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ABSTRACT

This final report describes the fourth year of the New Nursery School Program (NNS) set up for environmentally deprived, Spanish-surnamed 3- and 4-year-old children. The school was organized as an autotelic environment which the children (15 in each of two sessions) attended for 3 hours a day. Upon entering, children were pretested on the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) and the NNS developed Categories ("C") test. Results of these tests and others were later compared and correlated with those of Group I, a similar sample of subjects, and Group II, advantaged preschoolers. Comparative analysis revealed few significant differences but indicated progressively less mean difference between the performance of NNS children and the advantaged group. The correlational analysis revealed no significant relationships, but it highlighted the need for other approaches to measure self-image. Longitudinally, public school teachers reported no difference between prior NNS graduates and other deprived children in terms of class standing. Improved daily attendance, increased confidence in individual ability, and positive attitude toward schoolwork are listed as qualitative gains for graduates of the program. Another report on the NNS program is available as ED 036 320. (WY)

THE NEW NURSERY SCHOOL RESEARCH PROJECT

Evaluating the Effectiveness of an Open, Responsive Environment in Achieving Selected Objectives of Early Childhood Education.

Research Grant Number: B99-4743
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October 1, 1968 to September 30, 1969

final report

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Special recognition is also given to the parents who allowed their children to participate in this project so that information might be obtained which would be of help to other children.

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SECTION ONE

INTRODUCTION

Children are often helped to succeed in school because of the advantages of their home environment; they can also fail if there are too many disadvantages in that environment. All too many families are poor, have a low educational level, come from a culture quite different from that of the public school, and lack the knowledge and means to encourage their children's learning. Such families almost always pass educational handicaps on to their children -- language that is inadequate and speech that is hard to understand, limited experiences, a lack of simple concepts, and little ability or desire to solve problems. Perhaps the most crippling heritage of all involves a lack of assurance and confidence in one's own abilities. The New Nursery School, University of Northern Colorado, is attempting to help meet this need to overcome environmental disadvantage by developing, demonstrating, and evaluating curricula and procedures suitable for Head Start classrooms, and evaluating their effectiveness over a period of time.

An effort is made to increase a child's confidence in himself -- that good feeling of *I'm all right, I'm important*, and *I can* -- plus the competence to sustain that feeling. Intellectual development is emphasized in a learning environment which is also responsive to the young child's physical, emotional, and social needs. A wide variety of instructional materials, such as art, books, records, songs, telephones, tape recorders, electric typewriters, blocks, self-correcting manipulative toys, games, food, outdoor activities, and field trips are used to help the child learn.

Efforts are made to help each child become a more effective and efficient learner through developing the way he learns. He is shown how and given opportunity to use all his senses as means of finding out about his surroundings; to interpret accurately what these senses encounter, so that his perception of the world about him will be clearer. He is encouraged and prepared to confront and solve problems independently, efficiently, and with satisfaction.

The New Nursery School also wants the child to develop and be able to use certain fundamental concepts and skills which seem to expedite learning; consequently, each child is taught:

**To label and describe.
**To make associations between objects and actions and their representations or symbolic expressions.

**To comprehend and express accurately ideas of color, size, shape, number, relative and contrasting location and conditions.
**To classify, order, contrast, and compare.

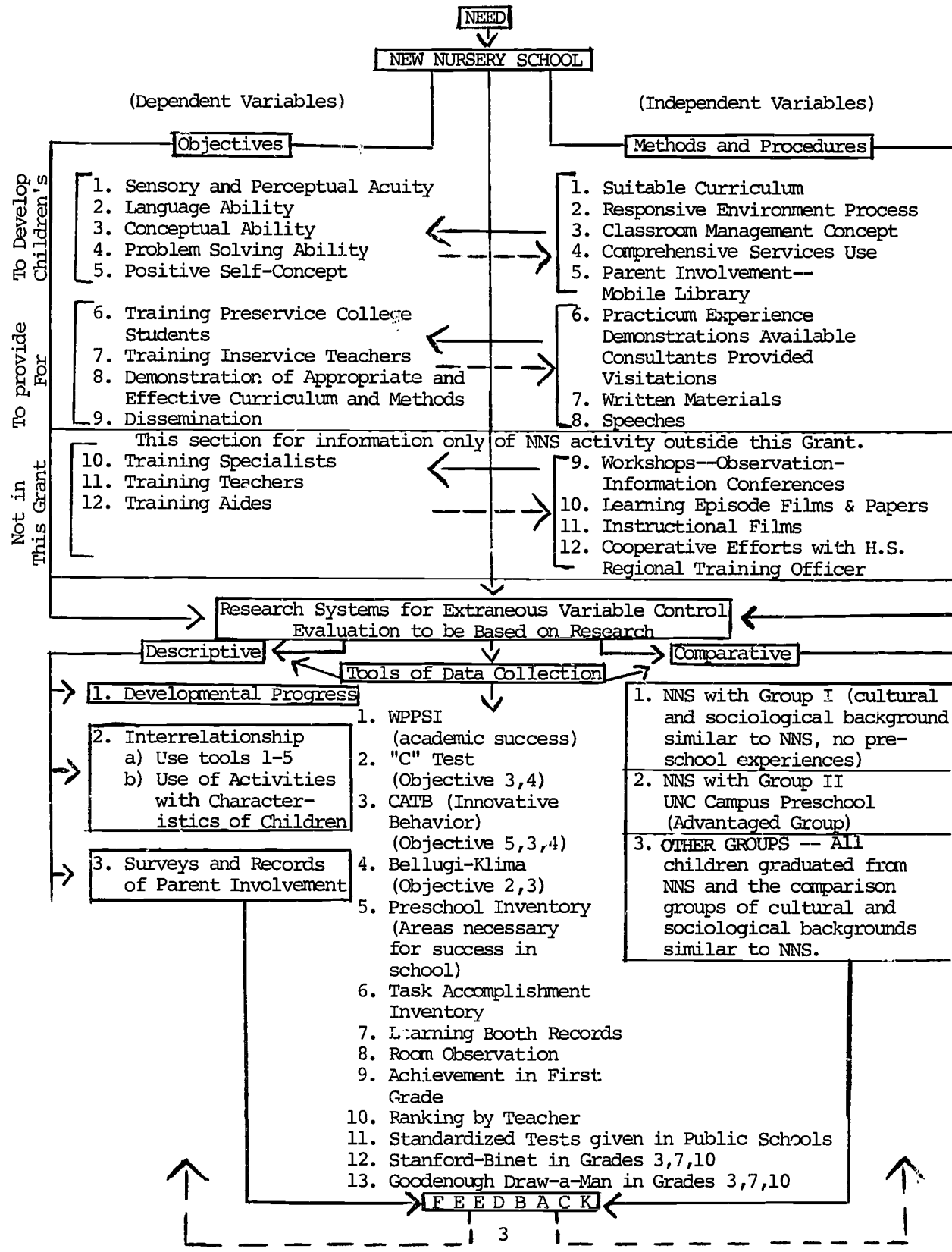
Although the program is a dynamic, changing one, certain conditions which seem to encourage learning guide its development. Among these conditions one finds an emphasis on:

**Exploration, experimentation, and discovery.
**Each child being actively and physically involved in the learning process.
**Allowing each child to choose his own activities from those that are available, to set his own pace, and to develop his own style in working on them. The classroom activities are flexible and varied to meet the needs and interests of individual children or groups of children.
**Intrinsic motivation. The child participates in learning activities because he is interested and wants to learn and not because of external rewards or punishments.
**Learning, rather than on teaching in the traditional sense.

The program year 1968-69 continued longitudinal research, begun in 1964, on the effectiveness of an open, responsive environment in lessening the educational gap between advantaged and disadvantaged children. In addition, several projects were undertaken to extend and evaluate the work done in previous years. Through the use of a mobile instructional library, it was possible to institute a home visitation program which allowed the New Nursery School teaching strategies and related educational materials to function directly in the homes of the pupils. A practical and simple method of evaluating children's accomplishment of selected tasks was developed, used, and revised (Task Accomplishment Inventories). A method of evaluating young children's comprehension of key grammatical elements, developed by Dr. Ursula Bellugi-Klima, was reorganized, augmented, and used. For research and replication purposes, the classroom was systematically observed and the use of classroom equipment and participation in classroom activities tallied.

The schematic chart on the next page presents visually the systems approach used in the New Nursery School Project and is a synthesis-analysis summary of the processes and products involved. The dependent and independent variables indicated in the schematic chart are amplified or further described on pages 4 and 5.

SYSTEMS APPROACH TO PRESENTATION OF NEW NURSERY SCHOOL PROJECT



DEPENDENT VARIABLES (Objectives)

The capabilities desired of the children after completing the school experiences are defined under five primary objectives. (Examples only are listed under each objective.)

1. Increasing sensory and perceptual acuity.
   a. The child is able to use all his senses as a means of finding out about his environment.
   b. The child begins to interpret accurately what his senses encounter.

2. Developing language ability.
   a. The child is able to label and describe objects, actions, events, and relationships in his environment.
   b. The child is able to use words to remember and predict events, to contrast and compare.
   c. The child is able to communicate in words and sentences which can be understood by others.
   d. The child is able to comprehend and express certain fundamental concepts which seem to expedite further learning (see below).

3. Developing conceptual ability.
   a. The child is able to comprehend and express concepts of:
      - color
      - shape (including letters and numerals)
      - size (including relative size)
      - number
      - relative and contrasting location (in front of, behind, in, out)
      - contrasting or opposing conditions (hot/cold), without, same/ different, and/or)
      - relative number (more/fewer)
      - relative mass or volume (more/less)
      - relative weight

4. Developing problem solving ability.
   a. The child is able to work on his own to attempt to solve problems.
   b. The child is able to use certain processes of learning which enable him to solve problems, such as sorting and classifying, ordering, patterning, counting, making associations, eliminating known responses to arrive at an unknown, identifying which piece is missing out of a matrix or puzzle, and so forth.

5. Developing a positive self-concept.
   a. The child is able to participate in classroom activities at his own pace and with his own style of operation, and to enjoy such participation.

b. The child is able to respond to and say his first, last, and full name on request.
c. The child is able to develop a positive relationship with adults, as evidenced by seeking information and help, lack of fear, and other indicators of trust.

The secondary objectives are:

6. Training preservice college students - each year at least six graduate and undergraduate college students receive practical experience working with young disadvantaged children.

7. Training inservice teachers - the New Nursery School staff is available for consultation and demonstration.

8. Demonstration of appropriate and effective curricula and methods - observation and demonstration up to three days is available with no charge at all to interested people.

9. Dissemination of information is effected through films, written materials, speeches, and workshops.

INDEPENDENT VARIABLES (Methods)

The variables listed as primary and secondary objectives are dependent upon the methods and procedures listed as independent variables. Briefly described, these independent variables are:

1. The child is encouraged to experiment, explore and make discoveries on his own.

2. The child is actively, physically involved in the learning process.

3. The child is encouraged to choose the activities in which he wants to participate, and to set his own pace and style in working at them.

4. The child participates in learning activities because he is interested and wants to learn, not because of external rewards or punishments.

All teachers and assistants in the classroom are trained in using these methods to implement and guide the classroom experiences which comprise the curriculum.

Additional information concerning the practices, equipment, and materials used in the New Nursery School may be secured from the following recent publications.

Oralie McAfee, "An Oral Language Program for Early Childhood," Promising Practices in the Teaching of English, (The National Council of Teachers of English), November, 1968.

_____, "The Right Words," Young Children, XXIII, No. 2, (National Association for the Education of Young Children, November, 1967).

_____, "Planning the Preschool Program," Curriculum is What Happens in an Educational Environment, (National Association for the Education of Young Children, 1970).

_____, Round, The New Nursery School, University of Northern Colorado, Greeley, Colorado, 1969. Occasional paper available from ERIC Clearinghouse.

John H. Meier, Glen Nimnicht, and Oralie McAfee, "An Autotelic Responsive Environment Nursery School for Deprived Children," Disadvantaged Child, Vol. 2, (Bruner/Mazel Inc., New York, 1968), 229.

Glen Nimnicht, Oralie McAfee, and John Meier, The New Nursery School, (General Learning Corporation, 1969).

Samples of curriculum materials and procedures are also available from the New Nursery School, University of Northern Colorado, 1203 - 4th Street, Greeley, Colorado 80631

SECTION TWO

DESCRIPTION OF POPULATION

THE NEW NURSERY SCHOOL (Experimental Group)

During the period under study (1968-69), thirty children were enrolled in the New Nursery School, fifteen in each of two, three hour and fifteen minute sessions.

Each pupil enrolled met at least three of the following qualifying conditions:

1. Economic conditions in the home are at or below Head Start economic guidelines.
2. Educational level of the parents is at or below ninth grade.
3. The family is receiving assistance from welfare and other agencies.
4. Older siblings have had or are having school difficulty.
5. Deviant behavior is evident within the family.
6. One or both parents are absent from the home.
7. Substandard quality speech, as defined by lack of fluency, use of dialect, or primary language other than English is evident in parent or parent-substitute.

In addition, an attempt was made to maintain the following age and sex balance:

- Fifteen boys and fifteen girls.
- Fifteen four-year-olds (four before September 10th of their last year in nursery school).
- Fifteen three-year-olds (three before September 10th of their first year in nursery school). September 10th is the cut-off date for entering public school kindergarten in Greeley.

The children were selected from referrals by welfare agencies, the public schools, word of mouth referral by persons living in the community, applications made by parents and other relatives, and applications taken in door to door solicitation.

The following demographic information is given for twenty-eight children from twenty-five families. Two children moved away late in the year and were not replaced.

TABLE 1

DEMOGRAPHIC INFORMATION
NEW NURSERY SCHOOL
(1968-69)

INDIVIDUAL

AGE:	(as of September 1, 1968)	
	3 years	15
	4 years	13
SEX:	Female	14
	Male	14
*ETHNIC ORIGIN:	Anglo	1
	Spanish	25
	Anglo-Spanish	0
	Negro	2

*As in any attempt to categorize people, difficulties are encountered. The terms here are those ordinarily used in the Greeley area.

HOME MILIEU

		Number of Children
PARENTS IN THE HOME:		
	Father/Mother	21
	Mother only	4
	Father only	0
	Foster parent(s)	1
	Grandparent(s)	2
LANGUAGE SPOKEN IN THE HOME:		
	English	11
	English/Spanish	13
	Spanish	4

MEAN NUMBER OF CHILDREN IN THE HOME: 4.39

		Years in School
MEAN EDUCATIONAL LEVEL OF PARENTS: (Some parents received schooling in Mexico)		
	Father	6.72
	Mother	7.03
	Total Mean	6.89

PARENTAL OCCUPATION

FATHER:				MOTHER:	
Truck Driver	1	Meat Worker	3	Housekeeping	1
Brick Layer	2	Roofer	1	Factory	2
Title V	2	Farm Worker	2	Hospital Work	1
Construction	9	Janitor	1	NNS Home Visitor	2

Some of them engage in seasonal field work or part-time employment.

WELFARE STATUS: Six families receive direct welfare assistance.

Nine of the children came from the Spanish Colony two miles northwest of Greeley. The others came primarily from the northeast side of the city. Few are close enough to walk; a small school bus provides transportation.

Almost all of the children live in single family dwellings, however small. Fewer than half, however, have telephones.

Close family ties are still maintained in the Spanish community in Greeley, and there are complex interrelationships. As a result, many of the children attending the New Nursery School are cousins. While this situation sometimes presents certain problems in the classroom, the chances of effecting changes in attitude toward education among the whole family are greater.

Although there is considerable mobility of the families within the northeast area of Greeley, there is little movement out of the area. In the Spanish Colony, the resident population is quite stable. From both areas, younger brothers and sisters of children who attended school in 1964, the first year the New Nursery School operated, are presently attending. Resident families are given preference in enrollment so that the longitudinal study necessary for evaluating effectiveness can be carried out. The isolation and family disintegration often reported as characteristic of low-income urban environments are evident in only a few of the families.

Some of the children are normal in speech and conceptual development and will doubtless succeed in school unless motivation, interest, money, or other variables intervene. Others, however, have severe language and conceptual deficits. Several of the children entered at age three with English almost impossible to understand; their Spanish was no better. *Mine* and a vehement *Unh-unh!* comprised the vocabulary of one. Another's sentences consisted of *mama* followed by a string of unintelligible vowel sounds. A third had many more words, but articulated so poorly and incompletely that the speech could not be understood without a shared context. Others had other specific manifestations of language retardation. In all these children the drive to communicate was strong. They would make valiant efforts to understand and be understood through words, and their pleasure when communication was accomplished pervaded the entire group. Some became quite conscious of their growing ability with language. One girl playing a game with colors repeated with each new color, *"I can say that word -- white."*

Other children were much less handicapped in language, but required special control and guidance techniques. In several cases, the same behavior patterns were evident in siblings. Because some of the difficulties stemmed from activities which related to behavior generally required in the public schools, future difficulties might be encountered. For example, several children could perform quite well in conversation and action. When asked a direct question, however, they either refused to answer or manifested inappropriate behavior.

COMPARISON GROUP I (Similar Sample)

This group consisted of children with no preschool experience but cultural and sociological background similar to those enrolled in the New Nursery School. These children were selected in the first few weeks of kindergarten in fall, 1969. Since almost all such children in Greeley attend the Head Start program, it was necessary to go to small towns in rural areas near Greeley. The principals and kindergarten teachers in Johnstown, Milliken, Gilcrest, and Platteville cooperated in selecting children. From their 1969-70 kindergarten classes seventeen children were selected who met at least three of the criteria for the selection of New Nursery School children.

In many cases, data on particular children concerning the various criteria were not secured from school records. Instead, they were obtained directly from the parents and teachers who knew the family, because Colorado school records do not require all the information required for this study. Even with the help of the principals and teachers it was impossible to obtain for some children information concerning the education of their parents, the jobs held by parents, and the like. In every instance parental permission was received for the children to participate in the study.

Each year, according to the research plan followed, the experimental group of the New Nursery School is compared to a group similar to the one described as Comparison Group I. Demographic information for this group is in Table 2.

COMPARISON GROUP II (Home Economics Preschool)

This group consists of children enrolled in the University of Northern Colorado Campus Preschool, conducted by the Home Economics Department. Because it is necessary that almost all children pay tuition, these children are in the group usually classified as advantaged. It can be predicted they will achieve a high degree of success in school. Consent for testing was obtained from all parents.

As in the New Nursery School group, there are both first and second year pupils. In the analysis, these are referred to as Home Economics Preschool First Year and Home Economics Preschool Second Year. Comparisons were made with this group only while its members were enrolled in the Preschool. Demographic information is in Table 3.

OTHER GROUPS (New Nursery School and their respective comparison groups)

This group consists of all children who attended the New

TABLE 2

DEMOGRAPHIC INFORMATION
COMPARISON GROUP I

(Cultural and Sociological Background similar to that of the New Nursery School population, selected at kindergarten entrance in fall, 1969.)

INDIVIDUAL

AGE:	(as of September 1, 1969) 5 years	
SEX:	Female	5
	Male	12
ETHNIC ORIGIN:	Anglo	3
	Spanish	14
	Anglo-Spanish	0
	Negro	0

HOME MILIEU

		Number of Children
PARENTS IN THE HOME:		
	Father/Mother	14
	Mother only	2
	Father only	0
	Foster parent(s)	0
	Grandparent(s)	1
LANGUAGE SPOKEN IN THE HOME:		
	English	5
	English/Spanish	11
	Spanish	1

MEAN NUMBER OF CHILDREN IN THE HOME: 5.6

MEAN EDUCATIONAL LEVEL OF PARENTS: (This information was not available for 16 parents)	Years in School
Mother	7.4
Father	6.9
Total Group	7.2

PARENTAL OCCUPATION

FATHER:				MOTHER:	
Laborer	3	Construction	1	Factory	2
Meat Worker	4	Janitor	1	Waitress	1
Farm Worker	1	Odd Jobs	1	Housewife	14
Handicapped	1	Truck Driver	1		

WELFARE STATUS: Six families are receiving welfare according to information available.

TABLE 3

DEMOGRAPHIC INFORMATION
COMPARISON GROUP II
(Advantaged)

INDIVIDUAL

AGE:	(as of September 1, 1968)	
	3 years	17
	4 years	9
SEX:	Female	15
	Male	11
ETHNIC ORIGIN:	Anglo	22
	Spanish	3
	Anglo-Spanish	1
	Negro	0

HOME MILIEU

		Number of Children
PARENTS IN THE HOME:		
	Father/Mother	21
	Mother only	4
	Father only	1
	Foster parent(s)	0
	Grandparent(s)	0
LANGUAGE SPOKEN IN THE HOME:		
	English	25
	English/Spanish	1
	Spanish	0

MEAN NUMBER OF CHILDREN IN THE HOME: 2.42

		Years in School
MEAN EDUCATIONAL LEVEL OF PARENTS:		
	Father	15.41
	Mother	15.09
	Total Mean	15.25

PARENTAL OCCUPATION

FATHER:

Professor	2	Railroad	1	Teacher	1
Student	3	Administrator	1	Psychologist	1
Teacher	5	Psychologist	1	Homemaker	2
Doctor	2	Inspector	1	Student	1
Realtor	1	Plumber	1		
Director	1	Contractor	1		
Repairman	1	Gas Company	1		

MOTHER:

NOTE: Information on the remaining mothers is not available.

TABLE 4

DEMOGRAPHIC INFORMATION
COMPARISON GROUP FOR NEW NURSERY SCHOOL

(Selected in Kindergarten for 1967-68 New Nursery School Graduates)

INDIVIDUAL

AGE:	(as of September, 1968) 5 years	
SEX:	Female	9
	Male	3
*ETHNIC ORIGIN:	Anglo	4
	Spanish	7
	Unknown	1

*As in any attempt to categorize people, difficulties are encountered. The terms used here are those ordinarily used in the Greeley area.

HOME MILIEU

		Number of Children
PARENTS IN THE HOME:		
	Father/Mother	5
	Mother only	3
	Father only	0
	Foster parent(s)	2
	Grandparent(s)	1
	Grandmother	1
LANGUAGE SPOKEN IN HOME:		
	English	5
	English/Spanish	7

MEAN NUMBER OF CHILDREN IN THE HOME: 3.5

MEAN EDUCATIONAL LEVEL OF PARENTS: (This information was not available for 18 parents)	Years in School
Father	7.5
Mother	9.7
Total Mean	8.8

PARENTAL OCCUPATION

FATHER:				MOTHER:			
Laborer	3	Unknown	6	Cook	1	Unknown	3
Meat Worker	1	Handicapped	1	Housewife	7		
Factory Worker	1			Factory	1		

WELFARE STATUS: Two families are receiving welfare according to information available.

Nursery School for one year or more, and a group of children the same age and background who had little or no preschool experience. Essentially this group is each year's Experimental Group and Comparison Group I. All available information from the schools was collected and comparisons made between the respective successive New Nursery School groups and Comparison Groups I.

Prior to 1968, the children who composed this group tended to be from Greeley, to have been enrolled in the summer Head Start Program, and to have been taught by Head Start teachers who had received training in the methods and materials of the New Nursery School. Sometimes in an attempt to avoid children who had attended Head Start, children who were not really similar in background were selected. In consideration of the possible effect of these variables, Comparison Group I was chosen outside Greeley beginning in 1968. Demographic information for this group is in Table 4.

A comparison of the demographic variables for the three groups shows differences in educational level of parents, number of children in the home, and languages spoken in the home. Comparison Group I is more like the Experimental Group with respect to these variables than it has been in previous years.

