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ABSTRACT

The major objectives of this study were: (1) to determine if there were measurable differences in autonomy between Mexican-American and Negro children, (2) to determine the effects of three different preschool intervention programs upon the development of autonomy in Mexican-American and Negro children, and (3) to determine the relationship between intelligence and the different aspects of autonomy. This study evaluated 42 Mexican-American and 35 Negro children enrolled in the San Bernardino summer Head Start Program. The data on these children were obtained by utilizing the PPVT and the Cincinnati Autonomy Test Battery (CATB). Results of this study indicate the following: (1) In general, Mexican-American and Negro children appear to be very similar in the various aspects of autonomy; (2) Autonomous behavior tends to increase when children are in a preschool program, irrespective of different types of supplimentary curricula; (3) Mexican-American children tend to increase more in autonomous behavior during the preschool program than do Negro children; (4) Intelligence can be increased significantly in seven weeks when children are in a preschool program that emphasizes either language or autonomy; (5) Intelligence correlated positively only to those aspects of autonomy considered cognitively orientated; and (6) Differences in teacher expectations and teaching performance should not be ignored when studying the effects of different intervention programs. (Author/DB)

THE EFFECTS OF THREE PRESCHOOL INTERVENTION PROGRAMS ON THE DEVELOPMENT OF AUTONOMY IN MEXICAN-AMERICAN AND NEGRO CHILDREN[1]

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CHAPTER 1

INTRODUCTION

In assessing the effects of early childhood education programs emphasis has often been placed on measuring cognitive development or other learning behaviors on the basis of changes in IQ scores. Several evaluative instruments measure only one aspect of behavior, for example, verbal ability as tested by the Peabody Picture Vocabulary Test or perceptual-motor ability as tested by the Goodenough Draw-a-Man Test. Other tests, such as the Stanford Binet, measure conventional learning, memory, and the ability to follow directions. When disadvantaged children are tested with these instruments they invariably score below the norms that have been established on white middle-class children. The impoverished backgrounds of disadvantaged children have not provided them with the experiences which enable them to do well on standard intelligence tests. Even though these children score lower than middle-class children there are a wide variety of skills and abilities which have not been considered in this type of testing.

In recent years it has become apparent that effective learning behavior of young children is complex and encompasses more than just intelligence as currently measured. The need for new measurement techniques and instruments has been especially critical when the effects of preschool intervention programs must be evaluated. Glick (1966) indicates that it is a fallacy to interpret performance on intelligence tests as reflecting underlying cognitive structures and then inferring from improvement in scores on these tests that

fundamental changes in cognitive structures have occurred as a result of the intervention program.

It has been established that language is one of the areas in which disadvantaged children are most deficient. Intelligence tests usually involve some type of language evaluation, however, this assessment is generally based upon vocabulary rather than the more complex aspects of language behavior. Perhaps the best known measure in the area of language is the Illinois Test of Psycholinguistic Abilities (ITPA). There is still a need for more precise measures of specific language skills. The UCLA Preschool Language Project has attempted to meet this need with the development of the following measurement instruments: the Children's Auditory Discrimination Inventory (CADI), the Visual Discrimination Inventory (VDI), the Echoic Response Inventory for Children (ERIC), the Expressive Vocabulary Inventory (EVI), the Verbal Output Inventory, the Structured Story-Telling Test and the Language Comprehension Inventory (Stern, 1968a).

Other areas of evaluation have centered around the developmental concepts of Piaget, cognitive styles, concept development, and other behaviors specifically related to the cognitive aspects of a child's abilities. These measures have neglected to evaluate a number of variables which have an important effect upon intelligence, language, and cognition. The variables which have not been adequately evaluated are concerned with the methods used by children in approaching and solving new problems. There are a wide variety of component behaviors which interact with cognitive processes in the development of problem

solving skills. Curiosity, innovative behavior, impulse control, persistence, resistence to distraction, task initiation, reflectivity, and field independence have been subsummed under the rubric of "autonomy" to describe those self-regulating behaviors that are important for the effective learning of young children (Banta, 1966).

An autonomous individual has been described as one who tends to be happy and competent. He is usually able to make his own choices and feel responsible for his decisions. The autonomous child is usually a good problem solver. Furthermore, such a child shows curiosity about problems, innovates alternative solutions and usually displays a good ability to analyze problems (Banta, 1966).

Banta (1966) states that there are three educators who have developed eduation programs which are based upon the autonomous functioning of individuals. These are Sylvia Ashton-Warner, Maria Montessori, and A. S. Neill. Sylvia Ashton-Warner (1963) has spent her life teaching Maori children in New Zealand. She helped these children learn by teaching them words that were meaningful to them and words they themselves had chosen to learn. She accepted disorder, aggressive play, and noisy excitement as part of the teaching day. Maria Montessori (1917) emphasized structure and freedom in her program. Children could work individually with the teaching materials in which they were interested. At Summerhill, A. S. Neill (1960) put into practice his belief in freedom "without license". He pointed out that the child must find and make his own materials and not just rely on the lesson plans of the teacher.

