A limited number of field trips arranged to NEW VISIONS by other classes of TITLE I schools, with classes furnishing their own transportation by cars, city buses, or by walking from nearby schools.

Film Project

A NEW VISIONS film tour was filmed for one of the story-telling segments in a federally-funded movie sponsored by the Dayton and Montgomery County Public Library. Purpose of the film was to encourage, inspire, and instruct

the general public, teachers, librarians, and others in the value of story-telling in a variety of situations.

Produced under the direction of the Connecticutt Film Company, the 30-minute color and sound movie is being distributed to public and state libraries and other agencies throughout the United States. The premiere showing was arranged to be held in October, 1969, at the convention of the Ohio Library Association.

EVALUATIONS OF MUSEUM

National Recognition of NEW VISIONS

NEW VISIONS received national publicity in the December, 1968, issue of Today's Schools, the journal of the National Educ[illegible] Association. The article, "Museums and the Schools", was accompanied [illegible] icture of children exploring the African artifacts during a tour of NE[illegible]NS museum.

See APPENDIX of EARLY CHILDHOOD EDUCATION Resu[illegible] listing of previous types of professional acclaim.

Teachers' Evaluations of NEW VISIONS

The 1968-69 study of the teachers' evaluations revealed a great amount of enthusiasm for the NEW VISIONS Program, as is shown in TABLE 2 on page 9. From the results of the survey, it is apparent that the majority of teachers had a great interest in the children's experiences at the museum and that they, as teachers, intended to use the museum activities as a guide for developing sensory activities in the classroom.

The evaluations also indicated a definite need for the continuation of the program with the facilities expanded to serve more children, as the responses to this statement evoked 100% in the most favorable category. The teachers were also all impressed that the docent spoke in terms that the children could understand.

TABLE 2. EVALUATION BY TEACHERS OF CLASS VISITS TO NEW VISIONS MUSEUM 1968-1969

Statements on Survey	AFRICAN & APPALACHIAN Per Cent (N=56)			ORIENTAL Per Cent (N=53)			COMBINED SURVEYS Per Cent (N=109)		
	Excellent	Fair	Poor	Excellent	Fair	Poor	Excellent	Fair	Poor
1. The museum was of interest to the children.	100%	0	0	87%	13%	0	96%	4%	0
2. The docent presented the art objects with enthusiasm.	100%	0	0	98%	2%	0	99%	1%	0
3. The docent spoke in a language the children could understand.	100%	0	0	100%	0	0	100%	0	0
4. The children were encouraged to ask questions.	100%	0	0	96%	4%	0	98%	2%	0
5. The children were encouraged to explore on their own, at least part of the time.	100%	0	0	98%	2%	0	99%	1%	0
6. The museum was a learning experience for the children.	98%	2%	0	94%	6%	0	96%	4%	0
7. The museum was a learning experience for me.	98%	2%	0	87%	13%	0	93%	7%	0
8. The experience with the museum will carry over in other classroom experiences.	93%	7%	0	91%	9%	0	92%	8%	0
9. The use of the five senses made the experience more meaningful.	98%	2%	0	98%	2%	0	98%	2%	0
10. There is a need for the New Visions program to be continued.	100%	0	0	100%	0	0	100%	0	0
AVERAGE	99%	1%	0	95%	5%	0	98%	2%	0

Comments by Classroom Teachers Who Brought Students to the Museum

When the survey results are added to the direct comments of the teachers who observed the effects of the museum experiences on pre-kindergarten and kindergarten children, as well as on some older students, NEW VISIONS comes alive as the warm, friendly, exciting place that it is.

"I thought the museum was very interesting. It gave the children and myself real insight into African art and custom, and it also showed the children how important their senses are in judging objects and purposes."

"The women do a wonderful job helping the children become aware of things around them. I feel I learn every time I go. The four mothers who drove were afforded a learning experience, too."

"NEW VISIONS is an excellent experience for children with learning disabilities, as concrete experiences are most meaningful to them."

"The atmosphere is relaxed and friendly. The experience of handling and thinking about the items was a new one for my TV-oriented group, and I wish such experiences could be provided more frequently."