TABLE 5

COMPARISON OF SELECTED DEMOGRAPHIC VARIABLES
OF EXPERIMENTAL AND COMPARISON GROUPS

	NEW NURSERY SCHOOL	*COMPARISON GROUP I	*COMPARISON GROUP II
Educational Level of Parents (number of years in school)	6.89 (52 parents)	**7.20 (34 parents)	15.48 (45 parents)
Number of Children in the Home	4.39	5.60	2.42
Number of Families Speaking Spanish or both Spanish and English	17 of 28 60%	12 of 17 71%	1 of 26 4%

*Comparison Group I (Similar Sample) - children with a background similar to that of the New Nursery School children but without nursery school experience.

Comparison Group II (Home Economics Preschool) - Advantaged children from a middle class background.

**Information was available only on sixteen of these parents.

SECTION THREE

EVALUATION INSTRUMENTS

The following section gives a brief description of each evaluation instrument used. The data chart in Section V reports when it was used, or when and to whom it was given. The Bellugi-Klima Test of Grammatical Comprehension and the Task Accomplishment Inventories developed or revised at the New Nursery School in the program year 1968-69 are included in the Appendix. The Behavior Rating Form (Coopersmith, 1967) is also included.

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE[1]

Based on his belief that the years four through six mark a well defined period in the child's mental development, David Wechsler constructed the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). He viewed the child of this age as expressing his abilities in a variety of ways and assumed that those abilities may be systematically appraised through an appropriate battery of tests.

Each of the subtests may be considered as measuring a different ability. The subtests comprising the Verbal I.Q. score are Information, Vocabulary, Arithmetic, Similarities, and Comprehension, with Sentences as an alternate subtest. The Performance I.Q. score is determined by five subtests, Animal House, Picture Completion, Mazes, Geometric Design, and Block Design, with Animal House Retest as an alternate.

When combined into a composite score, these subtests may be considered as a measure of overall or global intellectual capacity. The intelligence quotient expresses the child's mental endowment relative to children his own age. WPPSI I.Q.'s are deviation I.Q.'s, measures of relative position calculated in terms of the degree to which the child's score differs from the mean of his age group. Verbal, Performance, and Full Scale I.Q.'s may be obtained.

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[1]David Wechsler, Wechsler Preschool and Primary Scale of Intelligence, (Psychological Corporation, 304 East 45th Street, New York, N.Y. 10017).

THE PRESCHOOL INVENTORY[1]

The Preschool Inventory (PSI) was constructed to give some indication of the child's achievement in areas considered basic and necessary for later success in school. The inventory was originally designed for the disadvantaged child and recognized that this child's culture gave him a less favorable background for functioning in school. Thus, there was no attempt to develop a culture-free inventory. Instead, the author hoped to emphasize how wide the discrepancy was between children of different backgrounds on several indices of achievement prior to any preschool experience. A second goal of the instrument was to make it sensitive to experience and thus demonstrate changes associated with education.

On the basis of preliminary factor analysis, the original inventory was condensed to one that could be administered in fifteen minutes. The present version includes items chosen to reflect certain significant factors. The first factor is called Personal-Social Responsiveness. Here the inventory requires the child to give knowledge about his own personal world and to carry out both simple and complicated verbal instructions given by an adult. The second factor is called Associative Vocabulary. Here the child must demonstrate awareness of a word's meaning or an underlying relationship by an action or a verbal response. The third factor is called Concept Activation. If the child does well in this area he can label quantities, make judgments of more or less, recognize positions, is aware of certain sensory attributes, and is able to duplicate simple visual configurations.

In reporting, Personal-Social Responsiveness is listed as Factor A; Associative Vocabulary as Factor B; Concept Activation, Numerical as Factor C_1; and Concept Activation, Sensory as Factor C_2. The original standardization sample included 171 Head Start children.

CINCINNATI AUTONOMY TEST BATTERY[2]

The Cincinnati Autonomy Test Battery (CATB) was developed by Thomas J. Banta to study the effects of early childhood education. According to the author, the total battery is concerned

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[1]Bettye M. Caldwell and David Soule, The Preschool Inventory, Educational Testing Service, Berkeley, California, 1967.

[2]Thomas J. Banta, Cincinnati Autonomy Test Battery, University of Cincinnati, Cincinnati, Ohio.

with self-regulating behaviors that facilitate effective problem solving. The test attempts to get at the ways in which a child solves a problem, not just his ability to perform a task in some predetermined manner.

Four areas are assessed. The first, Curiosity, is defined by the tendency to explore, manipulate, investigate, and discover in relation to novel stimuli. The subtests Task Initiation, Curiosity Box, and Manipulation Board attempt to measure this aspect of the child's behavior. The second, Innovative Behavior, is assessed by the Dog and Bone test. The child is shown two paths a dog might take to get to his bone, then asked to find other ways for the dog to get to his bone. Only novel responses are given credit. The assumption is that an autonomous child should be able to see alternatives and generate new ways of solving the problem, rather than repeating fixed ways. Instead of requiring verbal responses the innovative behavior is assessed by sensory-motor methods. Emphasizing non-verbal skills should provide a fairer assessment of the young child's creative behavior. The third area, Field Independence, evaluates the child's ability to separate an item from the field or context of which it is a part. An embedded figures test is used. The fourth area, Impulse Control, measures the child's ability to restrain motor activity when the task demands it. The child, after being shown, draws an eight inch line very slowly.

TASK ACCOMPLISHMENT INVENTORIES

The Task Accomplishment Inventories were designed to evaluate the child's acquisition of specific concepts that are emphasized in the curriculum at New Nursery School. They include inventories for:

1. Color
2. Shape
3. Size
4. Location
5. Number
6. Same and Different
7. Conjunctions (and/or)
8. Negative and Affirmative Statements (is/is not)

The inventories of color, shape, and location measure both comprehension and production (verbal expression of the concept). No effective test of production was compiled for size, same and different, conjunctions, and negative/affirmative statements. No test of comprehension for number was developed.

Objects from the classroom were selected for inclusion in a test kit prepared for each particular inventory. The tester administered the tests informally in the classroom or in the play yard as the occasion and interest of the child permitted.

The development of the inventory of Same and Different was completed late in the school year and added to the battery too late to be utilized under the contract. It was administered first in September, 1969. Therefore, information on responses to it does not appear in this report.

The inventories of conjunction and negative and affirmative statements were taken from the Bellugi-Klima Test of Grammatical Comprehension. (See the Bellugi-Klima Test of Grammatical Comprehension below.)

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

The Test of Grammatical Comprehension is an instrument to evaluate the child's understanding of certain grammatical, structural, and lexical items that are essential to fluency in language. The problems are set up on approximate levels of difficulty, based on appearance of constructs in children's speech, other comprehension tests, and proposed linguistic research. Such things as inflectional endings to indicate singular and plural, the order of noun and object in the active and passive voices, the placement of modifiers, prepositions, and indicators of negation and conjunction, are included. The child manipulates objects in response to directions given by the tester.

CATEGORIES TEST[1]

The Categories Test ("C" Test) was developed at New Nursery School in previous years to test the ability of a child to categorize or group familiar objects into pairs in a predetermined fashion. The test consists of a series of ten stimulus items and ten response items.

Responses are scored as 'E' - Expected, 'O' - Other, and 'N' - No response. The Other response may not necessarily be wrong. The expected response is indicative of the type of convergent response often emphasized in the early grades in school.

TYPING BOOTH INFORMATION

Typing booth records show the number of times a child was

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[1]Glen Nimnicht, *et al.*, "C" Test, New Nursery School, 1203 4th Street, Greeley, Colorado 80631. 1967.

asked to type, the number of times he typed, the time he spent typing, and the level or phase of the typing booth activities he engaged in.

The typing booth activities may be summarized as follows:

FREE EXPLORATION

1. The child explores the typewriter and the booth. The typewriter is locked in upper case until step 6. The child discovers that the typewriter works when he pushes one key at a time. The booth assistant turns the typewriter on with a foot switch, and names every letter, numeral, or other symbol typed. In this phase, the child must discover the return key.

SEARCH AND MATCH

2. An upper case magnetic letter is placed on a magnetic chart beside the typewriter. The typewriter works only when the child types that letter.

3. An upper case letter or numeral is presented on a card for the child to type.

DISCRIMINATION

4. Cards with two upper case letters are presented. The child types the one named by the booth assistant.

5. The booth assistant writes one to four capital letters across the top of a chalkboard and the same lower case letters across the bottom in a different order. The child draws a line from each upper case letter to its corresponding lower case letter.

6. The child returns to free play but with the shift lock released so that both upper and lower case letters may be typed.

7. Cards are presented with both upper and lower case letters. The child must use the shift key correctly.

8. This step is exactly like the preceding one except only lower case letters are on the cards.

WORDS AND STORIES

9. The booth assistant prints a word of the child's choosing for him to type. When the child recognizes eight to ten words he may compose and type a story.

CLASSROOM USE OBSERVATION

From the middle of January until the end of May, 1969, the location and activity of each child and adult in the classroom were recorded at regular intervals. The observations were made during the time of highest activity and room use, usually the first hour of the session. After each recording, which took approximately ten minutes, the observer started over again until the hour was up. Four to six observations were usually made in the hour.

To make recording manageable and the results easier to interpret, activities were grouped as follows:

(Examples only of each type of activity are listed)

READING AND LISTENING
Records
Reading
Filmstrip stories
Viewmaster

SPECIFIC LANGUAGE ACTIVITIES
Lotto games
Language Master
Color lotto
Discussing photo album
Telephone

ART
Painting
Finger painting
Dough and clay
Soap suds painting
Drawing-chalk, crayon, pencil

SMALL MANIPULATIVE TOYS
Parquetry blocks
Puzzles
Hammer boards
Attribute blocks
Flannel boards - geometric shapes
Cubes
Lego
Bolts and Nuts
Nesting Cups
Counting frame
Cuisenaire rods

BLOCK AND VEHICLE PLAY
Unit blocks
Vehicles
Wooden people and animals

TYPING BOOTH ACTIVITIES
Typing
Chalkboard
Magnetic letters
Testing

PASSIVE OBSERVER
Just standing observing others; not participating in any activity at that time.

OTHER
Shadow play
Playing house
Dolls
Cards
Snacks
Bathroom
Observing fish
Dancing
Group time

Notations as to the location of the activities were made on a floor plan of the school.

At the end of the year a tally for each child was made from the observation sheets.

The total number of times each child was observed (100%) was pro-rated for each grouping. That is, if a child was observed 100 times and was being read to or listening to records ten of those times, a value of ten per cent was assigned to that category for that child.

As an example, Ben (not his real name) was observed 126 times. He was engaged in the following activities:

Reading and Listening	32.5%
Art	22.2%
Blocks	24.6%
Specific Language Activities	2.4%
Small Manipulative Toys	7.1%
Typing Booth Activities	5.6%
Other	3.2%
Passive Observer	2.4%

A summary of that data is to be found in the Appendix, page 149. The activities in which the child engaged in the classroom were compared with the results of the other evaluations to see what relationship, if any, existed between the activities chosen by the child and his achievement on the other instruments.

SELF-CONCEPT INTERVIEW

The Self-Concept Interview was compiled by Glen Nimnicht and Ann Fitzgibbon.[1] It was designed to evaluate the child's self image as related to school. A picture resembling the child is used. Specific questions are asked about the child in the picture and the response scored on a scale of 0-2.

BEHAVIOR RATING FORM[2]

The Behavior Rating Form requests the teachers to rate each child on a 13 item, five-point scale on behaviors presumed to be related to the child's self-esteem. This form is in the Appendix, page 147.

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[1]Ann Fitzgibbon and Glen Nimnicht, Self-Concept Interview, Far West Laboratory for Educational Research and Development, Berkeley, California, 1967.

[2]Stanley Coopersmith, The Antecedents of Self-Esteem, (W.H. Freeman and Company, San Francisco, 1967), p. 267.

Only the first ten items of Stanley Coopersmith's (1967) behavior rating schedule were used. Items "*referred to such behaviors as the child's reaction to failure, self-confidence in a new situation, sociability with peers, and the need for encouragement and reassurance....On theoretical and empirical grounds, the behaviors were assumed to be an external manifestation of the person's prevailing self appraisal.*"[1] In the analysis this is listed as Behavior Rating: Self-Concept.

In addition, teachers were asked to rate children's behaviors related to the ability to use concepts and processes emphasized in the New Nursery School, such as number concepts, locational words, and so forth. In the analysis these are listed as Behavior Rating: Behavior. They are not an integral part of Dr. Coopersmith's measure of self-esteem.

TEACHER CLASS RANKING FORM

The class ranking form was devised at New Nursery School to collect the teacher's opinion of the child's standing within his class. The opinion is given on a percentage scale from the top ten per cent to the lower ten per cent. Teachers were asked to estimate how the child is performing in comparison to the rest of the class in reading, arithmetic, independence, attention span, and appropriate behavior.

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[1] Ibid. p. 10-11.

SECTION FOUR

LIMITATIONS

Obviously, there are always dangers inherent in drawing conclusions and making generalizations and the present study is subject to these dangers. In addition, the final outcomes of this study might possibly have been influenced by a number of limiting factors:

1. The age characteristics of the sample population involved impose limitations upon any research involving quantitative testing, particularly when the subjects are three, four, and five year old children.

2. Language difficulties, cultural differences, and limited experiential backgrounds all contribute a degree of difficulty to testing, but they certainly do not make such measurement impossible.

3. Test results can be influenced by the affective reactions of the children tested despite the use of well qualified individuals in administering the tests. In the present study, every effort was made to make evaluation non-threatening to every child. Each tester became familiar with each child that he tested, did not interrupt the activities of the children, and administered all tests in the respective schools wherein the children were enrolled.

4. Late funding (December 26, 1968) precluded getting certain base line data but did not impede acquiring the bulk of the data required.

5. Additional difficulty was encountered by reason of a degree of mobility among pupils, by absences at the time certain test batteries were administered, and by the fact that tests used in the public schools varied from school to school.

Despite the possible limitations indicated, the present study has produced considerable reliable information concerning the comparisons made. It has also produced much data concerning a variety of variables involved in the testing instruments used in the study and in a number of the strategies and/or materials used in the New Nursery School program.

SECTION FIVE

1968-69 ANALYSIS OF NEW NURSERY SCHOOL FIRST YEAR PUPILS

Charts 1 and 2 which follow indicate in tabular and diagramatic form respectively the total data collection schedule used and an overview of the analyses made in Sections Five and Six.

CHART 1

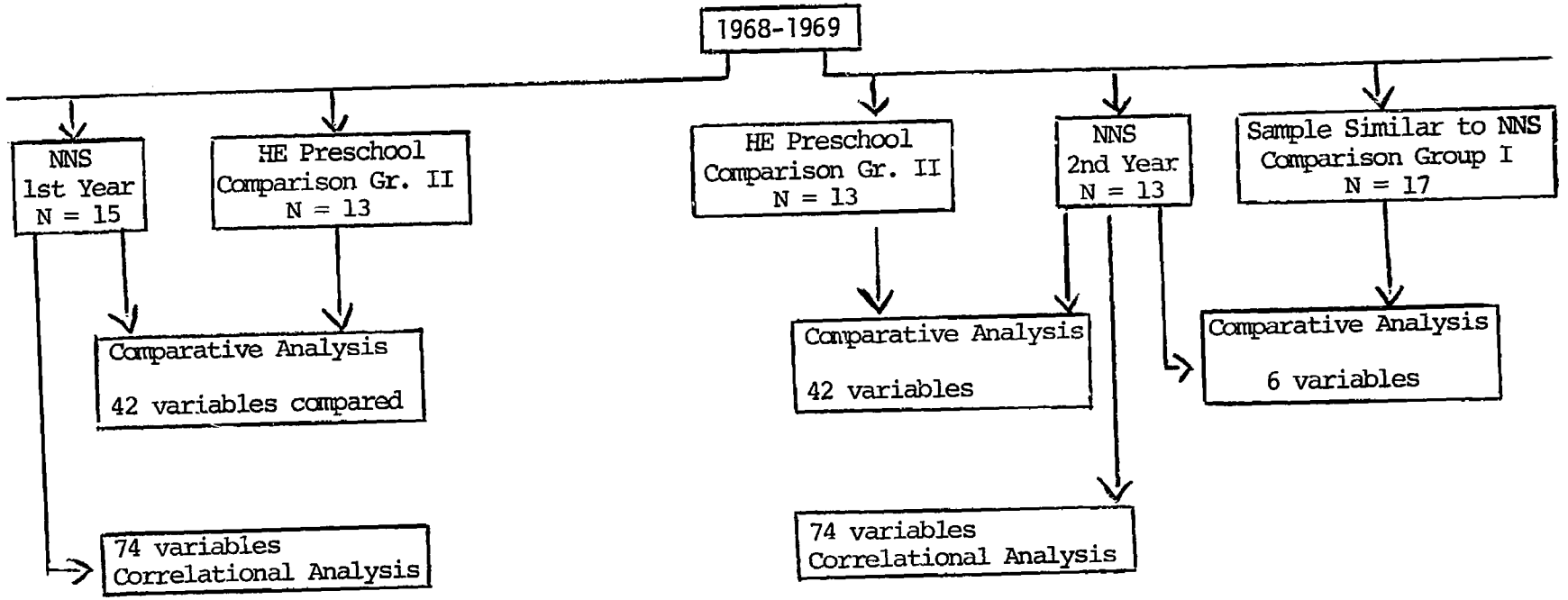
DATA COLLECTED FOR NEW NURSERY SCHOOL PROJECT 1968-69

(All tests administered by New Nursery School were administered by or under the direction of qualified testers from the University of Northern Colorado.)

GROUP	SEPTEMBER 1968	JANUARY 1969	MARCH 1969	APRIL 1969	MAY 1969	SEPTEMBER 1969
New Nursery School	WPPSI "C" Test Birthdate Attendance ——→ Typing Booth Information ——→	Room Observation Task Accomplishment Inventories ——→	"C" Test	Bellugi-Klima ——→ Self-Concept Interview ——→	Preschool Inventory CATB "C" Test Behavior Rating Form	WPPSI
Comparison Group II Home Economics Preschool	Birthdate Attendance ——→	Task Accomplishment Inventories ——→		Bellugi-Klima ——→ Self-Concept Interview ——→	Preschool Inventory CATB "C" Test	WPPSI
Comparison Group I Sample similar to NNS selected in Kindergarten	Birthdates Attendance ——→ Standardized tests given in public schools (all groups) ——→			Self-Concept Interview ——→ (all groups)	Behavior Rating Form (all groups). Teacher Class Ranking Form (all groups).	WPPSI
New Nursery School Graduates and their respective comparison groups	Attendance ——→ Standardized tests given in public schools (all graduates) ——→			Self-Concept Interview ——→ (all graduates)	Behavior Rating Form (all groups). Teacher Class Ranking Form (all groups).	

CHART 2

SECTIONS FIVE AND SIX
1968-69 COMPARISONS AND CORRELATIONS



For ease in reading, Comparison Group I, consisting of children from cultural and sociological backgrounds similar to that of the New Nursery School children, will be referred to as "Similar Sample." Comparison Group II, consisting of children from advantaged circumstances attending the University of Northern Colorado Home Economics Preschool, will be referred to as HE Preschool First Year and HE Preschool Second Year. The experimental group will be referred to as NNS First Year and NNS Second Year.

COMPARISONS

At the time of data collection, there were two different groups of pupils enrolled in the New Nursery School: one group was in its first year of attendance and another group was in its second year of attendance. This phase of the analysis is concerned with the first year group of pupils who were three years old at the time of school entrance.

The comparison group for the first year children consisted of a group of pupils enrolled in the Home Economics Preschool for one year. The pupils of the HE Preschool differ from those of the New Nursery School on several important economic, educational, and cultural variables. The HE Preschool, being affiliated with the University of Northern Colorado, draws heavily from families of professional men, graduate students, and faculty, whose children should have a high degree of success in school. Therefore, this group can in no way be considered a control group. They were used only as a basis for comparison to see where differences existed, and how great those differences were. Because pre-test data were not available, it was impossible to say whether or not the performance of the experimental group came closer to that of the comparison group as a consequence of the program of the New Nursery School.

The 1968-69 Analysis involved the comparison of fifteen first year pupils of the New Nursery School First Year pupils and thirteen first year members of the HE Preschool (Comparison Group II). There were seventy-four variables available for the NNS First Year pupils and forty-two variables for the HE Preschool First Year pupils.

AGE

TABLE 6

MEAN AGE DATA FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

NNS First Year	48.9 Months (3.9)
HE Preschool First Year	53.15 Months (4.8)

*In this table and in all tables which follow, any numbers in parenthesis are Standard Deviations.

ATTENDANCE

TABLE 7

MEAN ATTENDANCE DATA FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

(The HE Preschool followed the college year, thus the lower total)

GROUP	DAYS PRESENT	DAYS ABSENT	TOTAL
NNS First Year	135.8 (25.1)	21.8 (11.3)	157.6 (33.2)
HE Preschool First Year	83.8 (36.7)	9.2 (7.51)	93 (42.3)

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

The Bellugi-Klima yielded sixteen subtest scores in addition to a total score.

TABLE 8

A COMPARISON OF THE PERFORMANCE OF THE NEW NURSERY SCHOOL FIRST YEAR PUPILS AND THE HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS ON THE BELLUGI-KLIMA TEST MEAN SCORES

BELLUGI-KLIMA	NNS FIRST YEAR	HE PRESCHOOL FIRST YEAR
Subtest 1	2.6 (1.62)	3.6 (.86)
Subtest 2	4.3 (1.88)	5.6 (.95)
Subtest 3	3.9 (1.41)	5.7 (.60)
Subtest 4	3.9 (.85)	3.6 (1.04)
Subtest 5	4.3 (1.18)	5.6 (.76)
Subtest 6	2.9 (1.48)	4.8 (1.16)
Subtest 7	3.1 (1.10)	4.4 (.86)
Subtest 8	2.7 (1.35)	3.7 (.59)
Subtest 9	2.5 (1.20)	4.0 (0.0)
Subtest 10	3.1 (1.18)	4.0 (1.04)
Subtest 11	2.9 (1.64)	3.9 (1.62)
Subtest 12	4.8 (1.74)	4.9 (2.06)
Subtest 13	1.6 (1.17)	3.1 (1.74)
Subtest 14	3.5 (1.29)	3.5 (1.3)
Subtest 15	1.8 (1.14)	1.5 (.99)
Subtest 16	1.5 (1.40)	2.6 (1.15)
Total Score	48.0 (8.66)	64.4 (9.61)

The results of the Bellugi-Klima analysis show that on thirteen of the sixteen subtest scores, the mean of the Home Economics Preschool First Year exceeded the mean of the NNS First Year pupils. However, the NNS First Year pupils surpassed the comparison group on subtests four and fifteen, tied them on subtest fourteen and were within one-tenth of the Home Economics Preschool pupils on subtest twelve. The 't' test was used to test the differences between means of the total score. The total score mean of the comparison group was found to be significantly higher than the mean of the NNS First Year pupils at $\alpha = .05$, two tail test, df=24.

CINCINNATI AUTONOMY TEST BATTERY

TABLE 9

A COMPARISON OF THE PERFORMANCE MEAN SCORES OF THE NEW NURSERY SCHOOL FIRST YEAR PUPILS AND THE HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS ON THE CINCINNATI AUTONOMY TEST BATTERY

CINCINNATI	NNS FIRST YEAR	HE PRESCHOOL FIRST YEAR	t	df
Task Initiation	2.4 (1.18)	1.7 (1.07)	1.55	25
Curiosity Box	19.7 (9.16)	19.3 (10.4)	.10	25
Innovative Behavior	3.1 (1.96)	3.6 (1.27)	-.75	25
Field Independence	6.5 (3.31)	10.2 (2.04)	*-3.32	25
Impulse Control (low score desirable)	2.1 (1.10)	1.1 (.64)	*2.77	26
Manipulation Board	10.6 (4.79)	19.0 (5.48)	*-4.08	25

Critical value of t, $\alpha = .05$, two tail test, df=25 or df=26 is 2.06.