The importance of the development of certain autonomy skills and a need for adequate evaluation of these skills has been indicated by a number of investigators. Kagan (1965) suggests that reflectivity is an important skill for children to acquire, since it is related to accurate word recognition. Others suggest that reflectivity is also related to effective problem solving (Kagan, Rosman, Day, Albert, & Phillips, 1964). Maccoby, Dowley, Hagen, and Degerman, (1965) found that children who were able to restrain their impulsive actions when the task demanded it also did better on intelligence tests. Witkin, Dyk, Faterson, Goodenough, and Karp (1965) state that the person who is field independent will experience his surroundings analytically. It would appear that this skill would also have some relationship to intelligence. Postman (1964) points out that both intentional and incidental learning skills determine how a child initially receives information and whether or not he is able to immediately store that information. The importance of curiosity and initiative is pointed out by Deutsch (Senn, 1969) who suggests that teachers may stimulate curiosity and initiative in children but that the usual testing in schools does not measure these behaviors. The need for more evaluation in the area of creativity is indicated by such investigators as Getzels and Jackson (1962), Iscoe and Pierce-Jones (1964), and Wallach and Kogen (1965) who suggest that educational emphasis on conventional intelligence may penalize the person who is creative.

Preschool programs are conceivably fostering the development of the various aspects of autonomy. However, research has not yet adequately determined the effects of the different types of preschool

programs upon the development of autonomous behavior in children.

Statement of the Problem

Very little research has been conducted on the effects of different preschool intervention programs on the individual components of autonomy. Banta (1967) reports a study in which the effects of structured and permissive Montessori classrooms were evaluated to see the differences in autonomous behavior that were developed in the lower- and middle-class children who were attending these classrooms. It was found that innovative behavior, curiosity motivation, and exploratory behavior was lacking among the lower-class children, but this could be modified through permissive preschool programs. Children enrolled in structured classrooms developed skills in reflectivity and field independence. It appeared that classrooms function on an either-or basis: either curiosity and innovative behaviors or reflectivity and field independence were developed. Intentional and incidental learning improved with both middle- and lower-class children in both structured and permissive classrooms. Since all of these behaviors are important for effective problem solving, it would be valuable to determine what type of program can best foster the development of all of the various autonomy skills in young children.

Therefore, a major area of concern in the field of early childhood education is to determine what effect different preschool programs have on the development of autonomy. For example, do children in different types of programs develop different autonomy characteristics? Can autonomy be developed through direct teaching? Does a child develop

autonomy as a by-product when he has obtained a degree of competence in a cognitive area such as language? How do various types of programs affect the development of autonomy in children of different ethnic groups? Does the structure of the program affect the development of the child's autonomy?

Since autonomous behavior appears to be an important aspect of a child's total behavior, the question also arises concerning the origin of autonomous behavior. All children are not equally curious or creative; nor do they have the same amount of impulse control, persistence, reflectivity, or the ability to separate details of an object from the context in which it appears. Since one investigator (Banta, 1968a) has suggested that the different aspects of autonomy cannot be taught, but must be developed naturally within an individual, it would be of interest to determine if children of different cultural groups may have developed different aspects of autonomy before their entrance into a school situation. Such information would be useful to educators who are working with disadvantaged children. Specifically, it would aid them to help the child develop strength in those areas in which he is weak, as well as in fostering those areas in which he is strong.

Since autonomy is essential for effective learning in young children, it appears important that educators know more about this aspect of a child's behavior. The purpose of this study was to obtain information that would aid in answering the following questions:

1. What are the differences in autonomy between Mexican-American and Negro children before they are influenced by a formal school program?

2. What effects do three different preschool intervention programs have upon the development of autonomy in Mexican-American and Negro children?

3. What is the relationship between intelligence and the different aspects of autonomy?

Definition of Terms

For the purposes of this study, the definition of autonomy and the autonomy variables are the same as defined by Banta (1968a).

Autonomy: Self-regulating behaviors that facilitate effective problem solving.

Curiosity: Tendency to explore, manipulate, investigate, and discover in relation to novel stimuli.

Field independence: Tendency to separate an item from the field or context of which it is a part.

English competence: Ratings of ability to understand and speak English.

Impulse control: Tendency to restrain motor activity when the task demands it.

Incidental learning: Tendency to acquire information not referred to in the instructional stimuli.

Innovative behavior: Tendency to generate alternative solutions to problems.

Intentional learning: Tendency to acquire information specified in the instructional stimuli.

Kindergarten prognosis: Ratings of ability to do well in

conventional kindergarten.