"This is our favorite place to come."

"I love the museum, look forward to every visit, and, usually, carry over your ideas into my classroom."

"It was a very exciting morning, and the children were so very enthusiastic about NEW VISIONS. Their conversations and general pleasure were signs they enjoyed it. I also like the idea that they may touch and ask questions about what they see. The area was very attractively arranged. We enjoyed it!!"

"I can sum my personal comments about NEW VISIONS in one word—'Excellent!'"

"The great value of the museum is the tactile experience it gives children. Also, the freedom to explore and ask questions is great!"

"I believe the NEW VISIONS Program should be an integral part of all age children."

"I felt the experience for the children was most enjoyable. The docent was very informative and helpful. She had a delightful way with children. I believe that primary and lower elementary grades are extremely fortunate to visit such an interesting museum."

"This was a magnificent experience! The children not only learned new concepts and enjoyed them, but they discovered that they already knew some things that enhanced the value of what they were learning."

"I like the informal atmosphere. Children are motivated, and I am sure that this learning experience will have a direct carry over to the classroom."

"I think the museum is super and enriches the child tremendously by appealing to his five senses. I hope it will be continued always."

"I think it is an excellent project for children, especially those who have a very meager background. It gives them an opportunity to see things foreign to them and to learn about these things."

"I have always found each visit to the museum very interesting to teacher and students. There is a need for the NEW VISIONS Program to be continued due to the many learning experiences offered children."

"Displays are presented in a most interesting way. Personnel are personable. They know how to illicit response from the children."

"I've watched the growth of the museum since its inception. I am enthusiastic about the educational aspects and the inspiring themes used each year. Keep it growing!"

"The museum offers the children and the instructor the opportunity to see and experience the cultures of other people and their traditions which have often gone unnoticed."

"I enjoyed the museum very much and am looking forward to visiting it again. I found the teachers both very patient and most enthusiastic. The three teachers of our center all feel that much of the material presented at NEW VISIONS could be put to use at our center. We appreciated the opportunity to observe new ways to use materials that we have more effectively. I think the whole trip was just as beneficial to us as teachers, as it was for our children."

"It was a marvelous trip. The children are still talking about it and raving."

"The museum is wonderful. I like the way the five senses are incorporated with the total program. There is a great need for the museum to be continued. The children seem to enjoy it more and more each year."

"I thought the over-all presentation, the relaxed atmosphere, the interesting articles, all combine to make a wonderful field trip."

"Atmosphere was quite warm and inviting. Interest in all was high. Individual participation among the children was excellent. The docents' language was adapted to the children. Time was well spent."

"I enjoyed myself thoroughly and I know the children did also. When we got back from the museum, they made what they liked out of clay. O · of my children made an excellent clay man like the one he saw carved in wood. The detail was amazing. I was really pleasantly surprised."

"NEW VISIONS is always an enjoyable, rewarding, and stimulating experience!"

"The staff of NEW VISIONS has always presented a beautifully planned and executed program which will promote an active interest in art."

"I think the museum is one of the most essential trips offered to kindergarten children. It not only helps the child to understand his own development and physical image, but also stresses the cultural and physical environment."

"Cleanliness and neatness were very apparent. Display and toys were set up in different places in the rooms to keep children and teachers circulating, so that the children's interest was kept at all times."

"The museum is most inviting, particularly because of the attractive arrangements and the warmth of the personnel. Every child finds himself participating and showing eagerness to explore. Discipline problems that ordinarily occur are absent because of the total involvement. Continuation of this program is a must. It offers a most valuable learning experience for children and teachers also."

"I believe the museum is an important contribution toward the cultural education of children in the Dayton schools and should be continued at all costs. The puppet show reminded me that we could write a play, and fit it to Appalachia. Although puppets may seem young for 8th grade, they did enjoy the puppet show and insisted upon seeing it. The ballad stimulated an interest in ballads as contributions to literature."