*Significant

The HE Preschool First Year achieved means that were significantly higher than the NNS First Year pupils on the Field

Independence and Manipulation Board subtests of the Cincinnati. On the Impulse Control Subtest, the mean score of the NNS First Year pupils was significantly poorer than that of HE Preschool First Year, as on this test a low score is desirable.

CATEGORIES TEST

Responses to the Categories Test ("C" Test) are grouped as 'E', 'O', and 'N'. 'E' represents the number of expected (proper or correct) responses, 'O' represents the number of other unexpected responses, and 'N' stands for the number of times an individual did not respond.

The New Nursery School First Year pupils took the "C" Test on three different occasions, September, March and May of the 1968-69 school year. On the September testing, eleven of the fifteen pupils refused the test. However, on the March and May testing, after approximately seven months exposure to the New Nursery School Program, there were no refusals. The HE Preschool First Year group took the "C" Test on one occasion, May, 1969.

TABLE 10

COMPARISON OF MARCH AND MAY
CATEGORIES TEST
NEW NURSERY SCHOOL FIRST YEAR PUPILS

"C" TEST	MARCH	"C" TEST	MAY
Expected	3.33 (2.21)	E	3.27 (2.29)
Other	5.33 (2.27)	O	5.47 (2.12)
No Response	.33 (.87)	N	0.26 (.57)

TABLE 11

COMPARISON OF MARCH CATEGORIES TEST MEAN SCORES OF NEW NURSERY SCHOOL FIRST YEAR PUPILS AND MAY CATEGORIES TEST MEAN SCORES OF HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

"C" TEST	NNS FIRST YEAR	HE PRESCHOOL FIRST YEAR
Expected	3.33 (2.21)	4.38 (2.05)
Other	5.33 (2.27)	4.62 (2.31)
No Response	0.33 (.87)	0.00 (0.0)

The refusal to take a test, and the refusal to respond in the test situation are behaviors frequently observed among children entering the New Nursery School. This behavior is less evident the longer the children stay. For example, eleven children refused to take the "C" Test in September, but none in March and May.

PRESCHOOL INVENTORY

TABLE 12

COMPARISON OF PRESCHOOL INVENTORY MEAN SCORES OF NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

PRESCHOOL INVENTORY	NNS FIRST YEAR	HE PRESCHOOL FIRST YEAR	MEAN DIFFERENCES
A	13.1 (3.94)	20.8 (3.78)	-7.7
B	5.4 (2.77)	14.5 (4.23)	-9.1
C_1	6.8 (1.51)	11.7 (4.45)	-4.9
C_2	8.7 (2.62)	14.6 (3.92)	-5.9
Total	32.8 (10.62)	61.6 (14.67)	-28.8

TASK ACCOMPLISHMENT INVENTORIES

TABLE 13

COMPARISON OF TASK ACCOMPLISHMENT INVENTORY MEAN SCORES OF NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

TASK ACCOMPLISHMENT		NNS FIRST YEAR	HE PRESCHOOL FIRST YEAR	MEAN DIFFERENCE
Color	Comprehension	3.5 (3.61)	7.4 (2.84)	-3.9
	Production	2.9 (3.31)	6.9 (3.15)	-3.0
Number	Counting	7.3 (8.70)	19.6 (11.8)	-12.3
Shapes	Comprehension	1.9 (1.77)	2.9 (1.38)	-1.0
	Production	1.4 (1.34)	1.8 (1.61)	-.4
Rel-Size	Comprehension	15.6 (7.62)	26.0 (4.01)	-11.4
Rel. Loc.	Comprehension	8.6 (3.33)	13.0 (1.17)	-4.4
	Production	6.5 (3.61)	10.5 (2.14)	-4.0

The performance of the HE Preschool group exceeded that of the NNS group on every task, although they are very close on both comprehension and production (naming) geometric shapes.

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

No Wechsler Preschool and Primary Scale of Intelligence scores are given for the first year group for fall, 1968, because scores for only two children out of fifteen were obtainable. In spite of numerous attempts, the tester concluded it was impossible in each case to get a test, for the reasons listed below:

"Subject unable to give intelligible answers."

"_____ left testing room refusing to continue test."

"Responses on information are not sensible."

"Apparently unable to understand verbal directions."

"Screamed when examiner talked to her."

"Doesn't listen to direction. Apparently doesn't understand what is to be done. Speech very difficult to understand."

"Subject refused verbal response and insisted upon leaving testing situation."

"Looks at me but doesn't respond."

The table below reports the fall, 1969, WPPSI scores for these same pupils after nine months attendance at the New Nursery School and three months vacation. There were no WPPSI scores available for HE Preschool First Year.

TABLE 14

MEAN WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES FOR NEW NURSERY SCHOOL FIRST YEAR PUPILS

(Given in September, 1969, after a year in New Nursery School)

VERBAL	VERBAL IQ	PERFORMANCE	PERFORMANCE IQ	TOTAL	TOTAL IQ
44.3 (10.67)	92.6 (13.32)	45.6 (8.47)	94.1 (11.5)	89.3 (16.9)	98.8 (12.4)

CORRELATIONS

Of considerable interest to the investigators was an examination of the intercorrelations of the seventy-four variables available on the New Nursery School First Year pupils. There was a total of 2,701 intercorrelations. To report every one would be meaningless and confusing. Presented are those intercorrelations deemed essential to the analysis by the investigators.

TABLE 15

INTERCORRELATION OF SELF-CONCEPT INTERVIEW SCORES BEHAVIOR RATING FORM SCORES AND THE WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES OF THE NEW NURSERY SCHOOL FIRST YEAR PUPILS

		BEHAVIOR RATING		SELF-CONCEPT INTERVIEW		WPPSI		
		Self-Concept	Behavior	March	May	Verbal IQ	Performance IQ	Total IQ
Behavior Rating	Self-Concept Behavior		r=.19 df=13	r=-.57 df=11	r=-.02 df=13	r=.29 df=9	r=-.06 df=9	r= .15 df=9
				r=-.14 df=11	r= .00 df=13	r=.32 df=9	r= .27 df=9	r= .32 df=9
Self-Concept Inter-view	March				r= .37 df=11	r=.28 df=9	r= .29 df=9	r=-.03 df=9
	May					r=.04 df=9	r=-.01 df=9	r= .00 df=9
WPPSI	Verbal IQ						r= .66 df=9	r= .94 df=9
	Performance IQ							r= .88 df=9
	Total IQ							

Critical value of r, α=.05, one tail test at various df's are: df=9, r=.521, df=11, r=.476, df=13, r=.441

Throughout this study an examination and evaluation of the Self-Concept Interview was attempted. An index of the interview's validity was sought by correlating it with some aspect of academic standing. As indicated by the correlations reported in Table 15, The Self-Concept Interview shows relatively no relationship to the three areas of the WPPSI. Although the Self-Concept scores for the Behavior Rating Form bear no significant relationship to the three areas of the WPPSI, the magnitude of the correlations is higher. Of particular interest was the high negative correlation found to exist between the two different measures of self-concept, a finding suggesting that the two instruments are measuring different entities.

The correlation of the March and May Self-Concept Interview score, r=.37, raises a further question -- what is the reliability of the instrument? It might well be that the young child's concept of self is quite unstable, and the instrument reflects this instability; however, one would expect some significant correlation.

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

TABLE 16

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE BELLUGI-KLIMA - TOTAL SCORE

VARIABLE		BELLUGI-KLIMA r	df
Preschool Inventory	Subtest A	.48	12
	Subtest C_1	.65	13
	Subtest C_2	.70	13
	Total Score	.68	13
"C" Test	March 'E' Score	.68	13
	March 'O' Score	-.50	13
Cincinnati	Manipulation Board Subtest	-.52	12
Bellugi-Klima	Subtest 2	.50	13
	Subtest 3	.64	13
	Subtest 8	.61	13
	Subtest 9	.56	13
	Subtest 12	.55	12
	Subtest 16	.65	12
Task Accomplishment	Color-Comprehension	.59	11
	Color-Production	.64	12
	Number-Counting	.56	13
	Relative Size-Comprehension	.52	12
	Relative Location-Comprehension	.84	12
	Relative Location- Production	.52	13
Behavior Rating Form	Behavior	.60	13
Typing Booth	Average Minutes	.49	13
WPPSI	Verbal IQ	.56	9
Room Observation	Small Manipulative Toys	.46	13

Critical values of r, α=.10, two tail test at various df's are: df=9, r=.521, df=11, r=.476, df=12, r=.458, df=13, r=.441

TABLE 17

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE NUMBER OF DAYS TYPED

VARIABLE		DAYS TYPED r	df
Task Accomplishment	Shapes-Production	.61	12
Typing Booth	Days Present	.52	13

TABLE 18

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH TOTAL MINUTES

VARIABLE		TOTAL MINUTES r	df
Cincinnati Preschool Inventory	Curiosity Box	.50	12
	Subtest A	.50	12
Bellugi-Klima	Subtest 10	-.56	13
	Subtest 13	-.62	12
	Subtest 16	.59	12
Task Accomplishment	Number-Counting	.47	13
Room Observation	Passive Observer	-.49	13
	Other	.45	13

Critical value of r, α=.10, two tail test, df=12 is .458

Critical value of r, α=.10, two tail test, df=13 is .441

TABLE 19

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH AVERAGE MINUTES

	VARIABLE	AVERAGE MINUTES r	df
Preschool Inventory	Subtest C_1	.65	13
"C" Test	March 'E' Score	.86	13
	March 'O' Score	-.77	13
Bellugi-Klima	Subtest 8	.65	13
	Subtest 16	.74	12
Task Accomplishment	Color-Comprehension	.80	11
	Color-Production	.71	12
	Shapes-Comprehension	.58	13
	Shapes-Production	.51	12
	Relative Location-Comprehension	.51	12
Behavior Rating Form	Behavior	.71	13
Room Observation	Small Manipulative Toys	.60	13
	Typing or Testing	.68	13

Critical values of r, α=.10, two tail test, at various df's are: df=11, r=.476, df=12, r=.458, df=13, r=.441

TABLE 20

VARIABLES THAT CORRELATE SIGNIFICANTLY
WITH THE HIGHEST PHASE REACHED

VARIABLES		PHASE REACHED r	df
	Age	.55	13
Preschool Inventory	Subtest C_1	.49	13
	Subtest C_2	.46	13
	Total Score	.49	13
"C" Test	March 'E' Score	.59	13
	March 'O' Score	-.46	13
Bellugi-Klima	Subtest 2	.52	13
	Subtest 16	.63	12
Task Accomplishment	Color-Production	.60	12
	Shape-Comprehension	.57	13
	Relative Location-Production	.46	13
Cincinnati	Curiosity Box	-.49	13
Behavior Rating Form	Behavior	.75	
Room Observation	Typing or Testing	.64	13

Critical values of r, α=.10, two tail test, df=13, r=.441, df=12, r=.458

TABLE 21

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE READING AND LISTENING OBSERVATION

VARIABLE		READING AND LISTENING r	df
"C" Test	May 'E' Scores	.53	13
	May 'O' Scores	.53	13
Bellugi-Klima	Subtest 9	.48	13

Critical value of r, α=.10, two tail test, df=13 is .441

TABLE 22

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH ART ACTIVITIES OBSERVATIONS

VARIABLE		ART ACTIVITIES r	df
Cincinnati	Curiosity Subtest	.48	12
	Impulse Control (low score desirable)	.81	13
Bellugi-Klima	Subtest 7	.54	12
	Subtest 9	.49	13
	Subtest 11	.68	12
Attendance	Absent	.65	13

Critical value of r, α=.10, two tail test, df=12 is .458
Critical value of r, α=.10, two tail test, df=13 is .441

TABLE 23

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH SMALL MANIPULATIVE TOYS OBSERVATION

VARIABLES		SMALL MANIPULATIVE TOYS r	df
Cincinnati	Curiosity Box	.49	12
Preschool Inventory	Subtest C_1	.76	13
	Subtest C_2	.60	13
"C" Test	March 'E' Scores	.59	13
	March 'O' Scores	-.49	13
Bellugi-Klima	Subtest 3	.46	13
	Subtest 8	.53	13
Task Accomplishment	Color-Comprehension	.54	11
	Color-Production	.54	12
	Shape-Comprehension	.45	13
	Relative Location-Comprehension	.63	12
	Relative Location-Production	.51	13
Behavior Rating Form	Behavior	.63	13

Critical values of r, α=.10, two tail test, at various df's are: df=11, r=.476, df=12, r=.458, df=13, r=.441

It should be noted that in the New Nursery School small manipulative toys are used to help children learn many specific concepts such as shape, color, relative location, and size, as well as processes such as counting, sorting, ordering, contrasting, and comparing.

TABLE 24

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH BLOCK OBSERVATION

VARIABLES		BLOCKS r	BLOCKS df
Cincinnati	Impulse Control (Low score desirable)	-.61	13
Preschool Inventory	Total Score	-.50	13
"C" Test	March 'E' Scores	-.54	13
	March 'O' Scores	.56	13
Bellugi-Klima	Subtest 9	-.53	13
	Subtest 16	-.59	12
Task Accomplishment	Color-Comprehension	-.53	13
	Color-Production	-.55	12
	Number-Counting	-.67	13

Critical value of r, α=.10, two tail test, df=12 is .458
Critical value of r, α=.10, two tail test, df=13 is .441

TABLE 25

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH SPECIFIC LANGUAGE ACTIVITIES OBSERVATION

VARIABLES		SPECIFIC LANGUAGE ACTIVITIES r	SPECIFIC LANGUAGE ACTIVITIES df
	Age	.56	13
Cincinnati	Task Initiation	.74	12
Preschool Inventory	Subtest A	.72	12
	Subtest B	.49	12
	Subtest C_2	.49	13
	Total Score	.50	13
"C" Test	May 'E' Scores	-.49	13
	May 'O' Scores	.53	13
Bellugi-Klima	Subtest 2-Prepositions	.49	13
	Subtest 12-Comparitives	.51	12
Task Accomplishment	Number-Counting	.58	13

Critical value of r, α=.10, two tail test, df=12 is .458
Critical value of r, α=.10, two tail test, df=13 is .441

TABLE 26

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH TESTING OR TYPING OBSERVATION

	VARIABLE	TESTING OR TYPING r	df
"C" Test	March 'E' Scores	.47	13
	March 'O' Scores	-.54	13
Bellugi-Klima	Subtest 5	-.52	13
Task Accomplishment	Color-Comprehension	.51	11
	Color-Production	.46	12

Critical values of r, α=.10, two tail test, at various df's are:
df=11, r=.476, df=12, r=.458, df=13, r=.441

TABLE 27

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH PASSIVE OBSERVER OBSERVATION

	VARIABLE	TESTING OR TYPING r	df
Bellugi-Klima	Subtest 5	-.62	13
	Subtest 13	.51	12

Critical values of r, α=.10, two tail test, at various df's are:
df=11, r=.476, df=12, r=.458, df=13, r=.441

TABLE 28

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH OTHER OBSERVATION

	VARIABLE	OTHER r	df
Cincinnati	Impulse Control (Low score desirable)	.45	13
Bellugi-Klima	Subtest 3	.52	13
	Subtest 16	-.54	12
Behavior Rating Form	Self-Concept	.59	13

Critical value of r, α=.10, two tail test, df=12 is .458
Critical value of r, α=.10, two tail test, df=13 is .441

SECTION SIX

COMPARISONS

As previously mentioned, at the time of data analysis there were two different groups of pupils enrolled at the New Nursery School. This phase of the analysis is concerned with those pupils who were in their second year of attendance.

The comparison group for the second year pupils consisted of a group of pupils who were in their second year of enrollment in the Home Economics Preschool. They will be referred to as HE Preschool Second Year.

The 1968-69 second year analysis involved the comparison of thirteen second year pupils of the New Nursery School and thirteen second year pupils of the HE Preschool. Three members of the New Nursery School group were replacements, and had not attended two full years. Their scores were usually lower, and on some measures they responded little, if any. There was a total of seventy-four variables available on the second year pupils and forty-two variables on HE Preschool Second Year pupils.

AGE

TABLE 29

MEAN AGE DATA FOR NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

NNS Second Year	62.31 Months (3.99)
HE Preschool Second Year	57.30 Months (5.16)

ATTENDANCE

TABLE 30

MEAN ATTENDANCE DATA FOR NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

(The HE Preschool followed the college year, thus the lower total)

GROUP	DAYS PRESENT	DAYS ABSENT	TOTAL
NNS Second Year	152.4 (10.6)	21.6 (10.6)	174 (0.0)
HE Preschool Second Year	103.5 (26.3)	17.3 (10.2)	120.8 (28.1)

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

The Bellugi-Klima yields sixteen subtest scores in addition to a total score.

TABLE 31

A COMPARISON OF THE PERFORMANCE OF THE NEW NURSERY SCHOOL SECOND YEAR PUPILS AND THE HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS ON THE BELLUGI-KLIMA TEST MEAN SCORES

BELLUGI-KLIMA	NNS SECOND YEAR	HE Preschool Second Year
Subtest 1	3.2 (1.17)	3.7 (.60)
Subtest 2	5.3 (1.06)	5.8 (.42)
Subtest 3	5.0 (1.11)	5.4 (.84)
Subtest 4	3.8 (1.17)	4.2 (.58)
Subtest 5	5.2 (.89)	5.2 (.89)
Subtest 6	4.3 (1.38)	5.1 (1.14)
Subtest 7	4.0 (1.04)	4.5 (.63)
Subtest 8	3.4 (1.15)	3.9 (.36)
Subtest 9	3.5 (.84)	3.8 (.42)
Subtest 10	3.3 (1.14)	4.2 (1.14)
Subtest 11	4.0 (1.18)	4.0 (1.08)
Subtest 12	6.2 (1.19)	5.4 (1.71)
Subtest 13	2.2 (1.19)	4.0 (1.00)
Subtest 14	3.9 (1.14)	4.1 (1.11)
Subtest 15	1.6 (1.14)	1.5 (.87)
Subtest 16	2.2 (1.04)	3.3 (.72)
Total Score	61.1 (4.58)	67.9 (6.04)

The test results of the Bellugi-Klima indicate that the mean of HE Preschool Second Year pupils exceeded the mean of the New Nursery School Second Year children on twelve of the sixteen subtests. Compared to the New Nursery School First Year pupils' results (they were exceeded by their comparison group on thirteen of the sixteen subtests) there appears to be very little difference, but there is a consistent reduction in mean differences.

TABLE 32

A COMPARISON OF THE MEAN DIFFERENCES ON BELLUGI-KLIMA FIRST YEAR PUPIL ANALYSIS AND SECOND YEAR PUPIL ANALYSIS

BELLUGI-KLIMA	FIRST YEAR PUPILS X NNS FIRST YEAR X HE PRESCHOOL FIRST YEAR	SECOND YEAR PUPILS X NNS SECOND YEAR X HE PRESCHOOL SECOND YEAR
Subtest 1	-1.0	-.5
Subtest 2	-1.3	-.5
Subtest 3	-1.8	-.5
Subtest 4	+ .3	-.4
Subtest 5	-1.3	0.0
Subtest 6	-1.9	-.8
Subtest 7	-1.3	-.5
Subtest 8	-1.0	-.5
Subtest 9	-1.5	-.3
Subtest 10	- .9	-.9
Subtest 11	-1.0	0.0
Subtest 12	- .1	+.8
Subtest 13	-1.5	-1.8
Subtest 14	0.0	-.2
Subtest 15	+ .3	+.3
Subtest 16	-1.1	-1.1
Total Score	-16.4	-6.8

If it is assumed that the two comparison groups were similar and further assumed that the New Nursery School First and Second Year pupils were similar, then by mere observation of of Table 32 it is possible to assess the effects of one year of attendance in the New Nursery School. There is almost a constant reduction in mean differences between the two comparisons, indicating that the New Nursery School children are moving closer to the performance of the advantaged group in their ability to comprehend key structural, grammatical, and lexical elements of the English language. However, even with this reduction of almost ten raw score units, the mean difference between New Nursery School Second Year pupils and Home Economics Preschool Second Year pupils is still significant, at α=.05, two tail test, df=23.

TABLE 33

A COMPARISON OF THE PERFORMANCE MEAN SCORES OF THE NEW NURSERY SCHOOL SECOND YEAR PUPILS AND THE HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS ON THE CINCINNATI AUTONOMY TEST BATTERY

CINCINNATI	NNS SECOND YEAR	HE PRESCHOOL SECOND YEAR	t	df
Task Initiation	2.5 (1.36)	1.15(.36)	*3.38	24
Curiosity Box	13.7 (10.2)	19.1(9.2)	-1.63	24
Innovative Behavior	7.2 (3.3)	5.8(2.8)	1.11	23
Field Independence	9.7 (1.5)	11.2(3.35)	-1.37	22
Impulse Control (low score desirable)	1.3 (.61)	1.3(.6)	0	-
Manipulation Board	11.2 (10.1)	14.0(8.7)	-.93	22

Critical value of t, α=.05, two tail test, df=22 or 23 is 2.07, or df=24 is 2.06.

There is a striking difference between the results of the first and second year analyses of the Cincinnati Autonomy Test Battery. In the first year analysis, Home Economics Preschool received means significantly higher than the New Nursery School pupils on Field Independence and Manipulation Board; those differences no longer exist. In addition, the New Nursery School Second Year pupils received a significantly higher mean than the HE Preschool Second Year on Task Initiation; that difference did not exist for the first year pupils. The NNS First Year pupils, however, scored significantly poorer on Impulse Control where a low score is desirable. The NNS Second Year pupils' performance was identical to that of the comparison group in this area of behavior.

CATEGORIES TEST

TABLE 34

COMPARISON OF SEPTEMBER, MARCH AND MAY CATEGORIES MEAN SCORES FOR THE NEW NURSERY SCHOOL SECOND YEAR PUPILS

"C" TEST	SEPTEMBER	MARCH	MAY
Expected	2.8 (1.17)	3.15 (1.79)	4.38 (1.9)
Other	5.7 (1.35)	5.53 (2.1)	4.54 (1.9)
No Response	.5 (.67)	.32 (.5)	.03 (.26)

TABLE 35

COMPARISON OF MARCH CATEGORIES TEST MEAN SCORES OF NEW NURSERY SCHOOL SECOND YEAR PUPILS AND MAY CATEGORIES TEST MEAN SCORES OF HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

"C" TEST	NNS SECOND YEAR	HE PRESCHOOL SECOND YEAR
Expected	3.15 (1.79)	4.00 (2.37)
Other	5.53 (2.1)	4.58 (2.47)
No response	.32 (.5)	.42 (.80)

The Categories Test results for both the first and second year analyses are very compatible. The mean differences within each group are approximately the same, although a slight reduction in mean differences was achieved by the New Nursery School Second Year pupils.

TABLE 36

A COMPARISON OF PRESCHOOL INVENTORY MEAN SCORES OF NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

PRESCHOOL INVENTORY	NNS SECOND YEAR	HE PRESCHOOL SECOND YEAR	MEAN DIFFERENCES
A	17.0 (4.1)	22.3 (2.2)	-5.3
B	7.4 (4.7)	15.8 (3.3)	-8.4
C_1	9.9 (3.8)	13.3 (2.4)	-3.4
C_2	14.1 (2.8)	16.2 (1.5)	-2.1
Total	45.8 (14.6)	66.8 (8.67)	-21.0

TABLE 37

COMPARISON OF PRESCHOOL INVENTORY MEAN DIFFERENCES OF THE NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS AND THE NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

PRESCHOOL INVENTORY	NNS FIRST YEAR HE PRESCHOOL SECOND YEAR	NNS SECOND YEAR HE PRESCHOOL SECOND YEAR
A	-7.7	-5.3
B	-9.1	-8.4
C_1	-4.9	-3.4
C_2	-5.9	-2.1
Total	-28.8	-21.0

There was a consistent reduction in the mean differences between the NNS First and Second Year pupils and their respective comparison groups. This reduction was accomplished in spite of a consistent increase in scores from the first year HE Preschool (total 61.6) to second year HE Preschool (total 66.8). Assuming that the comparison groups were similar and that the NNS First and Second Year pupils were similar, the NNS experience seems to be moving the children's performance closer to that of the advantaged group.