Persistence: Attention to a problem with solution-oriented behavior where the goal is specified.

Persistence after distraction: Persistence, with distracting stimuli present.

Reflectivity: Tendency to wait before making a response that requires analytic thinking, when the task demands it.

Social competence: Ratings of ability to work comfortably with adults.

Task competence: Ratings of tendency to deal effectively with problems of many kinds.

Task initiation: Tendency to initiate activity without adult direction.

Verbalization - questions and comments: Tendency to question tester and make comments about a novel object while exploring it.

Verbalization - fantasy and other: Tendency to engage in fantasy and other verbalization, expressed while exploring a novel object.

Test Variables: All of the 22 variables evaluated in this study, which includes intelligence and the 21 autonomy variables.

Limitations of the Study

This study was limited to the investigation of the specific autonomy variables as defined in the section on definition of terms. The study did not deal with independence or similar variables which may be related to autonomy. Even though one treatment taught language skills, no evaluation was made of the language development of the

children. The study was only concerned with the effects of different preschool programs on autonomy.

Data were collected on Mexican-American and Negro Head Start children. No attempt was made to determine the autonomy characteristics of children from other ethnic or socioeconomic groups who may be affected in different ways by the specific intervention programs used in this study. The results of this study should not be generalized to populations which display dissimilar socioeconomic, educational or cultural characteristics.

Only three types of intervention programs were used in this study. Other intervention programs would conceivable have different effects.

The period of time during the intervention programs was only five weeks, since testing was conducted during the first and last weeks of the program. A longer period of time may have had a different effect upon these children.

The evaluation of the autonomy variables was done immediately after the intervention programs. There was no attempt made to determine the longitudinal effects of the different treatments.

Organization of the Study

There are five chapters in this study. Chapter 1 presents the statement of the problem, the definition of terms used in this study and the limitations of the study. Chapter 2 contains a review of literature relating to preschool programs and the cultural differences between the Mexican-American and Negro groups. Chapter 3 includes the objectives of the study, hypotheses, description of the treatments,

selection of the sites and subjects, evaluation instruments, and the procedure utilized in the collection of the data. Chapter 4 presents the results and discussion of the analyses of data. Chapter 5 includes the summary, conclusions, and recommendations for further research.

CHAPTER 2

REVIEW OF LITERATURE

Preschool Programs

History of Preschool Programs. There are a variety of preschool programs in operation today. Not all of these are effective in promoting learning. Even among those schools that do have knowledgeable standards, a variety of programs and curricula exist to serve different functions. This is understandable if one considers the historical development of preschools in the United States.

Early in the twentieth century, day care centers were established in urban slums to provide for the essential needs of poor children. During the 1920's and 1930's, preschools were conducted in connection with research centers at such universities and colleges as Iowa, Yale, and Minnesota with the purpose of discovering and demonstrating better ways of caring for young children. The curricular objectives of these schools were primarily concerned with habit training and the promotion of physical health.

During the depression of the 1930's a large number of WPA nursery schools were established for the purpose of feeding children and providing jobs for unemployed teachers. The Lanham Act, during World War II, provided for the organization of nursery schools which were to care for young children so that their mothers could become part of the needed work-force for the war industries (Sears & Dowley, 1963; Burgess, 1965). It is interesting to note that the primary purpose of preschool

education in the United States has often been the welfare of the adults rather then the children.

Other types of nursery schools which have been established are the church-sponsored schools which provide religious instruction in addition to care and new experiences for children and, since World War II, parent cooperative nursery schools which give children some social experiences while the parents have an opportunity to learn about modern ideas of child rearing.

During the 1940's the writings of J. E. Anderson (1947), Frank (1938), Gesell (1940, 1943), and Spock (1946) influenced the thinking of nursery school educators and caused them to re-evaluate their aims and objectives to include emphasis on the social interaction of the group as well as the modification and direction of the behavior of individual children. Freud's writings have also influenced educators with the need to provide for the emotional development of young children.

It was not until the 1950's that nursery school education began to take on a new focus. Middle-class parents began to realize that children were capable of learning more than what was currently being taught in the traditional nursery schools. The Montessori educational system was so appealing to many parents that they began to establish Montessori schools.

Educators and psychologists began to realize that young children had a wide potential for learning, if only they were given the opportunity. The writings of Jean Piaget (1952) concerning the origins and stages of intellect has motivated voluminous research concerning the

concepts of young children and how such concepts could be developed. By the early 1960's writers such as Hunt (1961), Fowler (1962), and Bruner (1966) suggested that young children could learn much more than they were currently learning if only they were taught in an appropriate manner. The importance of a child's early years on his later intellectual development has been emphasized by such researchers as Bloom (1964) who states that a child has developed 50% of his intelligence by the time he is four years of age and 80% by eight years of age.