Children's Letters and Comments

The enthusiasm of the children comes through, also, in their comments about their experiences at NEW VISIONS:

"When you said that we could touch the things we say, I got a funny feeling. I thought you meant just the things on the table. I found out that you were going to let us touch everything we wanted to. I liked to ask you questions about the African display."

"When we went over into the second part of the museum it looked the same. When I looked around, I found out it was different. I think you proved that we need to use all of our senses. I liked the part when you gave a senses test."

"We had a wonderful time playing the drums, looking at costumes, exploring new lands, learning new skills, and using our five senses.'

"We got to touch everything."

"The spears were heavy and they were sharp. The blanket was warm."

"I liked you letting us ask questions."

"I like the NEW VISIONS museum."

"I wish I could come again. I will be back next year, I hope."

"We had fun seeing, hearing, smelling, touching, and tasting. I found out how important my five senses are."

"I want to come back tomorrow."

"I thank you for letting me come to see the display. I thank you for letting me touch and taste things. Are you having another display? If you are, I would very much like to see it."

"We really had a good time at the museum."

"I enjoyed seeing all the wonderful museum. I would like to come again."

Recommendations for the School Year 1969-1970

After giving careful consideration to the facilities and to the operational demands on the program of the NEW VISIONS museum, the staff and director have made the following recommendations:

(1) The walls in the museum area and in the cloakroom should be painted.

(2) Additional heat ducts should be provided, as sometimes the museum is uncomfortably cold.

(3) Carpeting should be installed to control cold penetration from the floors.

(4) Provision should be made to fund the proper cleaning of supplies for museum artifacts.

(5) A full-time or part-time aide should be made available to NEW VISIONS, someone knowledgeable concerning the activities of the program.

(6) Museum facilities should be made available to more Dayton school children.

R E S U M É :

NEW VISIONS — A Children's Museum

A Component of SPEAR FY 1969
ESEA TITLE I

Martha Bains, Supervisor of Art, Dayton Public Schools
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CONTENTS

RESUME OF NEW VISIONS SUMMER PROGRAM 1969

NEW VISIONS, a children's art museum, was in operation at Longfellow School for six weeks from June 16 to July 25, 1969. During this time, the museum was functioning as a component of SPEAR, a Title I ESEA project of the Dayton City School District.

The program for the summer consisted of two separate, but related, experiences. Two- or three-hour tours were scheduled each day. At least two days a week, an art activities program was held in the afternoon. Tours of the museum by SPEAR groups were arranged by SPEAR personnel.

The display concentrated on new materials that are available to the artist of today and provided opportunity for the use of the five senses in understanding these materials.

The first week (June 9-13) was used as preparation for the summer program and for setting up the display. The last week (July 28—August 1) was used for evaluation, inventory, and reorganization of the museum.

Summer Staff for NEW VISIONS

One docent, an art teacher in the Dayton Public Schools, served as guide for the daily tours and was responsible for maintaining the daily schedules and attendance of the staff.

A second docent, also an art teacher in the Dayton schools, served as guide for the daily tours and was responsible for the major planning of the seven two-day afternoon art activities.

Giving assistance to the docents was an aide who was a college junior in art education. She relieved the docents once a day on tours and was responsible for care of the museum.

Tour Program

Three tours were scheduled each Monday, Tuesday, and Friday at 9:20 and 10:20 in the morning and at 1:00 in the afternoon. On Wednesday and Thursday, the tours were scheduled for the mornings only. Groups of children were brought to NEW VISIONS by SPEAR teachers and aides, with transportation furnished by SPEAR (Summer Program for Educational Advancement and Readjustment.)

Ramp Side of the Museum

The summer exhibit for 1969 dealt with art materials that are contemporary in use, but not necessarily in form. These works emphasized fluoresence, with "black lights" employed to achieve maximum glow. Several posters of contemporary nature were displayed to illustrate the kind of scientific forms that artists of today are using. Other artifacts on display were contemporary in form, but the materials themselves were more traditional, i.e., oils, woodcuts, batiks, and ceramics.

During the first two weeks of the NEW VISIONS summer program, the docents attempted to point out the naturalistic forms of the artifacts, the comparison of nature's structures to those chosen by the artists. By the use of slides, they also attempted to show the evolution of man's art forms from almost photographic likenesses to the simple structures of today's art.