TABLE 38

COMPARISON OF TASK ACCOMPLISHMENT INVENTORY MEAN SCORES OF NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

TASK ACCOMPLISHMENT		NNS SECOND YEAR	HE PRESCHOOL SECOND YEAR	MEAN DIFFERENCES
Color	Comprehension	7.7 (2.33)	8.2 (2.41)	- .5
	Production	6.2 (3.23)	8.1 (1.26)	-1.9
Number	Counting	20.2 (14.0)	27.2 (11.62)	-7.0
Shapes	Comprehension	3.4 (1.32)	3.0 (1.35)	+ .4
	Production	2.5 (1.65)	2.5 (1.74)	0
Relative Size	Comprehension	20.9 (5.7)	26.9 (3.85)	-6.0
Relative Location	Comprehension	11.8 (1.87)	13.3 (.99)	-1.5
	Production	9.5 (1.69)	12.3 (.85)	-2.8

Although Home Economics Preschool Second Year pupils' scores are higher than those of the New Nursery School on most measures, the mean differences are slight. In the comprehension of the names of geometric shapes the New Nursery School group's performance surpassed that of the comparison group, but in production relative to the expression of the names of shapes the groups scored the same.

TABLE 39

COMPARISON OF TASK ACCOMPLISHMENT INVENTORY MEAN DIFFERENCES OF NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS AND THE NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

TASK ACCOMPLISHMENT		NNS FIRST YEAR HE PRESCHOOL FIRST YEAR	NNS SECOND YEAR HE PRESCHOOL SECOND YEAR
Color	Comprehension	-3.9	- .5
	Production	-3.0	-1.9
Number	Counting	-12.3	-7.0
Shapes	Comprehension	-1.0	+ .4
	Production	- .4	0
Relative Size	Comprehension	-11.4	-6.0
Relative Location	Comprehension	-4.4	-1.5
	Production	-4.0	-2.8

It is apparent from this table that in every measure there was a reduction of mean differences between the NNS First and Second Year pupils and their respective comparison groups. Assuming that the HE Preschool First and Second Year groups were similar, and that the NNS First and Second Year pupils were similar, the New Nursery School experience seems to be moving the children's performance closer to that of the advantaged group.

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) was administered to the second year pupils in fall, 1968, and in fall, 1969, at the beginning of kindergarten. In fall, 1968, WPPSI scores were obtained for nine second year pupils. Scores were unavailable for the four other pupils. Two of these children had not attended school a full year previously, and were unable to respond to direct questioning. The other two children began the test, but could not be encouraged to complete it. One calendar year later, after nine months school attendance and three months vacation, all children were able to be tested. The table below compares only those children who had both pre-tests (fall, 1968) and post-tests (fall, 1969).

TABLE 40

MEAN WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES FOR NEW NURSERY SCHOOL SECOND YEAR PUPILS

(Given in fall, 1968, and fall 1969)

VERBAL		VERBAL IQ		PERFORMANCE		PERFORM. IQ		TOTAL		TOTAL IQ	
Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
43.6 (6.1)	1.9 (4.8)	91.8 (7.7)	89.9 (5.9)	44.7 (4.1)	45.9 (5.7)	92.9 (5.6)	94.4 (7.6)	88.3 (8.0)	87.8 (8.8)	91.4 (5.7)	91.1 (6.3)
		t=.812				t=.28				t=.01	

df=8

No tests of intelligence were given this group of children when they entered the New Nursery School. Thus it was not possible to determine the total IQ gain or lack of gain. The reason for the lack of gain in the second year's experience is not readily apparent, especially when one considers the gains assumed to be made in the second year on other measures, such as the Bellugi-Klima and the Task Accomplishment Inventory.

COMPARISON OF NEW NURSERY SCHOOL SECOND YEAR GRADUATES WITH COMPARISON GROUP I (SIMILAR SAMPLE)

In fall,1969, a comparison group with cultural and sociological background similar to the New Nursery School group was identified, Similar Sample, Comparison Group I. These are described in the section Description of Population. These children were beginning kindergarten, as were the children in the experimental group. Table 41 compares their scores on the WPPSI. That is the only comparison called for at beginning kindergarten. Other comparisons will be made at the end of kindergarten and during suceeding years.

The WPPSI Scores given for NNS Second Year pupils in Tables 40 and 41 differ because Table 41 includes those children who were unable to take the test the year before (fall, 1968). Their lower scores reduce the mean for the total group.

TABLE 41

MEAN WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES FOR NEW NURSERY SCHOOL SECOND YEAR AND SIMILAR SAMPLE

(Given in fall, 1969)

GROUP	VERBAL	VERBAL IQ	PERFOR-MANCE	PERFOR-MANCE IQ	TOTAL	TOTAL IQ
NNS Second Year	40.2(4.9)	87.8(6.2)	44.8(6.3)	92.8(8.5)	85 (9.35)	89 (7.0)
Similar Sample	36 (11.5)	82.4(14.3)	40.6(11.4)	87.1(15.4)	76.6(18.9)	83.3(13.)
		t=1.5		t=1.49		t=1.34

Critical value of t, α=.05 one tail test, df=29 is 1.699

The experimental group scored consistently higher than the Similar Sample on all measures of the WPPSI. The reader is reminded that the WPPSI scores given for the experimental group were not obtained immediately following an intensive exposure to school. They should, therefore, reflect changes in the child's ability of a more lasting nature.

CORRELATIONS

The 1968-69 New Nursery School First Year Pupil Analysis included an analysis of those variables which correlated significantly with the New Nursery School experiences as recorded in the typing booth and room observations.

A similar correlational investigation was also undertaken in the 1968-69 New Nursery School Second Year Pupil Analysis. Following this analysis is to be found a discussion of the relationship of the correlations with respect to both the first year and second year pupils.

SELF-CONCEPT INTERVIEW AND BEHAVIOR RATING FORM

TABLE 42

INTERCORRELATION OF SELF-CONCEPT INTERVIEW SCORES BEHAVIOR RATING FORM SCORES AND THE WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES OF THE NEW NURSERY SCHOOL SECOND YEAR PUPILS

		BEHAVIOR RATING		SELF-CONCEPT INTERVIEW		WPPSI		
		Self-Concept	Behavior	March	May	Verbal IQ	Performance IQ	Total IQ
Behavior Rating	Self-Concept		r=.72	r=.00	r=.07	r=.27	r=.24	r=.34
	Behavior			r=-.22	r=.41	r=.31	r=-.02	r=.15
Self-Concept Interview	March				r=-.10	r=.07	r=-.01	r=.09
	May					r=-.18	r=-.69	r=-.55
WPPSI	Verbal IQ						r=.44	r=.80
	Performance IQ							r=.88
	Total IQ							

Critical value of r, α = .10, two tail test, df=11 is .476.

The previous analyses indicated that the Self-Concept Interview scale was not related to various measures of academic and intellectual prowess. If a measure of self-concept were to correlate significantly with a measure of intellectual or academic prowess, the relationship would be expected to be a positive one. However, the correlations depicted by Table 42 indicate that in the second year group, the May Self-Concept Interview scores correlated negatively (-.69 and -.55) with the WPPSI Performance and Total IQ scores.

The two subtests of the Behavior Rating Form, as indicated in the first year pupil analysis, do not bear a significant relationship to the three IQ scores of the WPPSI. The correlations are, however, greater than those found with the Self-Concept Interview and the WPPSI.

Another consistent finding in both the first and second year analyses is the correlation between the two different measures of self-concept; in neither analysis was a significant relationship found to exist, once again suggesting that the two tests are measuring different entities.

As in the first year analysis, the reliability of the Self-Concept Interview was examined by correlating the March and May scores. The correlation found between the two testings was -.10, lending further evidence to the premise that the instrument is not reliable.

TABLE 43

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE BELLUGI-KLIMA - TOTAL SCORE

VARIABLE		BELLUGI-KLIMA r	df
	Age	.54	11
Preschool Inventory	Subtest A	.67	11
	Subtest C_2	.50	10
	Total Score	.48	11
"C" Test	March 'O' Scores	.71	11
	March 'N' Scores	-.57	11
Bellugi-Klima	Subtest 1	.66	11
	Subtest 2	.69	11
	Subtest 4	.69	11
	Subtest 7	.65	11
	Subtest 13	.61	11
	Subtest 16	.62	11
Task Accomplishment	Relative Location-Comprehension	-.51	10
	Relative Location-Production	.53	11
WPPSI	Performance IQ	-.57	11

Critical value of r, α = .10, two tail test, df = 11 is .476.
Critical value of r, α = .10, two tail test, df = 10 is .497.

In comparing the variables that correlate significantly with the Bellugi-Klima total score, one finds little similarity. The correlations with the "C" Test, March 'O' scores were drastically different. (.71 in second year analysis, -.50 in first year analysis). In both analyses, there were significant correlations with six subtests of the Bellugi-Klima. However, in comparing those subtests, only one was the same. The WPPSI Verbal IQ score correlated at r = .56 in the first year group, in the second year group, the correlation between the WPPSI Performance IQ score and the Bellugi-Klima was -.57. The only similarity that existed between the two groups was the correlation with the Preschool Inventory (see Table 16 on page 36).

TABLE 44

VARIABLES THAT CORRELATE SIGNIFICANTLY
WITH THE NUMBER OF DAYS TYPED

VARIABLE		DAYS TYPED r	df
Bellugi-Klima	Subtest 8	-.48	11
Task Accomplishment	Shapes-Comprehension	.55	10
Attendance	Days Present	.55	11
	Days Absent	-.55	11
Room Observation	Art Activities	-.48	11
	Specific Language Activities	.48	11

Critical value of r, α = .10, two tail test, df=10, r=.497.
Critical value of r, α = .10, two tail test, df=11, r=.476.

TABLE 45

VARIABLES THAT CORRELATE SIGNIFICANTLY
WITH TOTAL MINUTES

VARIABLE		TOTAL MINUTES r	df
"C" Test	March 'E' Score	.52	11
	May 'E' Score	.48	11
	May 'O' Score	-.52	11
Task Accomplishment	Shapes-Comprehension	.60	10
	Shapes-Production	.67	11
Typing Booth	Phase Reached	.49	11
Room	Specific Language Activities	.51	11
Observation	Typing & Testing	.59	11

Critical value of r, α = .10, two tail test, df=10 is .476.
Critical value of r, α = .10, two tail test, df=11 is .497.

TABLE 46

VARIABLES THAT CORRELATE SIGNIFICANTLY
WITH AVERAGE MINUTES

VARIABLE		AVERAGE MINUTES r	df
Cincinnati	Manipulation Board	-.60	10
Self-Concept Interview	May	.67	11
Bellugi-Klima	Subtest 13	.53	11
Task Accomplishment	Color-Production	.55	11
Room Observation	Art Activities	.74	11

Critical value of r, α = .10, two tail test, df = 10 is .497.
Critical value of r, α = .10, two tail test, df = 11 is .476.

TABLE 47

VARIABLES THAT CORRELATE SIGNIFICANTLY
WITH HIGHEST PHASE REACHED

VARIABLE		HIGHEST PHASE REACHED r	df
Cincinnati	Task Initiation	.56	11
	Impulse Control (Low score desirable)	.58	11
Preschool Inventory	Subtest A	.67	11
	Subtest C_1	.57	10
	Subtest C_2	.79	10
	Total Score	.68	11
"C" Test	March 'N' Scores	-.77	11
Bellugi-Klima	Subtest 4	.56	11
	Subtest 6	.54	11
	Subtest 12	-.49	11
Task Accomplishment	Shapes-Production	.55	11
WPPSI	Verbal IQ	.49	11

Critical value of r, = .10, two tail test, df = 10 is .497.
Critical value of r, = .10, two tail test, df = 11 is .476.

The variables that correlated with Number of Days Typed in the second and first year analyses were entirely different. Not one variable correlated significantly with the Number of Days Typed in both analyses. The same conclusion was reached in the analysis of Total Minutes. The eight variables that correlated with Total Minutes in the First Year Analysis were different than the eight variables in the Second Year Analysis. Thirteen variables correlated significantly with Average Minutes in the first year analysis while only five variables correlated significantly in the second year analysis. There was only one variable common to both - the Color (Production) Subtest of the Task Accomplishment Inventory. In examining the Highest Phase Reached and its significant correlates in both years, there was only a slight degree of similarity. Thirteen variables correlated significantly with Highest Phase Reached in the first year pupil analysis. In the second year pupil analysis, twelve variables correlated significantly with Highest Phase Reached. Subtests C_1, C_2 and Total Score of the Preschool Inventory were common to both analyses.

ROOM OBSERVATION

TABLE 48

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE READING AND LISTENING OBSERVATION

VARIABLE		READING & LISTENING	
		r	df
Cincinnati	Impulse Control (Low score desirable)	-.52	11
"C" Test	September 'E' Scores	.50	
Bellugi-Klima	Subtest 5	-.60	1[illegible]

Critical value of r, α = .10, two tail test, df = 8 is .5[illegible].
Critical value of r, α = .10, two tail test, df = 11 is .476.

TABLE 49

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH ART ACTIVITIES OBSERVATION

VARIABLE		ART ACTIVITIES r	df
"C" Test	September 'E' Score	-.61	8
Self-Concept Interview	May	.67	11
Bellugi-Klima	Subtest 7	-.58	11
	Subtest 9	.67	11
	Subtest 15	-.54	11
Task Accomplishment	Color-Production	.52	11
Attendance	Present	-.62	11
	Absent	+.62	11
WPPSI	Verbal IQ	-.49	11

Critical value of r, α = .10, two tail test, df = 8 is .549.
Critical value of r, α = .10, two tail test, df = 11 is .476.

TABLE 50

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH SMALL MANIPULATIVE TOYS OBSERVATION

VARIABLES		SMALL MANIPULATIVE TOYS r	df
Cincinnati	Curiosity Box	-.62	10
Preschool Inventory	Subtest 'B'	-.52	11
"C" Test	May-No Response Scores	-.56	11
Self-Concept Interview	May	.68	11
Bellugi-Klima	Subtest 9	.62	11
	Subtest 11	-.54	11
Behavior Rating Form	Self-Concept	-.56	11
Room Observation	Specific Language Activities	.68	11

Critical value of r, α = .10, two tail test, df = 10 is .497.
Critical value of r, α = .10, two tail test, df = 10 is .476.

TABLE 51

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH BLOCKS OBSERVATION

VARIABLES		BLOCKS r	BLOCKS df
Preschool Inventory	Subtest 'B'	.49	11
"C" Test	May-No Response Scores	-.56	11
Self-Concept Interview	May	.68	11
Bellugi-Klima	Subtest 9	.62	11
	Subtest 11	-.54	11
Behavior Rating Form	Self-Concept	-.56	11
Room Observation	Small Manipulative Toys	.58	11

Critical value of r, α = .10, two tail test, df = 11 is .476.

TABLE 52

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH SPECIFIC LANGUAGE ACTIVITIES OBSERVATION

VARIABLES		SPECIFIC LANGUAGE ACTIVITIES r	SPECIFIC LANGUAGE ACTIVITIES df
"C" Test	May 'N' Score	.75	11
Self-Concept Interview	May Score	-.52	11
WPPSI	Performance IQ	.50	11

Critical value of r, = .10, two tail test, df = 11 is .476.

TABLE 53

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH
TESTING OR TYPING OBSERVATION

VARIABLE		TESTING OR TYPING	
		r	df
Bellugi-Klima	Subtest 5	.58	11
Task Accomplishment	Shapes-Comprehension	.66	10
	Shapes-Production	.65	11

Critical value of r, α = .10, two tail test, df = 10 is .497.
Critical value of r, α = .10, two tail test, df = 11 is .476.

TABLE 54

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH
PASSIVE OBSERVER OBSERVATION

VARIABLE		PASSIVE OBSERVER	
		r	df
"C" Test	March 'O' Scores	.59	11
Bellugi-Klima	Subtest 4	.52	11
	Subtest 7	.75	11
	Subtest 9	-.63	11
Task Accomplishment	Shapes-Production	-.61	11
WPPSI	Verbal IQ	-.50	11
	Performance IQ	-.54	11
	Total IQ	-.61	11

Critical value of r, α = .10, two tail test, df = 11 is .476.

TABLE 55

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH OTHER OBSERVATION

VARIABLE		OTHER r	OTHER df
Cincinnati	Task Initiation	-.58	11
Preschool Inventory	Subtest A	-.72	11
	Subtest B	-.69	11
	Subtest C_2	-.53	10
	Total Score	-.76	11
Bellugi-Klima	Subtest 6	-.59	11
	Subtest 10	.48	11
Task Accomplishment	Number-Counting	-.53	11
	Shapes-Comprehension	-.50	10
	Relative Location-Production	-.51	11
Behavior Rating Form	Behavior	-.62	11

Critical value of r, α=.10, two tail test, df=10 is .497
Critical value of r, α=.10, two tail test, df=11 is .476

In examining the significant correlates of the eight areas of the Room Observation, conclusions similar to those found in the examination of the Typing Booth are reached. The variables that correlated significantly with these areas of observation are not the same in the two analyses. The reasons for the differences are not readily apparent.

TABLE 56

MEAN COMPARISON OF FIRST AND SECOND YEAR PUPILS ON THE ROOM OBSERVATION VARIABLES*

ROOM OBSERVATION	PERCENTAGES FIRST YEAR	PERCENTAGES SECOND YEAR
Reading and Listening	22.1	26.1
Art Activities	25.1	28.1
Blocks	18.4	14.4
Small Manipulative Toys	16.1	13.0
Specific Language Activities	1.4	1.4
Typing or Testing	6.8	8.2
Passive Observer	4.0	2.7
Other	6.1	6.1

*The means reported are means of the percentages of time the individuals spent at the various activities. They are not means of the time the groups as a whole spent at the various activities.

As shown by Table 56, there is not a large difference in the percentages of time spent by the two groups at the various activities. Yet, with regard to the correlates of the various areas of the Room Observation, there is a difference in the two groups.

The significant correlates of the Reading and Listening are different in the two groups. With the Art Activities there were two common variables, Subtests 7 and 9 of the Bellugi-Klima; however, Subtest 7 correlated positively in the first analysis and negatively in the second analysis.

In the investigations of the correlates of the Small Manipulative Toys and Specific Language Activities, no common correlates were found. The Blocks Observation had one common correlate, Subtest 9 of the Bellugi-Klima.

Testing and Typing, Passive Observer, and Other Observations followed the above pattern. There were no common correlates of the various activities in the two groups.

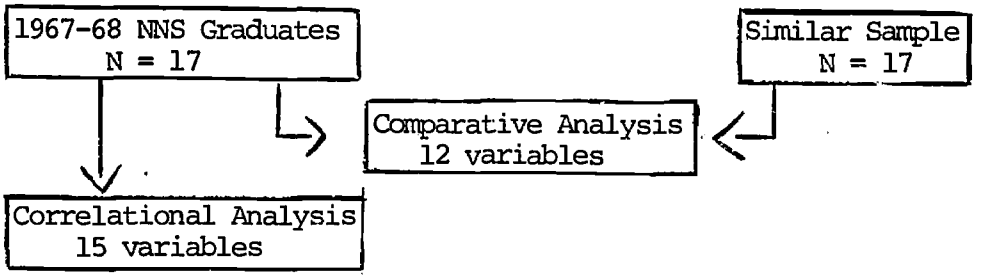
SECTION SEVEN

The performance of the available New Nursery School graduates and a comparison group of cultural and sociological background similar to the experimental group (1964-64 to 1967-68) is analyzed in this section. This comparison group will be referred to in the tables as Similar Sample. Chart 3 on the next page provides a diagramatic summary of these analyses.

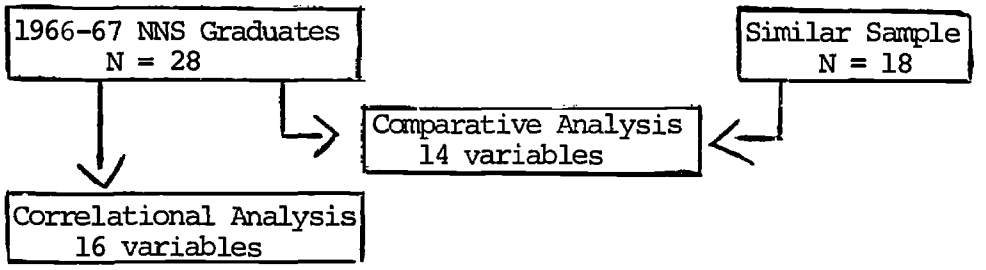
CHART 3

ANALYSES OF FOLLOW-UP DATA
ON NEW NURSERY SCHOOL AND COMPARISON GROUPS

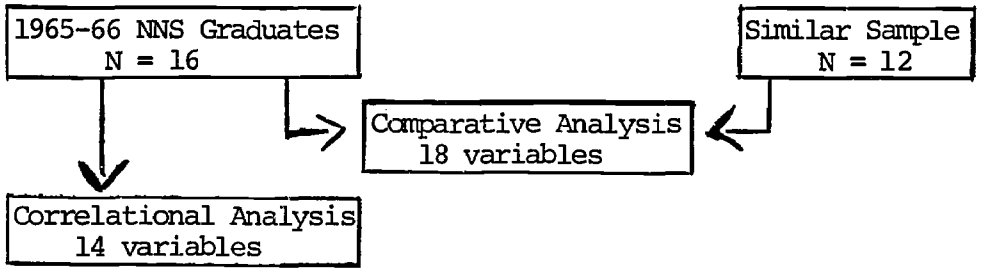
1967-68 Graduates and Comparison
(Children were in kindergarten)



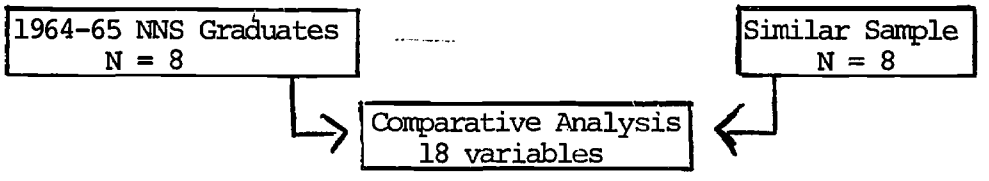
1966-67 Graduates and Comparison
(Children were in First Grade)



1965-66 Graduates and Comparison
(Children were in Second Grade)



1964-65 Graduates and Comparison
(Children were in Third Grade)



ANALYSIS OF PERFORMANCES OF 1967-68 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

At the time of testing, the 1967-68 groups were enrolled in kindergarten. Seventeen New Nursery School graduates and seventeen members of the Similar Sample were available for testing. The analysis to follow provides a comparison between the two groups on twelve variables which are pertinent to the analysis.

AGE

TABLE 57

MEAN AGE OF NEW NURSERY SCHOOL AND SIMILAR SAMPLE

1967-68 New Nursery School	72.6 Months (4.17)
1967-68 Similar Sample	74.3 Months (4.25)

ATTENDANCE

TABLE 58

MEAN NUMBER OF DAYS IN ATTENDANCE BY NEW NURSERY SCHOOL AND SIMILAR SAMPLE

GROUP	DAYS PRESENT	DAYS ABSENT	TOTAL	N
1967-68 New Nursery School	116 (19)	15 (13.7)	131 (9.9)	17
1967-68 Similar Sample	106.5 (31.4)	12.3 (8.5)	118.8 (34.0)	17

Follow up attendance data was for the first three quarters of the school year. Variance in total days attendance occurred when a child enrolled late or left early because the family worked in spring planting or fall harvest.