During the last four weeks, concentration was on using the five senses for exploration and understanding of the artifacts represented. The children were encouraged to "explore" and "investigate" with several manipulative devices, such as magnifying glasses, color paddles, kaleidoscopes, mirrors and plastic color blocks, which aided them in realizing visual changes in art works and perceptual changes in themselves. Even though the materials tended toward a natural emphasis upon vision, the docents also stressed use of the other senses in making discoveries. To know the complete functioning of a display, sound, touch, smell, and often, taste were all utilized.

Mirrored Cube

An exciting visual and perceptual experience for the children was the "Mirrored Cube", a recent acquisition to NEW VISIONS. The "Cube", as it is called, is large enough for an adult to stand upright and for four people to move about with ease. The walls, ceiling, and floor of this environmental structure are covered with mirrors. Since the mirrors are cut into rectangular shapes, their own reflections arouse myriads of reactions from observers:

"Ground felt like it was sliding."

"I felt like I was made of glass—I couldn't find myself."

"It tears you to pieces!"

"Lonely. See so many you don't know which one is you!"

"Always stepping on yourself."

The children's word imagery skill was called upon when the docents asked that they name the "Cube". Here are some of the responses:

Spook-o-rama!
Glass Elevators.
Magic Mirrors.
Feeling and Seeing Room.
Dizzyland!
Mystery World of Mirrors.
Mirror Maze.
One Million People!
Room of "Tearer".
Room of a Thousand Yous.
Glass Dimension.
Super Glass!

Maze Side

The maze side of the museum was used successfully during the summer in learning to "play" with sights, sounds, tastes, smells, and feelings. The lists of equipment and of artifacts acquired for the 1969 SPEAR experiences in NEW VISIONS and the lists of materials used in the exhibits suggest the kind of discovery-learning situations using the five senses.

Inventory of Purchases for SPEAR, Summer 1969

EQUIPMENT

- 5 keys
- 3 extension cords
- 1 multiple plug
- 12 brushes
- 4 auto color wheels
- 6 indoor spot lamps
- 2 turntables
- 8 black lamps
- 4 spot lamps: yellow, ruby, green, blue
- 1 flasher
- 1 red lamp
- 6 pieces plexiglass
- 1 art display box
- 2 rubber stamps

ARTIFACTS

- 1 lumi light
- 3 blue and red posters
- 3 green and red posters
- 1 eye fluorescent poster
- 1 flower power circular fluorescent poster
- 4 pair psychadelic glasses
- 1 target poster
- 1 tree/fish poster
- 1 cat poster
- 1 sun poster
- 1 pleasant valley poster
- 1 Don Quixote poster
- 2 red, green, orange posters
- 2 mirrored balls
- 1 record

Materials Used in Exhibits

- 8 fluorescent posters
- 2 Mexican watercolors
- 1 "eunead" print
- 1 mobile
- 2 batiks
- 1 woodcut
- 1 tissue and ink drawing
- 1 wooden sun face
- 1 tussue and oil painting
- 1 weaving
- 2 stabiles
- 5 metal sculptures
- 1 glass vase
- 1 8'x8'x8' mirrored cube
- 4 ceramic pots
- 1 fluorescent metal wall relief
- 1 vibrating pillow
- 1 revolving mirrored ball
- 11 pieces of jewelry
- 1 oil painting
- 1 target poster
- 1 wooden "ship"
- 1 Luma Light
- 1 revolving Fluorescent color wheel
- 3 revolving color lights
- 3 Blacklite fixtures

Manipulative Devices Used on Ramp Side

- 3 sets color paddles
- 3 kaleidoscopes
- 1 mirrorscope
- 1 lens comparer
- 1 giant stand magnifier
- 3 round flexible mirrors
- 5 plastic color blocks
- 2 convex lenses
- 2 concave lenses
- 4 trick glasses
- 1 triangular kaleidoscope
- 3 square magic reflectors

Afternoon Art Experiences and Activities

A flyer was sent to SPEAR teachers describing the activities of a "Happening." Children attended two successive afternoon art activities from 1:30 to 3:00. Since no school transportation was provided, children came to the museum on their own or with a parent or teacher.