CLASS STANDING VARIABLES

During the 1967-68 school year, each member of the New Nursery School and comparison groups was rated by his teacher on six variables: Reading, Arithmetic, Independence, Attention Span, Appropriate Behavior and Total. The teacher indicated whether she thought the child was in the top 10%, top 20%, middle 40%, lower 20% or lower 10% of his class on each of the six variables. These ratings were changed to a 5, 4, 3, 2, 1 scale where 5 was indicative of a top 10% rating. An examination of the New Nursery School and the Similar Sample on the six variables was completed by utilizing the median test. The median test is an application of the chi square test of independence. Yates' correction for continuity was applied to each chi square test.

TABLE 59

ANALYSIS OF THE 1967-68 NEW NURSERY SCHOOL AND SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLE	GROUP	MEDIAN	X^2
Reading	New Nursery School	2.33	.09
	Similar Sample	2.08	
Arithmetic	New Nursery School	3.13	1.18
	Similar Sample	2.12	
Independence	New Nursery School	3.14	1.39
	Similar Sample	2.33	
Attention Span	New Nursery School	3.05	0
	Similar Sample	2.83	
Appropriate Behavior	New Nursery School	3.4	0
	Similar Sample	3.13	
Total	New Nursery School	3.2	1.05
	Similar Sample	2.38	

Critical Value of $X^2 = 3.84$ ($df = 1, \alpha = .05$)

Although there were no significant differences between the medians of the two groups, the reader should notice that on every variable, the median of the New Nursery School group was higher than the median of the comparison group, indicating a possible trend. If 'N' had been 60 or 70, this same trend would have produced significant chi squares for arithmetic, independence and total.

SELF-CONCEPT INTERVIEW SCORES

TABLE 60

ANALYSIS OF SELF-CONCEPT INTERVIEW
MEAN SCORES

GROUP	$\bar{X}$	N	t	df
1967-68 New Nursery School	26.13 (6.6)	15	-.56	30
1967-68 Similar Sample	27.4 (5.7)	17		

Critical value of t, α = .05, two tail test, df = 30 is ± 2.04

BEHAVIOR RATING FORM

TABLE 61

ANALYSIS OF BEHAVIOR RATING FORM
MEAN SCORES

GROUP	$\bar{X}$	N	t	df
1967-68 New Nursery School	34.1 (6.5)	17	.85	32
1967-68 Similar Sample	32.1 (7.4)	17		

Critical value of t, α = .05, two tail test, df = 32 is ± 2.04

There was no significant difference between the mean scores of the New Nursery School and comparison groups on either the Behavior Rating Form: Self-Concept or Self-Concept Interview scores.

METROPOLITAN READINESS TEST

There were no Metropolitan Readiness Scores available on the 1967-68 comparison group.

Metropolitan scores were available for thirteen New Nursery School graduates. By averaging the thirteen raw scores and then

converting to a percentile score, it was found that the mean percentile score for this group was 51. The percentile scores ranged from 13 to 79.

CORRELATIONS

Correlations were computed between all possible pairs of variables within the New Nursery School group. Listed below are those correlations of special interest.

TABLE 62

INTERCORRELATIONS BETWEEN CLASS STANDING VARIABLES AND METROPOLITAN READINESS SCORES

CLASS STANDING VARIABLES	METROPOLITAN	df
Reading	.78*	11
Arithmetic	.82*	11
Independence	.73*	11
Attention Span	.64*	11
Appropriate Behavior	.51	11
Total	.69*	11

Critical value of the correlation coefficient, $\alpha = .05$, two tail test, df = 11, is .55

*Significant

The correlations presented in Table 62 indicate that the teachers' rating of the class standing of the New Nursery School graduates has some validity. Appropriate Behavior was the only variable that did not correlate significantly with the score of the Metropolitan Readiness Test.

Included in the 1967-68 analysis were two indices of self-concept which were obtained through the use of the Behavior Rating Form: Self-Concept and the Self-Concept Interview Scale. The relationship of performance on these instruments to performance on the Metropolitan Readiness Test for the New Nursery School group is provided in Table 63.

TABLE 63

INTERCORRELATIONS BETWEEN SELF-CONCEPT INTERVIEW, BEHAVIOR RATING FORM: SELF-CONCEPT AND METROPOLITAN READINESS SCORES

	SELF-CONCEPT INTERVIEW	BEHAVIOR RATING FORM	METROPOLITAN READINESS
Self-Concept Interview		r = .24 df = 13	r = .04 df = 10
Behavior Rating Form			r = .47 df = 11
Metropolitan Readiness			

Critical value of r, α = .05, one tail test, df = 13 is .44
Critical value of r, α = .05, one tail test, df = 11 is .476
Critical value of r, α = .05, one tail test, df = 10 is .50

Although there were no significant correlations among the three variables, one can conclude, in a practical sense, that the Behavior Rating Form: Self-Concept was more highly correlated with the Metropolitan Readiness Test than was the Self-Concept Interview score. Authorities contend that one's self-concept is correlated with one's academic standing. If one's self-concept is actually correlated with academic standing, the value of the Self-Concept Interview is in question. The correlations among these three or highly similar variables will be reported in each of the five subsequent stages of this report.

Table 64 presents further data concerning the above-mentioned measures of self-concept, particularly as they relate to class standing. These findings raise even more questions about the worth of the Self-Concept Interview. Significant correlations existed, however, between the Behavior Rating: Self-Concept score and all but one of the class standing variables.

TABLE 64

INTERCORRELATIONS OF THE BEHAVIOR RATING FORM: SELF-CONCEPT AND THE SELF-CONCEPT INTERVIEW WITH THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLE	BEHAVIOR RATING: SELF-CONCEPT		SELF-CONCEPT INTERVIEW	
	r	df	r	df
Reading	.40	13	-.06	11
Arithmetic	.53*	13	.11	11
Independence	.78*	15	.26	13
Attention Span	.71*	15	.37	13
Appropriate Behavior	.58*	15	.45*	13
Total	.68*	14	.23	13

Critical values of r, α = .05, one tail test, at various df's are: df = 11, r = .476, df = 13, r = .441, df = 14, r = .426, df = 15, r = .412

*Significant

ANALYSIS OF PERFORMANCES OF 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

In analyzing the data available on the 1966-67 New Nursery School graduates and the 1966-67 comparison group, the investigators had fourteen pertinent variables to examine. In that year the experimental group was divided into two sections. In one section of the school, major emphasis was placed on body coordination and motor training, while in the other section major attention was given to concept formation and language development. Both of these variables may be reflected in the data presented for this group. Data were available on twenty-eight members of the New Nursery School group and eighteen members of the Similar Sample.

AGE

TABLE 65

MEAN AGE OF NEW NURSERY SCHOOL AND SIMILAR SAMPLE

1966-67 New Nursery School	83.1 Months (6.76)
1966-67 Similar Sample	87.4 Months (6.45)

ATTENDANCE

TABLE 66

MEAN NUMBER OF DAYS IN ATTENDANCE BY NEW NURSERY SCHOOL AND SIMILAR SAMPLE

GROUP	DAYS PRESENT	DAYS ABSENT	TOTAL	N
1966-67 New Nursery School	123 (14.7)	9 (6.9)	132 (10.9)	28
1966-67 Similar Sample	123 (22.5)	10 (5.1)	133 (23.5)	18

CLASS STANDING VARIABLES

The method of coding and analysis of these six variables was provided in the discussion of the 1967-68 analysis. An identical form of analysis was employed for the 1966-67 groups.

TABLE 67

ANALYSIS OF THE 1966-67 NEW NURSERY SCHOOL AND SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLE	GROUP	MEDIAN	X^2
Reading	New Nursery School	2.7	1.78
	Similar Sample	4.6	
Arithmetic	New Nursery School	2.8	2.85
	Similar Sample	4.6	
Independence	New Nursery School	3.2	1.64
	Similar Sample	4.0	
Attention Span	New Nursery School	3.0	2.38
	Similar Sample	4.5	
Appropriate Behavior	New Nursery School	3.6	1.46
	Similar Sample	4.5	
Total	New Nursery School	3.1	2.00
	Similar Sample	4.2	

Critical value of $X^2 = 3.84$ ($df = 1$, $\alpha = .05$)

No significant differences existed between the median values of the New Nursery School and the Similar Sample on the class standing variables, the same finding as that of the 1967-68 groups. However, on every variable, the comparison group has a higher median than the New Nursery School group, a finding in complete contrast to the 1967-68 analysis.

SELF-CONCEPT INTERVIEW SCORES

TABLE 68

ANALYSIS OF SELF-CONCEPT INTERVIEW
MEAN SCORES

GROUP	$\bar{X}$	N	t
1966-67 New Nursery School	28.63 (6.15)	24	-.36
1966-67 Similar Sample	29.31 (5.0)	16	df=38

Critical value of t, α= .05, two tail test, df = 38 = 2.04

There was no significant difference between the means of the New Nursery School and the Similar Sample on the Self-Concept variables as indicated in Tables 68 and 69.

BEHAVIOR RATING FORM

TABLE 69

ANALYSIS OF BEHAVIOR RATING FORM
MEAN SCORES

GROUP	Self-Concept			Behavior		
	$\bar{X}$	N	t	$\bar{X}$	N	t
1966-67 New Nursery School	34.1 (7.28)	27	-1.31	74.6 (10.8)	26	-.90
1966-67 Similar Sample	36.8 (5.46)	18	df=43	77.8 (11.9)	18	df=42

Critical value of t, α= .05, two tail test, df = 43 or 42 = ±2.02

There was no significant difference between the mean scores of the New Nursery School and the Similar Sample on the Self-Concept and Behavior variables of the Behavior Rating Form.

TABLE 70

ANALYSIS OF CALIFORNIA
ACHIEVEMENT TEST SCORES

GROUP	MEAN GRADE PLACEMENT SCORE	N	t
1966-67 New Nursery School	1.60 (.26)	18	-3.3
1966-67 Similar Sample	1.99 (.39)	16	df=32

Critical value of t, α=.05, two tail test, df=32 is ±2.04

The 't' test was used to analyze the difference of the mean grade placement scores of the New Nursery School and the Similar Sample. A significant difference was found indicating that the comparison group had a mean grade placement score which was significantly higher than that of the New Nursery School. The actual grade placement, at the time of testing, for the comparison and New Nursery School groups was 1.86 and 1.79, respectively, a difference which could explain a part of the difference which occurred in the earned grade placement scores.

CORRELATIONS

In analyzing the correlations that existed in the 1966-67 New Nursery group, the investigators examined the intercorrelations of sixteen pertinent variables. Those correlations of importance are reported.

TABLE 71

INTERCORRELATIONS OF CLASS STANDING VARIABLES WITH CALIFORNIA ACHIEVEMENT TEST GRADE PLACEMENT SCORES

CLASS STANDING VARIABLES	CALIFORNIA ACHIEVEMENT TEST GRADE PLACEMENT	df
Reading	r = .44*	15
Arithmetic	r = .38	15
Independence	r = .28	15
Attention Span	r = .39	15
Appropriate Behavior	r = .38	15
Total	r = .32	15

Critical value of r, α = .05, one tail test, df = 15 is .426

*Significant

The only class standing variable that correlated significantly with the grade placement score on the California Achievement Test was reading.

TABLE 72

INTERCORRELATIONS OF THE BEHAVIOR RATING FORM: SELF-CONCEPT, THE SELF-CONCEPT INTERVIEW AND CALIFORNIA ACHIEVEMENT TEST GRADE PLACEMENT SCORES

	BEHAVIOR RATING FORM: SELF-CONCEPT	SELF-CONCEPT INTERVIEW	CALIFORNIA GRADE PLACEMENT SCORE
Behavior Rating Form: Self-Concept		r = .26 df = 21	r = .13 df = 15
Self-Concept Interview			r = .03 df = 15

Critical value of r, α = .05, one tail test, df = 21 is .35
Critical value of r, α = .05, one tail test, df = 15 is .41

No significant correlations were found to exist among the three variables.

TABLE 73

INTERCORRELATIONS OF THE BEHAVIOR RATING FORM: SELF-CONCEPT AND BEHAVIOR, AND THE SELF-CONCEPT INTERVIEW WITH THE CLASS STANDING VARIABLES

	BEHAVIOR RATING FORM:				SELF-CONCEPT INTERVIEW	
	SELF-CONCEPT		BEHAVIOR			
CLASS STANDING VARIABLES	r	df	r	df	r	df
Reading	.34*	24	.40*	23	.24	20
Arithmetic	.43*	24	.45*	23	.20	20
Independence	.34*	25	.27	24	.11	21
Attention Span	.61*	25	.62*	24	.26	21
Appropriate Behavior	.54*	25	.19	24	.00	21
Total	.65*	25	.57*	24	.36*	21

Critical values of r, $\alpha = .05$, one tail test, at various df's are: df = 20, r = .360, df = 21, r = .352, df = 23, r = .337, df = 24, r = .330, df = 25, r = .323

*Significant

The findings of this analysis agree with the findings of the 1967-68 analysis. Both subtests of the Behavior Rating Form correlate more highly with the class standing variables than did the Self-Concept Interview.

ANALYSIS OF PERFORMANCES OF 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

The analysis of the 1965-66 New Nursery School graduates and the 1965-66 comparison group included the examination of eighteen variables. Data were available on sixteen New Nursery School graduates and twelve members of the comparison group.

AGE

TABLE 74

MEAN AGE OF NEW NURSERY SCHOOL AND SIMILAR SAMPLE

1965-66 New Nursery School	97.7 Months (6.4)
1965-66 Similar Sample	96.0 Months (3.8)

ATTENDANCE

TABLE 75

MEAN NUMBER OF DAYS IN ATTENDANCE BY NEW NURSERY SCHOOL AND SIMILAR SAMPLE

GROUP	DAYS PRESENT	DAYS ABSENT	TOTAL	N
1965-66 New Nursery School	126.7 (6.13)	7.3 (5.03)	134 (2.61)	16
1965-66 Similar Sample	124.5 (7.15)	10.5 (6.97)	135 (1.29)	11

CLASS STANDING VARIABLES

The analysis performed on the class standing variables for the 1965-66 groups parallels the analysis performed on both the 1966-67 and 1967-68 groups.

TABLE 76

ANALYSIS OF THE 1965-66 NEW NURSERY SCHOOL AND SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLE	GROUP	MEDIAN	X^2,df=1
Reading	New Nursery School	2.40	.55
	Similar Sample	2.90	
Arithmetic	New Nursery School	2.60	.88
	Similar Sample	2.93	
Independence	New Nursery School	2.75	.17
	Similar Sample	2.83	
Attention Span	New Nursery School	2.80	.01
	Similar Sample	3.00	
Appropriate Behavior	New Nursery School	3.33	.06
	Similar Sample	4.50	
Total	New Nursery School	2.58	.17
	Similar Sample	3.00	

SELF-CONCEPT INTERVIEW SCORES

TABLE 77

ANALYSIS OF SELF-CONCEPT INTERVIEW
MEAN SCORES

GROUP	$\bar{X}$	N
1965-66 New Nursery School	28.9	15 (4.93)
1965-66 Similar Sample	28.9	11 (5.79)

There is no difference in the mean scores of the New Nursery School group and the Similar Sample on the Self-Concept Interview scores.

BEHAVIOR RATING FORM

TABLE 78

ANALYSIS OF BEHAVIOR RATING FORM
MEAN SCORES

GROUP	SELF-CONCEPT			BEHAVIOR		
	$\bar{X}$	N	t	$\bar{X}$	N	t
1965-66 New Nursery School	33.3 (5.48)	15	-.84	73.9 (11.0)	15	t = -.18
1965-66 Similar Sample	35.2 (4.95)	10	df=23	74.7 (8.51)	10	df = 23

Critical value of t, $\alpha = .05$, two tail test, df = 23 is 2.07

There was no significant difference between the means of the New Nursery School and Similar Sample on the Self-Concept and Behavior sub-tests of the Behavior Rating Form.

TABLE 79

ANALYSIS OF CALIFORNIA
ACHIEVEMENT TEST SCORES

GROUP	MEAN GRADE PLACEMENT SCORE	N	t
1965-66 New Nursery School	2.6 (.70)	14	1.48
1965-66 Similar Sample	2.2 (.56)	11	df=23

Critical value of t, α = .05, one tail test, df = 23 is 1.71

Although no significant difference existed between the mean grade placement scores of the two groups, the mean grade placement score of 2.6 for the New Nursery School is .4 of a grade higher than the mean grade placement of the Similar Sample.

CORRELATIONS

The intercorrelations of fourteen variables that existed within the 1965-66 New Nursery School group were examined. Reported below are those correlations deemed important by the investigators.

TABLE 80

INTERCORRELATIONS OF CLASS STANDING VARIABLES WITH CALIFORNIA ACHIEVEMENT TEST GRADE PLACEMENT SCORES

CLASS STANDING VARIABLES	CALIFORNIA ACHIEVEMENT TEST GRADE PLACEMENT	df
Reading	r = .350	11
Arithmetic	r = .480*	11
Independence	r = .440	11
Attention Span	r = .240	11
Appropriate Behavior	r = .472	11
Total	r = .410	11

Critical value of r, α = .05, one tail test, df = 11 is .476

*Significant

Although several correlations approached the critical value, only one, arithmetic, exceeded the critical value.

TABLE 81

INTERCORRELATIONS OF THE BEHAVIOR RATING FORM: SELF-CONCEPT, THE SELF-CONCEPT INTERVIEW AND CALIFORNIA ACHIEVEMENT TEST GRADE PLACEMENT SCORES

	BEHAVIOR RATING FORM: SELF-CONCEPT	SELF-CONCEPT INTERVIEW	CALIFORNIA GRADE PLACEMENT SCORE
Behavior Rating Form: Self-Concept		-.16 df = 13	r = .04 df = 13
Self-Concept Interview			r = .05 df = 11

Critical value of r, α = .05, one tail test, df = 13 is .441
Critical value of r, α = .05, one tail test, df = 11 is .476

No significant correlations were found to exist among the three variables considered in the above table.

TABLE 82

INTERCORRELATIONS OF THE BEHAVIOR RATING FORM: SELF-CONCEPT AND BEHAVIOR, AND THE SELF-CONCEPT INTERVIEW WITH THE CLASS STANDING VARIABLES

	BEHAVIOR RATING FORM:				SELF-CONCEPT INTERVIEW	
	SELF-CONCEPT		BEHAVIOR			
CLASS STANDING VARIABLES	r	df	r	df	r	df
Reading	.41	13	.51*	13	.12	13
Arithmetic	.50*	13	.55*	13	.19	13
Independence	.67*	13	.64*	13	.09	13
Attention Span	.62*	13	.64*	13	.13	13
Appropriate Behavior	.30	13	.18	13	.05	13
Total	.52*	13	.62*	13	.03	13

Critical value of r, α = .05, one tail test, df = 13 is .44

*Significant

Both subtests of the Behavior Rating Form appear to possess substantial correlations with the class standing variables. The only class standing variable that is not significantly correlated with at least one subtest on the Behavior Rating Form is Behavior. The Self-Concept Interview scores bear no relationship to the class standing variables. These findings agree with the findings in both the 1967-68 and 1966-67 analyses.

ANALYSIS OF PERFORMANCES OF 1964-65 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

The 1964-65 analysis involved the comparison of eight 1964-65 New Nursery School graduates with eight members of the 1964-65 Similar Sample group. The examination of eighteen variables was included.

The 1964-65 graduates were the first graduates of the New Nursery School. The small number of subjects still available for analysis imposed restrictions upon the statistical analysis.

AGE

TABLE 83

MEAN AGE OF NEW NURSERY SCHOOL AND SIMILAR SAMPLE

1964-65 New Nursery School	107.6 Months (1.72)
1964-65 Similar Sample	108.7 Months (2.71)

ATTENDANCE

TABLE 84

MEAN NUMBER OF DAYS IN ATTENDANCE BY NEW NURSERY SCHOOL AND SIMILAR SAMPLE

GROUP	DAYS PRESENT	DAYS ABSENT	TOTAL
1964-65 New Nursery School	132.6 (3.1)	2.40 (3.1)	135 (0.0)
1964-65 Similar Sample	128.5 (2.71)	6.00 (2.58)	134.5 (1.26)

CLASS STANDING VARIABLES

The analysis performed on the class standing variables of the 1964-65 groups is identical to the analysis performed on the 1965-66, 1966-67, and 1967-68 groups.

TABLE 85

ANALYSIS OF THE 1964-65 NEW NURSERY SCHOOL AND SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLE	GROUP	MEDIAN	X^2, df=1
Reading	New Nursery School	3.5	.61
	Similar Sample	2.38	
Arithmetic	New Nursery School	3.5	.11
	Similar Sample	2.67	
Independence	New Nursery School	3.83	2.91
	Similar Sample	2.92	
Attention Span	New Nursery School	3.5	1.28
	Similar Sample	2.80	
Appropriate Behavior	New Nursery School	4.17	.11
	Similar Sample	3.75	
Total	New Nursery School	3.50	.47
	Similar Sample	2.88	

Critical value of X^2, $\alpha = .05$, df = 1 is 3.85

No significant differences were found to exist between the median score of the New Nursery School and the Similar Sample on the six class standing variables, although the median scores for the New Nursery School exceeded those of the Similar Sample on every variable.

SELF-CONCEPT INTERVIEW

TABLE 86

ANALYSIS OF SELF-CONCEPT INTERVIEW
MEAN SCORES

GROUP	$\bar{X}$	N
1964-65 New Nursery School	29.6 (3.00)	8
1964-65 Similar Sample	29.3 (4.52)	9

BEHAVIOR RATING FORM

TABLE 87

ANALYSIS OF BEHAVIOR RATING FORM
MEAN SCORES

GROUP	SELF-CONCEPT		BEHAVIOR	
	$\bar{X}$	N	$\bar{X}$	N
1964-65 New Nursery School	37.13 (8.77)	8	79.3 (12.8)	8
1964-65 Similar Sample	35.1 (2.88)	9	72.4 (12.17)	9

Due to limited sample size, no statistical test of significance was utilized concerning data from Self-Concept Interview and the Behavior Rating Form.

TABLE 88

ANALYSIS OF CALIFORNIA
ACHIEVEMENT TEST SCORES

GROUP	MEAN GRADE PLACEMENT SCORE	N
1964-65 New Nursery School	3.83 (.88)	4
1964-65 Similar Sample	3.58 (.98)	8

(California Achievement Tests for one public school were unavailable, which is the reason for the small 'N' in the experimental group).

Although statistical comparison was restricted due to limited sample size and missing data, one should not completely disregard the findings.

On each of the six class standing variables, the median score of the New Nursery School group exceeded the median score of the Similar Sample. On both areas of the Behavior Rating Scale, the mean performance of the New Nursery School group was observably superior to that of the comparison group. Finally, the mean grade placement score earned by the New Nursery School on the California Achievement Test exceeded that of the Similar Sample by one-fourth of a grade.

SUMMARY: TRENDS

At the time of analysis, there had been four groups of children who had graduated from the New Nursery School. The first group graduated in 1965 and the last group in 1968. As each group graduated, a comparison group was selected and follow-up data were collected on each graduating class and comparison group so that an on-going evaluation of the New Nursery School program might be achieved.

Since their entrance into public school, each member of the comparison and graduate groups has been rated by his classroom teachers as to his relative class standing. Although no significant differences were found among the class standings of the four groups, an interesting pattern exists. The 1967-68 graduates received a median rank superior to that of its comparison group on each of the six class standing variables. This finding was also evident in the 1964-65 analysis; however, for the 1966-67 and 1965-66 groups the findings were reversed. On each of the six class standing variables, the comparison groups received higher median ranks than the graduates.

Attendance reflects an important aspect of an individual's attitude toward school. Three of the four graduate groups show attendance superior to their comparison group. Mean differences in number of days absent range from 3.6 to 1.0 days. The 1967-68 comparison group's absence figure was better than the 1967-68 graduates by 3.7 days. This difference can be explained, however, by the presence of two extreme absentee figures in the 1967-68 graduate group. Their exclusion from this analysis would have reduced the mean absence figure by 4.3 days. In general, the findings indicate that the New Nursery School graduate groups are absent from school fewer days than their comparison groups.

No significant differences were found to exist between the graduate groups and comparison groups on the Self-Concept Interview scores and the two subtests of the Behavior Rating Form: Self-Concept and Behavior. Numerical differences vacillated from year to year and from one to another with no consistent pattern being evident.

Members of the 1964-65, 1965-66, and 1966-67 graduate and comparison groups had taken the California Achievement Test The 1966-67 comparison group received a mean grade placement score significantly higher than the graduates. The 1965-66 and 1964-65 graduates, however, earned mean grade placement scores that were higher than the comparison groups. The 1967-68 graduates

were administered the Metropolitan Readiness Test but there were no Metropolitan scores available on their comparison group. The New Nursery School graduates received a mean percentile rank of fifty-one.

The correlations between the Self-Concept Interview scores and the Behavior Rating Form: Self-Concept were obtained for the 1967-68, 1966-67, and 1965-66 groups but the sample size limited a meaningful analysis in the 1964-65 groups. In each of the three groups for whom data were available, the findings indicate that the two measures of self-concept are not related. The two measures of self-concept were also correlated with the California and Metropolitan scores in the belief that a correlation between self-concept and school achievement would be indicative of the instruments' validity. Although no significant correlations were obtained, the correlation coefficients involving the Behavior Rating Form's Self-Concept scores were higher than those obtained with the Self-Concept Interview. The data derived suggest serious questions concerning the value of the Self-Concept Interview in its present form.

SECTION EIGHT

DISCUSSION

Discussion of the data and analyses will follow the same general order of presentation as the analyses -- comparative, correlational, and logitudinal studies. In addition, there will be a section on observations of progress in behavior areas that do not lend themselves to quantification.

Included in this discussion are observations and recommendations drawn from experiences at the New Nursery School in curriculum development, teaching, and teacher training, which reflect to a degree the findings of the present study but which are not directly or solely based on those data.

DISCUSSION OF COMPARATIVE ANALYSES

CINCINNATI AUTONOMY TEST BATTERY

1. MOTOR CONTROL SUBTEST

One of the areas of human behavior in which there are supposed to be marked, persistent differences between the advantaged and disadvantaged child is that of motor control of impulsive action.

This difference has been documented in the literature (Maccoby, *et al*, 1965; Sigel and McBane, 1965) and replicated in recent Head Start research (Sarason, University of Washington, no date).

The Impulse Control Subtest of the Cincinnati Autonomy Test Battery is a measure of the child's ability to control motor activity when the task demands it. On this measure administered at the end of the school year, the New Nursery School First Year children scored significantly poorer than HE Preschool First Year; there was no difference in the means for the second year children, indicating that the New Nursery

School experience was effective in lessening these differences.

2. CURIOSITY SUBTESTS

The literature regarding the presence or lack of curiosity, inquisitiveness, and initiative in young disadvantaged children was mixed. Banta (1966) cited some evidence for a lack of curiosity, but this lack was not found in a recent Head Start study (University of Washington). In the present study, there was a significant difference in favor of the advantaged comparison groups on only one of the measures of curiosity, the Manipulation Board. That difference existed only for the first year children. On Task Initiation, the New Nursery School First and Second Year children scored higher than did their comparison groups. On the Curiosity Box, there were no significant differences. These instruments were administered in May, 1969, at the end of the school year.

Two conclusions which might be drawn from the result of administering these instruments in May, 1969, are:

**Differences between advantaged and disadvantaged children in curiosity, inquisitiveness, and initiative are not great at ages three, four, and five.

**The New Nursery School experience, emphasizing exploration, experimentation, and child initiation of tasks is effective in lessening differences that do exist.

On Innovative Behavior (Dog and Bone), the New Nursery School First Year children scored slightly below their comparison group and New Nursery School Second Year children above their comparison group, indicating that the New Nursery School experience may be fostering innovative behavior and inventiveness.

Several subtests of the CATB are being used in research projects. At the University of Washington they are being used to compare four year old Head Start children with controls while at the University of Louisville they are employed to investigate the effects of different types of intervention programs. In the two tables which follow, data on the performance of New Nursery School and Home Economics Preschool children is added for comparison purposes to previously reported data from another source. The reader is cautioned that these tests are extremely complicated to score and there may be scoring differences.

The somewhat diametrically opposed demands of some of the subtests of the CATB are probably typical of many of the demands made on the child by society, and by the school in

TABLE 11

DOG AND BONE (INVENTIVENESS)
MEANS BY PROGRAMS

Program	Fall	Spring
Bereiter-Engelmann	3.21	4.19
DARCEE	3.58	6.36[b]
Montessori	4.06	5.61
Traditional	3.30	4.23
Controls	4.06	4.97

[b]DARCEE is greater than Bereiter-Engelmann and Traditional.

[1]

	Spring 1969
New Nursery School First Year (3 and 4 year olds)	3.1
New Nursery School Second Year (4 and 5 year olds)	7.2
Home Economics Preschool First Year	3.6
Home Economics Preschool Second Year	5.8

[1]Taken from: Office of Economic Opportunity, Experimental Variation of Head Start Curricula: A Comparison of Current Approaches, Progress Report No. 5, Psychology Department, University of Louisville, Louisville, Kentucky, p. 27.

TABLE 9

CURIOSITY BOX TEST - ACTIVITY
MEANS BY PROGRAMS

Program	Fall	Spring
Bereiter-Engelmann	17.72	18.06[b]
DARCEE	14.98	17.81[b]
Montessori	19.76	18.67[b]
Traditional	17.32	17.15
Controls	16.59	14.09

[b]Montessori, Bereiter-Engelmann, and DARCEE are greater than controls.

[1]

	Spring 1969
New Nursery School First Year	19.7
New Nursery School Second Year	13.7
Home Economics Preschool First Year	19.3
Home Economics Preschool Second Year	19.1

[1]Taken from: Office of Economic Opportunity, Experimental Variation of Head Start Curricula: A Comparison of Current Approaches, Progress Report No. 5, Psychology Department, University of Louisville, Louisville, Kentucky, p. 25.

particular. In certain tasks, innovation, creativity, and inquisitiveness are valued whether the task involves motor activity or intellectual activity. At other times, the child must restrain those impulses and do simply what he is told. Perhaps the child's biggest task may not be in doing one or the other, but in doing the appropriate one at the appropriate time. He must somehow learn to make the right decision about whether convergent or divergent thinking is most appropriate to the task at hand.

3. FIELD INDEPENDENCE SUBTEST

One subtest of the CATB, Field Independence, evaluated the child's ability to perceive embedded figures. There was a significant difference in favor of the advantaged group of first year students on this instrument. The difference was not significant for the second year students, but a mean difference in favor of the advantaged group still existed. One can conclude that there are differences between the two groups to begin with, and that this difference persisted in spite of New Nursery School experience. This skill, involving as it does labeling, perception, the ability to separate negative and positive space, and to work with representations of objects is probably an important one for school success. Further investigation is indicated to see if the differences found in these groups are apparent in others, and if more effective curriculum materials can be devised to improve the performance of the New Nursery School children.

CATEGORIES TEST

The results of the "C" Test show a gradual improvement in the ability of New Nursery School children to categorize or group objects in a predetermined way, and to respond when asked a question.

TASK ACCOMPLISHMENT INVENTORY AND BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

During the program year 1968-69 two instruments were constructed, revised, and used to give more specific information about language and conceptual difference between advantaged and disadvantaged children, and the effectiveness of the New Nursery School methods and curricula in lessening the differences which

exist. The Task Accomplishment Inventories evaluated concepts of color, shape, number (counting), relative size, and relative location. The Bellugi-Klima Test of Grammatical Comprehension evaluated comprehension of key grammatical, structural, and lexical elements of the English language.

An expected finding was the competency of the advantaged child in these areas. Most of the children, pre-Sesame Street, and just past four years of age, could count accurately to between fifteen and twenty, and could identify and say the names of seven colors. They could also identify between two and three common geometric shapes, could comprehend most common terms of relative size and relative location, and could comprehend the essential elements of language.

Although pre-tests were not available, comparisons between first and second year students in the New Nursery School and their respective advantaged comparison groups revealed:

**There were differences between the performances of the advantaged and disadvantaged groups on both instruments, indicating that the language and conceptual items evaluated in these instruments are ones which differentiate between the two groups.

**The longer the children were in attendance at the New Nursery School, the less the mean difference between their performance and that of the advantaged group, indicating that the curriculum materials and methods used at the New Nursery School are effective to a degree in bringing performances of the experimental group closer to that of the advantages comparison group.

**On the Bellugi-Klima Test the New Nursery School children made particular progress on those items where curriculum emphasis was strong, and curriculum development well underway. Examples are Subtest 2 - Prepositions; Subtests 5 and 9 - Negative-Affirmative Statements; Subtest 12 - Comparatives such as more, less, and fewer; Subtest 14 - Conjunctions.

**The identification of specific content, processes, and skills whose presence seems to contribute to school success and whose lack seems to inhibit that success affords a better curriculum guide than does the overly general description often employed. Language development and concept formation are goals of most early childhood programs, especially those concerned with children from areas of poverty. But *what* elements of language and *which* concepts? This study suggested that a more precise

identification can be made, and that differences in performance relative to those elements thus identified can be lessened. The Bellugi-Klima Test of Grammatical Comprehension, in particular, indicated that the language deficiencies in the Head Start child are far deeper than vocabulary alone. They extend to structural and grammatical meanings as well. Methods and materials to lessen these differences have only begun to be constructed. Further study of the elements which comprise disadvantage is needed because only with identification comes the possibility that the disadvantage can be lessened.

PRESCHOOL INVENTORY AND WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

Two standardized measures of achievement and intelligence were used, the Preschool Inventory and the Wechsler Preschool and Primary Scale of Intelligence. On the Preschool Inventory, there was a consistent reduction in the mean differences between the New Nursery School First and Second Year pupils and their respective comparison groups. See page 99 for a comparison of the programs being evaluated at the University of Louisville (Miller, *et al*, 1970), with the comparisons made in the present study concerning performance on the Preschool Inventory.

One can make no assumptions concerning the WPPSI pretest mean IQ on the New Nursery School First Year children because thirteen of fifteen refused to be tested or could not comprehend directions. It is important, though, that in September, 1969, all of these children could take the test. Their total mean IQ of 98.8 certainly indicates considerable growth in the ability to be tested if not in IQ itself. No IQ gains were made by the second year children from fall, 1968, (IQ 91.4) to fall, 1969 (IQ 91.1). However, four children who were unable to take the test in 1968 were able to do so in 1969.

The WPPSI was given at the beginning of kindergarten (fall, 1969) to New Nursery School Second Year pupils and to a comparison group with a similar cultural and sociological background but with no preschool experience. The scores indicated that the New Nursery School children, even after three summer months absence from school, were performing better than the similar comparison group on all measures. Additional data on these groups, as on the other graduate and comparison groups, will be obtained as they progress through school.

TABLE 7

PRESCHOOL INVENTORY TEST
MEANS BY PROGRAMS

Program	Fall	Spring
Bereiter-Engelmann	26.33	39.06[b]
DARCEE	28.92[a]	40.98[b]
Montessori	25.21	37.55
Traditional	24.36	35.98
Controls	28.29	33.18

[a]DARCEE greater than Traditional.

[b]DARCEE and Bereiter-Engelmann greater than controls; DARCEE greater than Traditional.

[1]

	Spring 1969
New Nursery School - First Year	32.8
New Nursery School - Second Year	45.8
Home Economics Preschool - First Year	61.6
Home Economics Preschool - Second Year	66.8

[1]Taken from: Office of Economic Opportunity, Experimental Variation of Head Start Curricula: A Comparison of Current Approaches, Progress Report No. 5, Psychology Department, University of Louisville, Louisville, Kentucky, p.25.

DISCUSSION OF CORRELATION ANALYSES

With so many variables and intercorrelations examined, it is impossible to discuss each one. Therefore, only those which seem to have direct bearing on the problems under investigation, and have the most implication for curriculum planning and selection of activities for a Head Start classroom are discussed. Of particular concern are the data related to equipment and activities. Part of the present research involved identifying how classroom activities made available and their use affected children's performances on the evaluation instruments used.

The selection of equipment and activities to be made available and the use made of them is of utmost importance if children are to be allowed some choice of the learning activities in which they will participate. Descriptions of how these activities are used in the New Nursery School curriculum can be found in the published materials listed in the Introduction.

Intercorrelations of the percentages obtained on the room observations and the scores on the evaluation instruments reveal little consistent pattern. This is not surprising, since the New Nursery School program does not emphasize separate subject matter areas but uses all activities to help children achieve the specified objectives. For example, the child has opportunities to learn to count while he is having snacks, reading, arranging small manipulative toys, or playing outdoors, not in arithmetic period alone.

Also, children work at the activities at differing levels. One child working with Elementary Science Study Attribute Blocks (four shapes, four colors, two sizes) may apparently see no similarities or differences in the blocks but will be using them all indiscriminately to construct a house. Another child or the same child at a later date may be using the blocks to construct an intricate pattern, naming the shapes and colors as he works. He even might be deciding which piece is needed to complete a matrix started by the teacher. Each child brings a different mental structure to the learning situation. The learning which takes place is determined by the child's thinking processes as well as the materials and the teacher-learner interaction. He may seek practice in those skills he is just acquiring, as the babbling child practices with sounds, and may spend as much or more time mastering a skill or process as participating after mastery.

Of concern to the teacher and curriculum planner are certain intercorrelations between room observations and the evaluative instruments used. In the first year group, significant negative correlations were found between the per cent of time spent in block play and these instruments: Impulse Control, total score on the Preschool Inventory, Expected responses on the "C" Test, two subtests of the Bellugi-Klima, and the Color and Counting subtests of the Task Accomplishment Test. In view of the large number of preschools that give block play a prominent place in the daily program, some discussion of the negative correlations and lack of positive correlations with other instruments reported above seems in order. Several observations seem warranted:

**It is possible that the type of learning going on as children play with blocks is simply not reflected in the standardized intelligence test scores and tests of specific achievement, or it may not show up until later in the child's development.

**Those children who are younger, least verbal, and most motor-orientated select block play more often than the others.

**Teacher-child interaction in the block area is less than in other areas. Informal observation indicates that this is so. If there are no conflicts, teachers seldom intervene in the children's play with blocks.

**There is not enough specification of what children might learn from block play or in how blocks might best be used.

Certainly the data on block play for the second year children are different from those concerning the first year children and there are some positive correlations, as with Subtest B of the Preschool Inventory, but the value of such play is not apparent as currently employed. Nevertheless, it may well be that more careful thought concerning the learning possibilities inherent in block play, more precise specification of how this is likely to be promoted, and more planned teacher-child interaction to help language deficient children give verbal interpretation to what they are doing would increase the effectiveness of this activity.

Similarly, careful examination needs to be made of art activities and the learnings expected from them. In addition to the sensory, aesthetic, and creative aspects of this experience, correlates might be expected with other measures, since many children spend much time painting, drawing, and cutting. Only two positive correlations are common to the first and second year pupils -- the number of days absent, and subtest nine of the Bellugi-Klima (negative-affirmative statements with contractions). Not until the second year did an expected correlation with naming colors appear.

The correlates of the reading and listening observations are different for the first year and second year pupils. The only one that seemed to have meaning was with Expected responses on the "C" Test. As with the blocks and art activities there may be long range benefits, such as the enjoyment of books and reading, the realization that information is available from a printed page, and the ability to listen, that are not measured or do not show up in short term evaluations.

Examination of the data related to small manipulative toys such as puzzles, nesting cups, cubes, and Cuisenaire Rods which are used to help children learn many specific concepts and processes including shape, color, size, relative location, counting, and ordering, indicates that these may be very effective with first year pupils. Positive correlations existed with respect to the Curiosity Box; Subtests C_1 and C_2 of the Preschool Inventory; Expected responses on the "C" Test; two subtests of the Bellugi-Klima, five subtests of Task Accomplishment; and the Behavior portion of the Rating Form. These correlations did not exist with the second year pupils; in addition, their use of manipulative toys declined. It may be that the second year pupils are ready for more challenging activities involving these materials and for other entirely different activities. Note should be taken of the fact that the second year pupils actually increased their acquisition of specific content as measured by the Task Accomplishment Inventories. Perhaps some of the first year experiences were not assimilated and manifested until the second year, or even later. The same pattern holds concerning the Specific Language Activities.

The correlational analysis also indicated that being a passive observer related negatively to more measures for second year pupils than for first year children. There were also negative correlations for the older pupils concerning such activities as playing house, dancing, and playing with dolls. Therefore, consideration should be given to substituting activities which are likely to be more intellectually stimulating for the older children.

As with many other activities available to the children, the correlations involving the typing booth differ for the first year and second year children. These data indicate that the children approach this activity at varying levels and gain from it different things. Further evidence of this can be seen in the summary of the typing booth records found in the Appendix. Only one first year child out of fifteen was typing words at the end of the year, while six out of the thirteen second year children were typing words. The highest phase reached is an indicator of achievement in the typing booth activities (see page 20 for a description). Subtests C_1, C_2, and Total Score on the Preschool Inventory are correlates common to high achievement in the typing booth for both first and second year students.

The Verbal IQ of the WPPSI correlated significantly with the highest phase reached for the second year pupils, indicating that those pupils who did well in the typing booth also did well on standardized achievement and verbal intelligence tests.

Four typing booth activities were analyzed for both the first and second year pupils. In six out of the eight correlations obtained, the ability to identify common geometric shapes, either by pointing or saying their names, was found to relate positively to the booth activities. Since the ability to discriminate letters and numerals requires the ability to discriminate shapes, it would be expected that these two skills might enhance each other.

The ability to discriminate between letter forms, match them, and associate the name with the letter should be a direct aid to the child in school. Twenty-six out of twenty-eight students were beyond the stage of free exploration and had moved into matching letter form activity. Twenty-two out of twenty-eight were able to discriminate and match both upper and lower case forms of the letters. Seven of these were also typing words such as *Mom, Grandma, Grandpa, Pancho, dog, horse, zebra, tiger, cow* and their own names. It is doubtful if these pre-kindergarten children would have been able to do any of these things without the typing booth experience. Whether this pre-school achievement will enhance public school achievement remains to be seen.

Second year pupils spent more time than first year pupils reading and listening, in art activities, and typing. They spent less time with blocks and small manipulative toys and just watching others. They spent equal percentages of time on specific language activities and activities such as snacks, playing house, and dancing.

Study of the summary sheet on classroom observations in the Appendix revealed dramatic differences among the children in the percentage of time spent on the various activities when much free choice was allowed. It also suggested that the teacher who tries to do extensive group work with children of this age may well be making problems both for herself and for the children. Additionally, having children move from one activity to another at set fifteen or twenty minute intervals may be the wrong approach.

Limitations on this study indicate one must be cautious in drawing conclusions and making generalizations from the correlational data presented in the analysis. However, two tentative recommendations seem warranted from the room observation correlations and the experiences of the teachers in the New Nursery School.

**More curriculum materials and activities need to be developed for those children who are not yet ready for the highly symbolic work of reading and computation, but have outgrown the typical nursery school and kindergarten activities. This condition has been observed by the teachers in the last two or three months of attendance of some second year pupils in the New Nursery School and is supported by the data. With group care of young children being extended through day care programs and extended day kindergartens, this need becomes urgent if interest in school and intellectual growth are to be sustained.

**More thought and study need to be made of the expected outcomes, both short and long range, of the activities made available to young children.

Throughout this study an examination and evaluation of the measures of self-concept was attempted. Self-concept and self-esteem are elusive things, and may well be composed of several entities. The intercorrelations of the Self-Concept Interview and Behavior Rating Form (Coopersmith, 1967) with the WPPSI are found and discussed in the analyses. Significant correlations were not found between the two measures of self-concept in either analysis, suggesting that they are measuring different entities. Neither measure had a significant relationship to the three IQ scores of the WPPSI, although the magnitude of the correlation was higher with the Behavior Rating Form. Further study and evaluation of these and other measures of self-esteem in young children are needed. Since few interviews are suitable for young children, perhaps other approaches to measuring this aspect of the child's development are indicated.

DISCUSSION OF LONGITUDINAL DATA

One of the goals of Head Start is to increase the child's chances of success in the public school. All the New Nursery School children entered regular public school kindergartens in their own neighborhoods. To evaluate the performance of New Nursery School graduates in the school, follow-up data were collected on each group and on a comparison group with a cultural and sociological background similar to that of the New Nursery School group. Summarized, these findings indicated no significant differences on the class standings of the experimental and comparison groups. However, the 1964-65 and 1967-68 New Nursery School groups received median ranks superior to that of their comparison group counterparts. The reverse was true of the 1965-66 and 1966-67 New Nursery School groups. An examination

of the median scores of the New Nursery School groups revealed they were performing at or near the middle forty per cent of the class. Considering the fact that extensive efforts were made to recruit for the New Nursery School experience children who were the most deprived in terms of language ability, education of parents, size of family, and other measures indicative of possible disadvantages, such a ranking is encouraging. No significant differences were found to exist between New Nursery School graduate groups and comparison groups on the Self-Concept Interview and Behavior Rating Form.

Of the three groups given the California Achievement Test, two New Nursery School groups received mean grade placement scores higher than those obtained by the comparison groups.

The 1967-68 graduates received a mean percentile of fifty-one on the Metropolitan Reading Readiness Test administered in kindergarten, indicating a slightly higher than average percentile rank on this measure of school related abilities.

In general, New Nursery School graduate groups were absent from school fewer days than their comparison groups. Only one child had been placed in Special Education classes. He was a member of the 1966-67 New Nursery School group, and had been diagnosed as being brain damaged.

QUALITATIVE OBSERVATIONS

Attempting to assess fairly the impact of specific program variables on the human organism is difficult at best. This difficulty is compounded when the human organism in question is young, and the assessment is of aspects of human behavior about which little is really known.

Nevertheless, attempts such as made here must be undertaken. One should always remember, however, that there are other aspects of human behavior equally important that do not lend themselves to quantitative analysis. This section will report some of those immeasurables that are indicated by anecdotal records and observation.

In the New Nursery School certain skills related to the role of the pupil were stressed; these are likely to lessen the cultural shock the child encounters when entering school and to raise teacher expectations. The children became familiar with school related materials and their proper use. They learned to use scissors, pencils, and crayons; to listen to and follow

directions; to know when they can talk freely, and when they should listen to other children or to the teacher.

They learned to look at, listen to, and enjoy books, both individually and in a group. They learned interpersonal skills such as taking turns, respecting another child's rights, and using words to facilitate interpersonal relationships. They also learned the importance of school attendance, which is not required in Colorado below first grade. Many parents from the sub-cultural group which is the primary concern of the New Nursery School do not send their children to kindergarten and do not stress regular attendance after that. Although attendance at the New Nursery School is regular for most of the children, some families have a pattern of irregularity. Staff members worked diligently with the families to break this pattern.

The child's attitude toward school may be a factor in his success or failure. At the New Nursery School, every effort was made to make the child's experience enjoyable, successful, and fulfilling. One could not measure the width of a smile as a child ran from the bus to school, or the pride in his voice as he announced, *"I know all those colors"*, or *"I made that all by myself."* Nevertheless, these things were important.

The child is encouraged to operate as an autonomous individual, free to make significant choices, to work at his own pace at tasks he has helped choose. Increased confidence and ability to do this were evident as the year progressed. The child who entered unable to find anything constructive to do was, by the end of the year, usually able to choose where he wanted to work and then to work there.

He learned that adults in the school valued him as an individual, and were willing to listen to what he had to say. He learned he had the freedom and gradually acquired the confidence to converse with ease, ask questions, request and receive help or guidance from the adults and other children.