The afternoon program began with a discussion of rhythm, repetition, and form. A comparison was made between musical rhythm and the rhythm of various art objects on display in the museum. After seeing the movie, "Adventures of an *" (asterisk), which pointed out man's use of the rhythm of color, line, and form in music and art, the children considered use of rhythmic lines and shapes on paper costumes. They were encouraged to cut out costumes and paint the costumes in rhythmic forms of their own devising.

After viewing a second movie, "Fiddle Dee-Dee", an environmental film comparing rhythms, each child used the rhythmic form of the costume he had designed to create a musical form and a dance form.

SPEAR Participation in NEW VISIONS

Although 69 tours had been scheduled for children from the city-wide SPEAR centers, only 67 tours were completed during the 6-week period due to the July 21 national holiday (astronauts' return). About 1,000 children took the tours.

Participation varied for the afternoon activities, with groups ranging in size from 3 to 23. A total of 60 children came to the afternoon "happenings."

PERSONAL EVALUATIONS

Children's Letters to NEW VISIONS

"I liked the glasses we wore to see pictures, people, and mirrors."

"I liked the black fluorescent lights. Thank you, Miss Spees, and your helpers."

"We liked what you did for us. Thank you. We saw all kinds of pretty things. We smelled a nice smell. We heard pretty music. We touched many things. We had a very good time."

Notes from SPEAR Teachers

"A very worthwhile experience. A different approach to art. Something children should constantly be exposed to."

"NEW VISIONS is a very educational place. The personnel present makes the trip more exciting with their way of handling children. The way they are encouraged to investigate and explore is GREAT! Should be continued through the school year with opportunity for all grades (K-8) to benefit."

"I found it entertaining, fascinating, and educational. The children had a chance to express themselves. This I feel is very important."

"I think it was very beneficial, especially, to some of the children who had said at first that they had no desire to come. They became extremely interested. It increased their appreciation for art and how beautiful some things we least expect can be."

"I have attended three of your exhibits and feel that each and every one is a meaningful experience to parents, teachers, and children. It is a shame that more people can not be involved. Perhaps the Dayton Art Institute could take note and do something similar."

"It would be helpful if NEW VISIONS would outline a visit in the form of a lesson plan, so that the children would be exposed to some of the questions and format before visitation."

Recommendations for NEW VISIONS Museum

Several recommendations for organization and for improved facilities are given here. These changes would provide more comfort and ease, as well as a more meaningful experience for visiting children. To improve the programs offered by NEW VISIONS, the following suggestions have been made:

1. An introductory session for teachers, such as a workshop or visitation to the museum, should be conducted, so that the purpose and goals of the museum are clearly outlined. This might give strength to correlation with classroom activities.

2. The length of time for each tour for SPEAR classes should be expanded.

3. The evaluation form given to teachers needs revision.

4. A larger work area for the afternoon art activities is desperately needed, so that they may be continued with greater freedom.

5. Enlargement of the museum to accomodate more students (from more schools than just the priority areas) would add to the benefits available at NEW VISIONS. This would, of course, necessitate a larger staff and a larger appropriation in the budget.

For the physical improvement of the space allotted to NEW VISIONS, these suggestions were made:

1. The drain in the outside stairwell should be enlarged in order to stop the flow of water under the door.

2. A dehumidifier is needed to preserve the artifacts from humidity and mildew.

3. Because of the extreme dampness, the walls need to be cleaned and painted.

4. Carpeting of the museum would add comfort and cut sound vibrations.

5. The spot lights on the ramp should be premanently wired.

6. More janitorial service is needed to maintain the museum properly.

7. A replacement of the NEW VISIONS sign is needed.

8. The ramp should be painted.

9. The entire museum space should be sprayed by an exterminator.

10. The back wall and the floor of the mirrored cube must be permanently attached. Plexiglas should be installed on the cube ceiling.