The child was encouraged to acquire an attitude of seeking information and knowledge. Children were presented with many open ended problem solving situations, as well as encouraged to ask questions about specific content. It is impossible to separate attitude from ability to formulate questions, but the anecdotal records have indicated that questioning does increase. The word order may still be confused, but the inquiring attitude is there.

Any preschool program should foster a healthful relationship between the child and the adults, as well as among children. The child learned to trust the teachers and other adults to guide,

support, and encourage him, and to recognize his ability to succeed.

An indicator of the child's progress toward confidence in the adult-child interaction, especially in a situation where a response to a question is expected, is the increase in ability to respond in an informal or formal questioning situation. This increase in ability was evident both in the data presented on the WPPSI, and on the "C" Test.

The ability to take tests can hardly be considered an appropriate objective for a child in a Head Start program. It is, however, an indicator of a child's ability to interact freely with an adult outside the family, to understand and be understood, to answer questions, to follow verbal directions, to know and to be unafraid to indicate that he knows. The New Nursery School program has provided that ability. Since observations concerning lack of response do not appear in the studies of other groups, it might well be behavior which is typical only of this particular sub-cultural group. It is obviously, though, a definite hindrance to school success, and progress in this behavioral area should enhance the child's school performance.

The very low mean educational level of the parents of New Nursery School children (6.89 years in school), and the high incidence of school difficulties encountered by the older children and relatives in these families can easily lead to a discouraged and negative attitude toward the child's chances of success in school. There is a possibility that the child's increasing competence in language and in school related abilities may cause a change in parental expectations with long range positive effects. Some evidence indicated that this is so. One mother called the New Nursery School the *Smart School.* Another commented, *"He sure does talk a lot better now."* A child looked at his mother and said, *"I'm smart, huh, mommy?"* His mother agreed with him, then said how sorry she was that she didn't register one of her older boys for New Nursery School when the school first began.

If the parent's confidence in the child; the child's confidence in himself; the child's competence in problem solving, language, and understanding and expressing key concepts essential to continued learning can be increased, then there is a chance that the New Nursery School experience and other intervention programs for young disadvantaged children may increase the child's chances of breaking the cycle of poverty. The answers are not available; only now have the right questions started to be asked.

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SECTION NINE

APPENDICES

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GRAMMATICAL COMPREHENSION TEST

Ursula Bellugi-Klima
March, 1968

The following tests of grammatical comprehension are an extension and revision of those described in the ERIC Document, "Evaluating the Child's Language Competence," by Ursula Bellugi-Klima. The document was published by the National Laboratory on Early Childhood Education, and is available from the ERIC Document Reproduction Service, 4936 Fairmont Avenue, Bethesda, Maryland, 20014.

The organization of the tests and the additions and deletions were done with the approval and counsel of Dr. Bellugi-Klima. Dr. Courtney Cazden and Dr. Dale Nebel acted as consultants. Revision and refinement of the tests is continuing as further information about their suitability is gathered. The organization is intended to facilitate administration. For full comprehension of the intent of the tests, the reader and any potential users should refer to the original document.

The tests of grammatical comprehension are *proposals based on linguistic theory, psycholinguistic research, and developmental studies of children's speech.*[1]

The problems are set up on approximate levels of difficulty, based on appearance of constructs in children's speech, other comprehension tests, and proposed linguistic research.

They utilize readily available objects which the child is to manipulate in response to a direction.

> *The objects for each problem should be placed on the table in such a way that they do not give cues to the solution of the problem (in terms of ordering or other cues) and in such a way that the child has to make some change or movement to demonstrate comprehension of the problem. If the problem has more than one part, it need not necessarily be given in any fixed order (mixing up orders of presentation minimizes the effects of 'set').*

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[1]Ursula Bellugi-Klima, "Evaluating the Child's Language Competence," (National Laboratory Early Childhood Education, Illinois University, Urbana, Illinois, 1968), p. 6.

The objects should be replaced in their original indeterminate position before asking another part of the problem.

The examiner should make sure at the on-set of the problem that the child understands the words and actions involved. For example, for the problem, "The boy is washed by the girl," the examiner would identify the boy doll and girl doll, and demonstrate how one washes the other, being careful not to give any cues to the problem. He might say, for example, "This is how we wash,"... then check the child's understanding of boy, girl, and wash before beginning. In the process it might be wise to change the order of presentation of boy and girl, so that no cues to ordering are given. Then the objects are set up in a standard way and the problem can be given.[2]

In the suggested organization of Dr. Bellugi-Klima's test, the objects needed to test for each item are separated and organized in individual boxes. The grammatical construction to be tested, the materials list, suggestions for arrangements, and directions for administration are pasted on the lid of the box. Cigar boxes or other boxes with flip-top lids are ideal. If desired they can be covered with contact paper. A rack to hold the boxes is convenient, but not essential.

Having the objects in separate boxes has several advantages:

1. It helps focus the subject's attention on the materials with which he should be working.

2. It eliminates the necessity of having the subject look over (or the tester select from) a large array of items to select the one under discussion.

3. It minimizes the time necessary for arranging the materials. In some cases the subject can work from the box.

4. It offers the opportunity to do the test in frequent short sittings.

5. It makes randomizing easier. If desired, one or two items from a box may be given, then the tester can go to another box.

The boxes are labeled 1, 2, 3 ...16, so they can be easily identified. Listed below is the information to be placed on each box. To compile the objects necessary for administration, see the equipment list under each item.

The recording sheet to be used for each child is at the end. Each direction stated to the child is listed, with spaces left to mark correct and incorrect responses and to record comments.

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[2]Ibid. p.5.

1.

Item: ACTIVE VOICE

Materials: Boy doll with wash cloth in one hand, spoon in the other hand.
Girl doll with wash cloth in one hand, spoon in the other hand.
Toy dog, standing.
Toy cat, standing.

Arrangement: Put on the table only the objects essential to carrying out a specific direction.

Directions: Say to the subject: *Show me ...*

a. *The boy washes the girl.*
b. *The girl feeds the boy.*
c. *The cat chases the dog.*
d. *The cat bites the dog.*

2.

Item: PREPOSITIONS - in, into, on, under.

Materials: One block.
Two empty paper cups.
One clear plastic bag tied shut with dog inside.
One empty plastic bag.
On toy dog identical to the one tied inside the bag.

Arrangement: Be sure both cups are available - one cup with rim down, one cup with rim up.

Directions: Say to the subject:

a. *Put the block into the cup.*
b. *Put the block under the cup.*
c. *Put the block on the cup.*
d. *Put the dog on the bag.*
e. *Put the dog under the bag.*
f. *Show me: The dog is in the bag.*

3.

Item: SINGULAR AND PLURAL NOUNS

Materials: Four blocks, four rocks, four crayons.
In each case, one object is loose and three are tied in a plastic bag.

Arrangement: Place all objects on the table.

Directions: Don't name the objects as you lay them out. Ask the child his names for them if desired and use them if they are suitable. Some children may say rocks, some may say stones. Say to the subject:

a. *Give me the block.*
b. *Give me the crayons.*
c. *Give me the rocks.*
d. *Give me the blocks.*
e. *Give me the rock.*
f. *Give me the crayon.*

4.

Item: POSSESSIVES

Materials: Father-son dolls.
Mother horse toy.
Baby horse toy.
Mother cat toy,
Toy truck with wheel that is loose and separated from the truck.
A larger wheel

Arrangement: Place the objects on the table. Replace items each time used.

Directions: Say to the subject:

a. *Show me the boy's daddy.*
b. *Show me the horse's mother.*
c. *Show me the wheel's truck.*
d. *Show me the daddy's boy.*
e. *Show me the truck's wheel.*

5.

Item: NEGATIVE/AFFIRMATIVE STATEMENTS

Materials: One doll of rigid construction with hat.
One doll with flexible limbs, without hat.

Arrangement: Be sure flexible doll is in sitting position. Put dolls in front of subject.

Directions: Say to the subject: *Point to ...*

a. *The doll cannot move her arms.*
b. *The doll without a hat.*

c. *The doll is sitting.*
d. *The doll with a hat.*
e. *The doll is not sitting.*
f. *The doll can move her arms.*

6.

Item: NEGATIVE VS. AFFIRMATIVE QUESTIONS

Materials: Two articles of clothing (sock, glove).
Two edible objects in separate plastic bags (cracker, tortilla or biscuit).
Two or three objects such as stones, sticks, small blocks.

Arrangement: Place the objects on the table so all are visible.

Directions: Say to the subject:

a. *Which of these things can you eat?*
b. *Which of these things can't you wear?*
c. *Which of these things cannot be eaten?*
d. *Which of these things can't be eaten?*
e. *Which of these things can you wear?*

7.

Item: SINGULAR/PLURAL (WITH NOUN AND VERB INFLECTION)

Materials: Two girl dolls in standing or walking position.
Two toy dogs in standing or running position.

Arrangement: Place objects on the table.

Directions: Demonstrate to the subject how he can show *run*, *jump*, *lie down*, and how both can run or jump by using both hands simultaneously. Say to the subject: *Show me...*

a. *The girl walks.*
b. *The dog runs.*
c. *The girls jump.*
d. *The dog lies down.*
e. *The dogs jump.*
f. *The girl jumps.*

8.

Item: MODIFICATION

Materials: Round box.
Square box.
One block.
One small button.
One large button.

Arrangement: Place objects on the table. Replace items in original location after each action.

Directions: Say to the subject:

a. *Put the block in the round box.*
b. *Put the little button in the round box.*
c. *Put the big button in the square box.*
d. *Put the block in the square box.*

9.

Item: NEGATIVE/AFFIRMATIVE STATEMENTS WITH CONTRACTIONS

Materials: One doll of rigid construction with a hat.
One doll with flexible limbs without a hat.
(Box five can be used.)

Arrangement: Be sure flexible doll is in sitting position. Put dolls in front of subject.

Directions: Say to the subject: *Point to ...*

a. *The doll can't move her arms.*
b. *The doll isn't sitting.*
c. *The doll doesn't have a hat.*
d. *The doll that isn't standing.*

10.

Item: NEGATIVE AFFIX

Materials: Small toy truck with load of stones glued in place.
Small empty truck.
Pair of doll shoes, one laced and tied and one with the shoe lace missing.
One piece of paper, folded.
One piece of paper unfolded.

Arrangement: Place objects on the table.

Directions: Say to the subject: *Show me ...*

a. *The shoe is tied.*

b. *The paper that is unfolded.*
c. *The truck is unloaded.*
d. *The paper that is folded.*

11.

Item: REFLEXIVE VERBS

Materials: One flexible boy doll (John) with wash cloth attached to one hand and spoon attached to the other hand.
One flexible boy doll (Bill) with wash cloth attached to one hand and spoon attached to the other hand.

Arrangement: Both dolls on the table.

Directions: Demonstrate how the actions may be done. Identify the dolls as John and Bill. Say to the subject: *Show me...*

a. *John washes him.*
b. *John washes himself.*
c. *Bill feeds himself.*
d. *Bill points to himself.*
e. *Bill feeds him.*
f. *Bill points to him.*

12.

Item: COMPARATIVES

Materials: Plastic bag with three small rocks in it.
Plastic bag with ten or more rocks in it.
Plastic bag with a small amount of clay in it.
Another plastic bag with a perceptibly larger amount of clay.
One short stick (shorter than the flat ones below).
One longer stick of the same diameter and color (longer than the flat ones - dowel rods are acceptable).
One flat stick that is narrow, ¼ x ½ x 4.
One flat stick (of the same length and thickness) that is perceptibly wider, ¼ x 2 x 4.

Arrangement: Place the objects on the table.

Directions: Say to the subject: *Show me ...*

a. *The bag with more rocks in it.*
b. *The narrower stick.*
c. *The bag with less clay in it.*
d. *The bag with fewer rocks in it.*

e. *The shorter stick.*
f. *The bag with more clay in it.*
g. *The longer stick.*
h. *The wider stick.*

13.

Item: PASSIVES

Materials: Toy dog in standing or running position.
Toy cat in standing or running position.
Boy doll with wash cloth attached to his hand.
Girl doll with wash cloth attached to her hand.

Arrangement: Place objects on the table.

Directions: Say to the subject: *Show me ...*

a. *The dog is chased by the cat.*
b. *The boy is washed by the girl.*
c. *The cat is chased by the dog.*
d. *The boy is pushed by the girl.*
e. *The girl is washed by the boy.*

14.

Item: CONJUNCTION

Materials: Plastic spoon, fork and knife.
One crayon.
One pencil.

Arrangement: Place objects on the table.

Directions: Say to the subject: *Give me ...*

a. *A fork and a spoon.*
b. *A crayon or a pencil.*
c. *Something that is either a fork or a spoon.*
d. *A crayon and a pencil.*
e. *A fork or a spoon.*
f. *Something that is neither a crayon nor a pencil.*

15.

Item: COMPARATIVES (DOUBLE)

Materials: *Master* stick, ½ x 3/4 x 5½ (should be marked so the tester can identify it.
One flat stick same length as master stick, but thinner, ¼ x ½ x 5½.
One flat stick same length as master stick, but thicker, 3/4 x 1 x 5½.
One flat stick same thickness as master stick but shorter, ½ x 3/4 x 2½.
One stick same thickness as master stick but longer, ½ x 3/4 x 6½.
One stick longer and thicker, 3/4 x 1 x 6½.
One stick longer and thinner, ¼ x ½ x 7½.
One stick shorter and thicker, 3/4 x 1 x 3.
One stick shorter and thinner, ¼ x ½ x 3.

Arrangement: Place sticks on the table.

Directions: Holding the *master* stick so subject can see it easily, say ...

a. *Give me a stick that is shorter and thicker than this one.*
b. *Give me a stick that is longer and thicker than this one.*
c. *Give me a stick that is shorter and thinner than this one.*
d. *Give me a stick that is longer and thinner than this one.*

16.

Item: REFLEXIVE VX. RECIPROCAL

Materials: Two boy dolls, flexible, with wash cloth attached to one hand and spoon attached to other hand. (Box 11 can be used.)

Arrangement: Place the dolls on the table.

Directions: Say to the subject: *Show me ...*

a. *They wash themselves.*
b. *They feed each other.*
c. *They wash each other.*
d. *They feed themselves.*

RECORDING SHEET

GRAMMATICAL COMPREHENSION TEST by Ursula Bellugi-Klima
(Revised April, 1969)

Note:

Number indicates item.
Letter indicates order in test.

NAME _____

DATE _____
month day year

EXAMINER _____

DIRECTION	RESPONSE		COMMENTS
	Correct	Incorrect	
1. *Show me:*			
a. *The boy washes the girl.*			
b. *The girl feeds the boy.*			
c. *The cat chases the dog.*			
d. *The cat bites the dog.*			
2. *Put the ...*			
a. *block into the cup.*			
b. *block under the cup.*			
c. *block on the cup.*			
d. *dog on the bag.*			
e. *dog under the bag.*			
Show me: The dog is in the bag.			
3. *Give me...*			
a. *the block.*			
b. *the crayons.*			
c. *the rocks.*			
d. *the blocks.*			
e. *the rock.*			
f. *the crayon.*			

DIRECTION	RESPONSE		COMMENTS
	Correct	Incorrect	
4. Show me:			
a. The boy's daddy.			
b. The horse's mother.			
c. The wheel's truck.			
d. The daddy's boy.			
e. The truck's wheel.			
5. Point to:			
a. The doll cannot move her arms.			
b. The doll without a hat.			
c. The doll is sitting.			
d. The doll with a hat.			
e. The doll is not sitting.			
f. The doll can move her arms.			
6. Which of these things...			
a. can you eat?			
b. can't you wear?			
c. cannot be eaten?			
d. can't be eaten?			
e. can you wear?			
7. Show me:			
a. The girl walks.			
b. The dogs run.			
c. The girls jump.			

DIRECTION	RESPONSE		COMMENTS
	Correct	Incorrect	
d. The dog lies down.			
e. The dogs jump.			
f. The girl jumps.			
8. Put the ...			
a. block in the round box.			
b. little button in the round box.			
c. big button in the square box.			
d. block in the square box.			
9. Point to:			
a. The doll can't move her arms.			
b. The doll isn't sitting.			
c. The doll doesn't have a hat.			
d. The doll that isn't standing.			
10. Show me:			
a. The shoe is tied.			
b. The paper that is unfolded			
c. The truck is unloaded.			
d. The paper that is folded.			

DIRECTION	RESPONSE		COMMENTS
	Correct	Incorrect	
11. Show me:			
a. John washes him.			
b. John washes himself.			
c. Bill feeds himself.			
d. Bill points to himself.			
e. Bill feeds him.			
f. Bill points to him.			
12. Show me:			
a. The bag with more rocks in it.			
b. The narrower stick.			
c. The bag with less clay in it.			
d. The bag with fewer rocks in it.			
e. The shorter stick.			
f. The bag with more clay in it.			
g. The longer stick.			
h. The wider stick.			
13. Show me:			
a. The dog is chased by the cat.			
b. The boy is washed by the girl.			
c. The cat is chased by the dog.			
d. The boy is pushed by the girl.			

DIRECTION	RESPONSE		COMMENTS
	Correct	Incorrect	
14. Give me ...			
a. a fork and a spoon.			
b. a crayon or a pencil.			
c. something that is either a fork or a spoon.			
d. a crayon and a pencil.			
e. a fork or a spoon.			
f. something that is neither a crayon nor a pencil.			
15. Give me ...			
a. a stick that is shorter and thicker than this one.			
b. a stick that is longer and thicker than this one.			
c. a stick that is shorter and thinner than this one.			
d. a stick that is longer and thinner than this one.			
16. Show me:			
a. They wash themselves.			
b. They feed each other.			
c. They wash each other.			
d. They feed themselves.			

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TASK ACCOMPLISHMENT INVENTORIES

These inventories are still in the process of being revised and refined. Further information on their validity and reliability will be furnished in later reports.

RATIONALE

"To say that the children are 'forming concepts' in their play is not enough. One needs to know what concepts are revealed and at what level of adequacy."[1]

Task Accomplishment Inventories can help teachers in early childhood classrooms evaluate an individual child's social, emotional, and intellectual growth.

In learning environment such as that recommended for Head Start and Follow Through, it is often difficult to specify what children might be learning, and even more difficult to evaluate what they have learned. The children are moving around, playing with blocks, puzzles, and other manipulative toys; they are singing, dancing, pouring water and sand, painting, reading and dramatizing. Some of these activities may be planned by the teachers with specific educational goals in mind; others will be initiated and carried out by the children with little or no teacher direction. Perhaps because of past emphasis on the emotional, social, and physical well being of the nursery school and kindergarten child, not all early childhood educators are able to appraise adequately the cognitive elements in nursery school curricula. As a result, teachers often do not take advantage of learning opportunities and are unable to say what educational goals are being achieved.[2]

Teachers in early childhood education have relied primarily upon anecdotal records for classroom evaluation of cognitive development. Such records require much time and expert observation, for which there is little guidance available. Systematizing evaluation as is done in these inventories should make assessment of certain behaviors simpler.

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[1]Millie Almy, "Spontaneous Play: An Avenue for Intellectual Development," Young Children, 22 (May, 1967), 265-77.

[2]Fred Powledge, To Change A Child, (Chicago: Quadrangle Books, 1967).

SPECIFICATION OF PERFORMANCES DESIRED

Certainly the most important goals of early childhood education cannot be precisely defined or evaluated. The complexities and unknowns in children's behavior -- including cognition, or perhaps especially cognition -- do not allow such precision.

However, when specific goals have been determined, they will be more readily and easily attained if careful thought is given to determining what is involved in attaining these goals, and how such attainment may be evidenced. For young children's behavior cannot truly be assessed by responses to paper and pencil tasks; it must be measured in terms of what they build, say, sort, draw or paint, select, reject, and so forth.

For this reason, the inventories try to be as exact as possible in specifying what to watch for in evaluating. As an example, many teachers of young children want them to know the colors. But does that mean to differentiate between the colors by sorting and matching, to point to a specific color when he hears the color name, or to say the name of the color when he sees an example of it? Probably the teacher has all these goals in mind. However, the teaching strategies to enable the child to do these tasks differ. The technique used to evoke a non-verbal response to something the teacher has said differs from that used to elicit a verbal response from the child's store of concepts. The latter task is usually far more difficult, especially for disadvantaged children. Also, children who can do one task cannot necessarily do the other.

The acquisition of any of the concepts in the inventories can be defined operationally in a number of ways. The teacher who is evaluating may, in fact, observe many of these behaviors. Mental or written notes of these other behaviors will supplement and reinforce the inventories.

Although the child's acquisition and ability to use these concepts can be evaluated in informal classroom situations, suggestions are given for a fairly definite approach. This is done for several reasons.

1. To make sure the situation is evaluating what the recorder says it is.
2. To help inexperienced teachers and assistants define the behavior that gives evidence of accomplishment.
3. To make the evaluation situation replicable.
4. To enable controlled comparisons to be made between children and groups of children.

DELINEATION OF CONCEPTS TO BE EVALUATED

Certainly no one can say which cognitive tasks and specific concepts are essential for intellectual development of the pre-first grade child. Even with the growing body of research and observation on cognition, there is little in the way of specific guidance for curriculum development. Selection of items for inclusion in these inventories was influenced by several considerations:

**Research studies indicating what concepts most children of school entrance age have acquired. For example, according to Brownell,[3] three out of four children of school entrance age know the terms *square* and *circle*.

**Analysis of the tasks children should be able to perform in order to succeed in the primary curriculum. For instance, in primary programs much emphasis is placed upon comparing and contrasting pictures, letters, sounds, and objects using the terms *same* and *different*. Yet little emphasis is placed upon teaching the meaning of these terms. The child who does not have a firm grasp of these concepts will almost certainly be confused.

**Controlled comparisons of advantaged and disadvantaged children's acquisition of certain concepts, such as color. A child who lacks a concept most other children have acquired and are using probably needs some help.

**Current thinking by scientists, linguists, and mathematicians concerning those elements of their respective disciplines that are basic to understanding and "thinking." There is considerable agreement among these specialists concerning the importance of a small set of prepositions, comparatives, logical connectives, and noun and verb inflections, in contrast to the inexhaustible list of nouns and verbs.

**Classroom teachers' and assistants' judgment of concepts and processes which are appropriate for young children -- which they can learn and are interested in learning.

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[3]W. A. Brownell *et al.*, Arithmetic in Grades I & II, "A Critical Summary of New and Previously Reported Research," Duke University Research Studies in Education, No. 6 (Durham, North Carolina: Duke University Press, 1941).

Concepts to be evaluated are:

1. Color
2. Number
3. Shape
4. Relative Size
5. Relative Location or Position
6. Conjunction (and/or)
7. Negative/Affirmative (is/is not/isn't)
8. The same as/Different from (than)

These do not encompass all elements of a preschool child's intellectual development. Rather, they are examples of systematic evaluation of selected elements, samplings of the child's performance at a particular time. Teachers who wish to evaluate other key concepts, such as *more-less*, or *first-last*, can use the inventories as examples to construct other inventories.

ADMINISTRATION AND USE

The inventories are designed to be administered in the classroom or the play yard by the teacher, assistant, or volunteer, using objects and materials with which a child is familiar. Such a situation is far less threatening to a young child than a test, and far easier for a teacher with limited staff assistance to administer. Often informal observation gives as good a result as direct administration. Keep administration casual, a part of classroom activities. Most of the inventories provide good learning situations as well as evaluation.

Teachers who want to use the inventories should select those which pertain to their stated objectives; it is not at all necessary to use them all. Nor should a teacher be dismayed if she cannot get a particular child to participate. Evaluate his abilities in some other way.

There is some evidence[4] that children with limited experience with pictures in books and magazines may not respond the same to pictures as they do to objects. Therefore, classroom objects are used instead of commercially prepared pictures. This places much responsibility on the administrator for the selection of these objects. Unless careful thought is given to selection, the child may be confused, may be unable to respond, or the evaluation may be of something other than that which is intended.

Each inventory includes a list of objects appropriate to use for that inventory, procedural guides, tips to help in

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[4]I. E. Sigel *et al.*, Journal of Negro Education, "Categorization Behavior of Lower and Middle-Class Negro Children: Differences in Dealing with Representation of Familiar Objects." (1966) 35: 218-229.

administration, and a recording sheet.

The items in each inventory have been randomized. That is, they are ordered in such a way that the child will not pick up clues from one question that will enable him to answer another that he might not know. Testers may deviate from the suggested order, but should retain a random order.

Attempting to assess young children's knowledge of specific items is often difficult. They are easily distracted, sometimes unwilling to attend to a task for more than a short period, sometimes just not interested in the tester's games. The purpose of these inventories is to get an evaluation that is as close to the child's top level of performance as possible. Therefore, considerable latitude is given for number of attempts and time allowed. However, all these should be noted in the Comments section, because the child who completes a task quickly and accurately with no hesitation differs from the child who finally gets most responses correct, but is so distractable or unsure of himself that two or three attempts by the tester are necessary.

This does not mean that the child is asked the same question again and again, so that he guesses until he gets it right. It does mean that some tester judgment is allowed for making sure the child understands what is wanted, or that a test half completed can be returned tomorrow.

The purpose for which the inventories are given will determine some of the details of administration.

Originally, the inventories were designed to assess the effectiveness of a compensatory preschool program. This was done in two ways:

1. By an ideal, absolute level of performance. That is, ideally, by the time their preschool experiences were over all the children would be able to succeed on all items, since all items are deemed necessary for effective performance in communication and school tasks.

2. By comparison with an advantaged group's performance on identical inventories, to determine if the preschool program was effective in bringing the disadvantaged group's performance closer to the advantaged groups.

In these circumstances, close control over the testing situations is necessary. It is desirable, for example, to evaluate within a period of a week or so all the children's ability to count objects, then go to another inventory to evaluate another ability.

Also, the inventories are given *pre* and *post*, which dictates that they are given as close to the beginning and the end of the school year as possible.

For evaluation of individual and class needs, the inventories may be administered at any time, and in any order. However, it is suggested that the simpler ones -- color names, counting, and geometric shapes -- be given first to familiarize testers and children with the procedures.

The Task Accomplishment Inventories are not designed for grading. Primarily, they are diagnostic tools to help teachers ascertain where a child may need specific help with an idea, or where he has mastered an idea and needs to have activities introduced to help him extend, clarify, and use the knowledge he has. No emphasis should be placed upon a total score or even a score on a particular inventory, except as it is used as a guide for planning and revising curriculum.

Perhaps many of the children in the room are restricted in their concept of size to only *big* and *little*, or *mama* and *baby*. Then the teacher would want to plan many activities to help them learn *tall*, *long*, *short*, *wide*, and so on. She would also want to watch for learning opportunities arising in spontaneous play. *"The other children have all the longest blocks; see if you can use some shorter ones in your building."* If only one or two children need help to grasp this concept, individual emphasis can be planned for them. If all the children already comprehend the terms describing varying dimensions of size, then activities to help children express these terms in observations and descriptions might be planned.

If the school is to make *taking the child where he is* more than a cliche, it must have some idea *where he is*. Task Accomplishment Inventories can help teachers in early childhood classrooms know where to start on some of the key concepts necessary for future learning.

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THIS INVENTORY IS TO EVALUATE THE CHILD'S COMPREHENSION AND PRODUCTION OF COLOR NAMES

EQUIPMENT:

A set of 3" x 9" cards made with stiff cardboard and construction paper, in the colors, red, yellow, blue, white, black, orange, purple, green, brown. A peg board with pegs in these colors can be used, as may any other teaching device with which the child might be familiar.

PROCEDURE:

To test comprehension, name a color from a group of objects of the above colors. The child should be able to choose an object of the specified color.

Example: *"Gary, hand me the blue peg"* or
"Point to the blue card"

To test production, ask the child the color of an object. The child should be able to name the color.

Example: *"What color is this card (cube, peg)?"*

COMMENTS:

Complete the *designates by selecting* then the *designates by labeling* so there will be no clues, such as might result from, *"Point to the blue card,"* then *"What color is that card?"* (blue).

Use the *comments* column to note the number of attempts necessary to complete the test, any other colors (pink, gray) the child might note in conversation, or tester's observation. It may be necessary to inventory a shy or hesitant child by observing him interacting with a familiar teacher.

CHILD'S NAME _____

TEST DATE _____
month day year

EXAMINER _____

TASK ACCOMPLISHMENT: *COLOR NAMES* (Comprehension and Production)

	DESIGNATES COLOR BY SELECTING		DESIGNATES COLOR BY LABELING	
	correct	incorrect	correct	incorrect
RED				
YELLOW				
BLUE				
WHITE				
BLACK				
ORANGE				
PURPLE				
GREEN				
BROWN				
TOTAL CORRECT				

COMMENTS:

THIS INVENTORY IS TO EVALUATE THE CHILD'S COMPREHENSION AND PRODUCTION OF NAMES DESIGNATING COMMON PLANE GEOMETRIC SHAPES

EQUIPMENT:

A circle, square, triangle, rectangle, and diamond of cardboard construction paper, or felt. These are easily kept together and readily available to display in the testing situation. Other objects such as puzzles pieces or attribute blocks might be used. The shapes should be all one color to eliminate the possibility of clues or confusion from color.

PROCEDURE:

To evaluate comprehension, ask the child to select a specified shape.

Example: *"Hand me a circle"* or
"Point to the square"

To evaluate production, ask the child to name the specified shape.

Example: Tester holds up or points to the object and asks, *"What shape is this?"* or
"This is a _____."

COMMENTS:

Complete the *designates by selecting* column, then the *designates by labeling*, so there will be no clues such as might result from, *"Point to the circle,"* followed by *"What is the name of that shape?"* (the circle).

Use the comments column to note any information that would aid in evaluating the child's ability to do the tasks. For example, a child may perceive these shapes in his surroundings and mention them in conversation. *"The buttons on my dress are the shape of a circle."* The information desired on the inventory may be observed as a teacher works with a child. If so, this should also be noted.

CHILD'S NAME_____

TEST DATE_____
month day year

EXAMINER_____

TASK ACCOMPLISHMENT: *LABELS FOR GEOMETRIC SHAPES*
(Comprehension and Production)

	DESIGNATES SHAPE BY SELECTING		DESIGNATES SHAPE BY LABELING	
	correct	incorrect	correct	incorrect
CIRLCE				
TRIANGLE				
SQUARE				
RECTANGLE				
DIAMOND				
TOTAL CORRECT				

COMMENTS:

THIS INVENTORY IS TO EVALUATE THE CHILD'S ABILITY TO COUNT

EQUIPMENT:

Objects such as cubes, counting sticks, marbles, or pick-up sticks, and a flat box to hold them.

PROCEDURES:

Note the child's ability to rote count (knowledge of number names and their order) by saying the counting numbers in order without referring to objects.

Example: *"Count as far as you can. Start with one, two..."*

Record the highest figure of two tries, or the tester may use his judgment of whether the names given by the child are a consistent sampling.

Note a child's ability to determine the cardinal number of a set by rational counting. Underestimate the child's ability initially and do not ask the impossible. Start with a set of three or four objects in the center of the box for the three year old or inexperienced child. If the child is correctly counting the objects, continue to push objects toward the center of the box. Push objects for the child to count toward the center of the box. Push objects for the child to count toward the center of the box. Push objects for the child to count toward the center of the box until he is unable to continue the rational counting process. (This procedure seems to aid in keeping the child counting. He tends to begin again with *one* if he runs out of available items and has to pause.) Record the highest cardinal number the child correctly determines. The tester may want to repeat the procedure if it is thought a true indication of the child's ability was not obtained.

Record in the comments column any information pertinent to the evaluation, as for example, if a teacher obtained the information while the recorder observed. Record the number of attempts to secure the sampling in the comments section.

CHILD'S NAME _____

TEST DATE _____
month day year

EXAMINER _____

TASK ACCOMPLISHMENT: *ROTE COUNTING - RATIONAL COUNTING*

Rote counting: Number to which child counts correctly: Comments:
Rational counting: Number to which child counts objects correctly: Comments:

THIS INVENTORY IS TO TEST COMPREHENSION OF THE TERMS "THE SAME AS" AND "DIFFERENT FROM"

EQUIPMENT:

Classroom objects such as beads, parquetry or attribute blocks, pegs, counting cubes, rings from the color cone, and so forth.

Objects to evaluate *same* and *different* color, size and shape are given as examples. Other attributes could be used; they should, however, be ones with which the child is familiar so he is not presented with the additional problem of identification of unfamiliar words. Space is left for additional items such as same length and same sound.

PROCEDURE:

To minimize the interference from extraneous elements, select objects that are identical in every respect except the one being evaluated. For example, in evaluating *same color* a grouping of several colors of round pegs could be used. Hold up a peg and say, "*Find another peg the same color as this one,*" or "*Find a peg that is a different color from (than) this one.*"

COMMENTS:

Unless the comparison or contrast is specified, the child may well be responding on a basis other than what the evaluator had in mind. For example, the teacher might show the child two blocks -- a unit and a double unit and ask, "*Are these the same?.*" If the child says *yes* he is as correct as if he said *no*, for they are indeed the same color, made of the same substance, both oblong, etc. They differ from each other in length.

Either *different from* or *different than* is acceptable usage. Use whichever seems natural.

CHILD'S NAME _____

TEST DATE _____
month day year

EXAMINER _____

TASK ACCOMPLISHMENT: *THE SAME AS, DIFFERENT FROM (THAN)*
(Comprehension)

DIRECTIONS	CORRECT	INCORRECT
Arrange a grouping of several colors of pegs: Hold up a peg and say: *Find a peg that is the same color as this one.*		
Find a peg that is a different color from (than) this one.		
Arrange grouping of 3 or 4 beads - same color and shape but of different size. Hold up a bead and say: *Find a bead that is the same size as this bead.*		
Find a bead that is a different size from (than) this bead.		
Arrange a grouping of parquetry blocks differing only in shape. Hold up a block and say: *Find a block that is the same shape as this block.*		
Find a block that is a different shape from (than) this block.		

COMMENTS:

THIS INVENTORY IS TO EVALUATE THE CHILD'S

COMPREHENSION OF THE CONJUNCTIONS AND/OR, AND

NEGATIVE AND AFFIRMATIVE STATEMENTS USING IS, IS NOT, AND ISN'T

EQUIPMENT:

A fork, spoon, crayon, doll, pencil, and small box to use as a container. Other common classroom or household items might be used. The above are used in the directions. The objects used in the evaluation should be known to the child so he is evaluated only on his ability to comprehend the meaning of and/or, is, is not, and isn't.

PROCEDURE:

Work directly from the box or place the objects on the table in front of the child. Say to the child, "*Hand me a fork and a spoon,*" or "*Hand me a pencil or a crayon.*" For evaluating is, is not, and isn't, say to the child, "*Hand me something that is a crayon,*" or "*Hand me something that is not a spoon.*"

COMMENTS:

Use the comments column to note any pertinent information concerning the evaluation, such as number of attempts to test the child, the setting and circumstances of testing, and if other objects are used.

*NOTE: Portions of this inventory are taken from Ursula Bellugi-Klima's Grammatical Comprehension Test.

Ursula Bellugi-Klima, "Evaluating the Child's Language Competence," National Laboratory for Early Childhood Education, (Illinois University, Urbana, Illinois, 1968).

CHILD'S NAME _____

TEST DATE _____
month day year

EXAMINER _____

TASK ACCOMPLISHMENT: *CONJUNCTIONS AND, OR*
NEGATIVE/AFFIRMATIVE STATEMENTS - is, is not
(Comprehension)

DIRECTIONS	CORRECT	INCORRECT
CONJUNCTION -- AND /OR *Hand me ...* 1. *a fork and a spoon*		
2. *a crayon or a pencil*		
3. *a crayon and a pencil*		
4. *a fork or a spoon*		
NEGATIVE/AFFIRMATIVE -- IS/IS NOT *Hand me something that ...* 1. *isn't a fork*		
2. *is not a pencil*		
3. *is a spoon*		
4. *is not a crayon*		
5. *isn't a doll*		
6. *is a crayon*		

COMMENTS:

THIS INVENTORY IS TO EVALUATE THE CHILD'S COMPREHENSION OF TERMS OF RELATIVE LOCATION

EQUIPMENT:

A small box with these objects in it: a small plastic figure such as a Gumby, a small car, a small doll, three blocks. Any object the child might enjoy manipulating can also be used.

PROCEDURE:

Give the child a direction to place an object in a specified location or position. He should be able to follow the direction exactly.

Examples: *"Put the doll under the chair."*
"Put the car behind the box."

COMMENTS:

Use the comments column to note the number of attempts at testing or any information useful in understanding the evaluation.

To assure that testers evaluate the intended concepts, suggested directions are on the inventory sheet. Objects other than these may be used.

Some of these relational words have more than one meaning. Although children need to know all the meanings, testing for all of them would require an overlong test. Because of this, rather arbitrary selections were made of the specific words and meanings to be tested. For example, the words *in*, and *inside*, carry slightly different meanings, as do the words *out of*, and *out*. *Inside* and *outside* are listed because it is easier to formulate directions using these words: *"Put the doll inside the box,"* or *"Put the car outside the box."*

Top, middle, and bottom can refer to objects in a vertical plane, such as the position of a particular block in a stack of blocks. They can also refer to an object in the horizontal plane, as the top or bottom of a sheet of paper on which the child is drawing. Evaluating the vertical plane using three blocks is easier as it is quite clear which block is on top, which is the middle, and which on the bottom. *"Point to the block on the top,"* or *"Point to the block in the middle."* Similarly, *over*, *under*, *on*, and *off*, have several connotations, but only one will be evaluated.

CHILD'S NAME _____

TEST DATE _____
month day year

EXAMINER _____

TASK ACCOMPLISHMENT: *RELATIVE LOCATION* (Comprehension)

DESIRED LOCATION	COMPREHENSION (motor response)	
	Correct	Incorrect
in front of - *Put Gumby in front of you.*		
on - *Put the car on the table*		
behind - *Put Gumby behind you.*		
inside - *Put the doll inside the box.*		
over - *Put Gumby over your head.*		
middle - *Point to the block in the middle.*		
outside - *Put the doll outside the box.*		
bottom - *Point to the block on the bottom.*		
under - *Put the doll under the table*		
off - *Take the car off the table.*		
top - *Point to the block on the top.*		
between - *Put Gumby between the car and the box.*		

COMMENTS:

THIS INVENTORY IS TO EVALUATE

PRODUCTION OF THE TERMS OF RELATIVE LOCATION

EQUIPMENT:

A small box in which the following objects are placed: a small plastic figure such as a Gumby, a small car, a small doll, and three blocks. Other objects the child might enjoy manipulating can be used.

PROCEDURE:

The tester places an object in a particular relationship to another. The child should be able to express the relationship.

Example: *"Where is Gumby?"*
The child responds, *"Gumby is under the chair"*
Or, *"Under the chair."*

Obtaining a sampling of the child's ability to express certain relationships is difficult, at best. If the child answers with an appropriate verbal response other than the one being evaluated, e.g. *"Gumby is on the floor,"* it is not counted wrong. The tester may attempt to elicit the desired relationship, *"Can you say it another way?."* Or the tester may go on to another item and return later, perhaps with other objects.

COMMENTS:

Because many of the words being evaluated have several meanings sample questions are listed to assure that testers evaluate the intended concept. (See the inventory on comprehension for a more complete discussion.) Objects other than those suggested may be used.

Use the comments column to note the number of attempts at testing which were made or any other pertinent information. For example, if a child replies that an object held over the examiner's head is *above your head*, it should be noted. If a child always replies with a sentence, or with only the key word, this information should also be noted.

CHILD'S NAME_____

TEST DATE_____
month day year

EXAMINER_____

TASK ACCOMPLISHMENT: *RELATIVE LOCATION* (Production)

DESIRED RELATIONSHIP (Place the object in position, then ask the question.)	PRODUCTION (verbal response)	
	correct	incorrect
FRONT - Place Gumby in front of the child. *Where is Gumby?*		
ON - Place the car on the box. *Where is the car?*		
BEHIND - Place the doll behind the box. *Where is the doll?*		
INSIDE - Place the car inside the box. *Where is the car?*		
OVER - Hold Gumby over the child's head. *Where is Gumby?*		
MIDDLE - Point to the block in the center of the stack. *Where is this block?*		
OUTSIDE - Take the car out of the and place beside it. *Where is the car now?*		
BOTTOM - Point to the block on the bottom of the stack. *Where is this block?*		
UNDER - Hold Gumby under a chair. *Where is Gumby?*		
OFF - Remove the box from the table. *What did I do with the box?*		
TOP - Point to the block on the top of the stack. *Where is this block?*		
BETWEEN - Put the doll between the box and the car. *Where is the doll?*		

COMMENTS:

THIS INVENTORY IS TO EVALUATE

COMPREHENSION OF THE TERMS OF RELATIVE SIZE

EQUIPMENT:

A flat box for holding the objects gathered for the inventory and the following objects for evaluating:*

big & little	- 3 red felt triangles of varied size (nesting cups, color rings)
large & small	- 3 nesting cups of varied size (color cone rings, flannel shapes, plastic squares)
long & short	- 3 dowel rods of varied length (pieces of yarn, building blocks)
tall & short	- 3 towers made with cubes (dowel rods, rods from arithmetic devices)
thick & thin	- Property Blocks from The Judy Company (unit blocks in two thicknesses)
wide & narrow	- building blocks - unit blocks and a pillar (half as wide as unit block)

*NOTE: The objects in parentheses are others that might be used. The terms long and short are restricted to horizontal comparisons. Tall and short are restricted to vertical comparisons. Large and small, big and little, are restricted to items which change in all dimensions in space (as a larger and smaller ball) or items which vary in the same plane (color rings, plastic squares).

PROCEDURE:

Place the two or three objects (depending on age of the child) to test concept in front of the child. Say, *"Hand me the largest cup,"* or, *"Which tower is taller?," "Point to the shorter block."* Use only the comparative terms for three-year old children, comparative and superlative for older children. Otherwise, the inventory is quite long for the younger child. Thick and thin, wide and narrow, are placed at the end of the inventory, so they may be omitted for younger children, or those with language deficiencies. Do not go immediately from comparative to superlative column using the same dimensions of size. Instead, complete the comparative column, then start on the superlative.

COMMENTS:

Use the comments column to record the number of attempts that were made to test the child, or other conditions under whcih the inventory was taken. For example, it may sometimes be necessary for the tester to observe while the child interacts with a teacher using the inventory items.

CHILD'S NAME _____

TEST DATE _____
month day year

EXAMINER _____

TASK ACCOMPLISHMENT: *TERMS OF RELATIVE SIZE* (Comprehension)

POSITIVE	COMPARATIVE (ER)		SUPERLATIVE (EST)	
	Correct	Incorrect	Correct	Incorrect
large				
long				
small				
short				
big				
little				
tall				
thick				
narrow				
thin				
wide				

COMMENTS:

BEHAVIOR RATING FORM*
(Coopersmith, 1967)

1. Does this child adapt easily to new situations, feel comfortable in new settings, enter easily into new activities?
___always ___usually ___sometimes ___seldom ___never

2. Does this child hesitate to express his opinions, as evidenced by extreme caution, failure to contribute, or a subdued manner in speaking situations?
___always ___usually ___sometimes ___seldom ___never

3. Does this child become upset by failures or other strong stresses as evidenced by such behaviors as pouting, whining, or withdrawing?
___always ___usually ___sometimes ___seldom ___never

4. How often is the child chosen for activities by his classmates? Is his companionship sought for and valued?
___always ___usually ___sometimes ___seldom ___never

5. Does this child become alarmed or frightened easily. Does he become very restless or jittery when procedures are changed, exams are scheduled or strange individuals are in the room?
___always ___usually ___sometimes ___seldom ___never

6. Does this child seek much support and reassurance from his peers or the teacher, as evidenced by seeking their nearness or frequent inquiries as to whether he is doing well?
___always ___usually ___sometimes ___seldom ___never

7. When this child is scolded or criticized, does he become either very agressive or very sullen and withdrawn?
___always ___usually ___sometimes ___seldom ___never

8. Does this child deprecate his school work, grades, activities and work products? Does he indicate he is not doing as well as expected?
___always ___usually ___sometimes ___seldom ___never

9. Does this child show confidence and assurance in his actions toward his teachers and classmates?
___always ___usually ___sometimes ___seldom ___never

10. To what extent does this child show a sense of self-esteem, self-respect, and appreciation of his own worthiness?
___very strong ___strong ___medium ___mild ___weak

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TYPING BOOTH RECORDS

NEW NURSERY SCHOOL 1968-69

(Each line summarizes the activity of an individual child.)

DAYS ASKED	DAYS TYPED	TOTAL MINUTES	AVERAGE MINUTES	HIGHEST PHASE REACHED*
NNS First Year Pupils: N=15				
80	53	340	6.42	3
113	106	773	7.29	6
82	76	350	4.65	1
73	34	243	7.15	3
64	47	313	6.66	4
82	53	317	5.98	6
34	33	199	6.03	4
69	65	434	6.68	5
143	138	1256	9.10	9
109	90	530	5.89	1
103	103	919	8.92	8
113	84	529	6.29	6
144	142	979	6.89	3
104	100	871	8.71	6
125	112	430	3.84	4
NNS Second Year Pupils: N=13				
101	86	406	4.72	7
100	84	719	8.56	9
101	88	884	9.99	9
62	40	393	9.83	7
115	106	741	6.99	9
100	81	706	8.25	9
109	105	685	6.52	7
112	56	411	7.34	9
94	55	496	9.02	6
87	63	378	6.00	8
131	118	855	7.25	8
94	73	584	8.00	9
91	54	422	7.81	3

*For explanation of the phases these numerals indicate, refer to Typing Booth Information.

SUMMARY OF CLASSROOM USE OBSERVATION RECORDS

NEW NURSERY SCHOOL 1968-69

The total number of times each child was observed (100%) was pro-rated for each of the activity groupings listed below. If a child was observed 100 times and was being read to or was listening to records ten of those times, a value of ten per cent was assigned to that category for that child. Percentages were rounded off to the nearest whole number.

Reading and Listening	Art Activities	Blocks	Small Manipulative Toys	Specific Language Activities	Typing and Testing	Passive Observer	Other
FIRST YEAR STUDENTS:							
21%	27%	22%	10%	4%	1%	6%	10%
21	29	2	22	6	15	1	5
19	16	46	7	2	3	2	5
32	32	6	13	3	3	0	11
21	23	30	14	0	3	2	8
20	28	28	22	2	3	9	6
19	51	5	12	0	2	2	10
21	19	30	16	2	3	2	8
23	21	13	16	1	11	5	10
31	22	17	22	0	5	1	2
23	17	6	26	0	19	12	8
33	22	11	14	0	8	5	7
23	22	12	16	1	18	5	3
12	27	25	11	1	16	6	3
17	23	27	23	1	7	2	2
SECOND YEAR STUDENTS:							
41%	16%	15%	9%	2%	3%	6%	9%
18	35	21	9	4	6	2	5
26	35	5	12	4	13	1	4
36	42	0	12	0	2	2	8
33	22	25	2	7	6	3	2
22	25	8	26	0	8	2	10
22	32	5	19	0	14	2	2
20	25	32	11	0	7	3	3
22	30	8	16	0	16	3	5
28	28	17	14	0	4	4	6
28	20	9	15	1	16	0	11
14	26	39	8	1	7	9	5
30	31	6	17	1	6	1	10