The great social need that was stressed in the 1960's was the education of poverty children. Research findings have indicated that disadvantaged children are significantly behind middle-class children when they begin school. Furthermore, instead of overcoming this deficiency they get further behind as they progress in school (Bereiter & Engelmann, 1966). By the time these children reach junior high school, 60% are considered to be retarded in their reading skills by one to four years (Deutsch, 1967). Therefore, the solution to the problems of these children appears to lie in an appropriate use of the years before school. Experimental preschool intervention programs were started in the Murfreesboro, Tennessee Schools in 1960 by the Early Training Project at Peabody College (Gray, Klaus, Miller, & Forrester, 1966), in New York in 1962 by the Institute for Developmental Studies (Deutsch, 1962), in Ypsilanti, Michigan in 1962 by the Perry Preschool Project (Weikart, 1967), in Baltimore in 1963 by the Baltimore Early Admissions Project (Brain, 1964) and in Greeley, Colorado in 1964 by the New Nursery School (Nimnicht, Meier, McAfee, & Anderson, 1966), to mention only a few of the more popular locations.

In general, all of the experimental programs seemed to have in common great emphasis on language. In addition each project had varying degrees of emphasis on perception, concept formation, and the self-concept. Many of the projects have become longitudinal projects to assess the effects of preschool programs after a child is in a regular school program.

In November 1964 the Federal Government realized the need for a large federally funded program for the education of young disadvantaged children before they entered kindergarten or the first grade. A planning committee was formed including George Brain, James L. Hymes, Jr., and Jack Neimeyer. Julius B. Richmond, M.D. was named as project director in February and the program was implemented in June 1965 with over 550,000 children enrolled at approximately 2,500 Child Development Centers. This was the beginning of Project Head Start (Osborn, 1965). After the eight week summer programs in 1965, many centers continued on the year-round basis. In 1969, the administrative responsibility of operating Project Head Start was transferred from the Office of Economic Opportunity to the newly established Office of Child Development in the United States Department of Health, Education, and Welfare. Today, Project Head Start is being recognized as an established educational system for young disadvantaged children. In many school systems these programs have become a part of the public school system which can now offer a continuous education for children beginning with their fourth birthday.

Most of the early Head Start programs were much like the traditional nursery schools of middle-class children in which children were

introduced to new experiences through spontaneous play. Research has now established the fact that children enrolled in programs which have specific objectives, such as language development, make greater educational gains than children enrolled in traditional programs. This finding has influenced Head Start programs in becoming oriented toward specific objectives which are to help children establish skills that will enable them to be more successful in the regular school program.

From this historical sketch, one is able to see that nursery schools have been established for many different purposes. Objectives of the earliest preschool programs were for the children's care, habit training, and physical development. In the 1930's and 1940's the emphasis changed to the social-emotional aspects of development. The cognitive aspects of a child's development became important in the 1950's which led, in the 1960's, to a full scale application of this fact to programs for children from poverty areas where their language development and cognitive skills had been markedly neglected.

The Effects of Preschool Intervention Programs. A number of studies on the effects of preschool attendance were conducted around 1930 on orphanage children. Barrett and Koch (1930) and Ripin (1933) found positive gains in intelligence which they attributed to orphanage nursery school programs while Hildreth (1928) and Goodenough (1928) reported negative findings.

Other studies in the 1930's were concerned with the changes in children's social behavior with nursery school attendance. Walsh (1931) selected two matched groups of children, one group attending nursery school and the other not, and found that nursery school

school children, after six months, had gained more than the other children in initiative, independence, self-assertion, self-reliance, curiosity, and interest in the environment.

Studies by Hattwick (1937), Joel (1930), and Kawin and Hoefer (1931) reported that children were more independent after nursery school attendance. Hattwick (1937) also found that children who attended nursery school showed better routine habits and social adjustment, but were not superior in emotional behaviors such as crying easily, fearing animals, twitching, sulking, temper tantrums, and thumb-sucking. Andrus and Horowitz (1938) also found negative results in this area. Ezekiel (1931) found that children who were initially timid and unaggressive became more aggressive and showed increasing skill at making themselves the center of activity after attending nursery school, while initially aggressive children continued to be aggressive.

The early studies concerning the changes in intellectual development with nursery school attendance have been reviewed by Sears and Dowley (1963), Hunt (1961) and Swift (1964). The most extensive work in this area was carried out at the Iowa Child Welfare Research Station during the 1930's and early 1940's. These studies were a part of a larger series of studies of the effect of a variety of environmental conditions upon intellectual development. The Iowa findings appeared to show a substantial effect of school attendance on the development of intelligence. The overall findings have been reported by Wellman (1932, 1934, 1940), Skeels, Updegraff, Wellman, and Williams (1938) Skeels (1940), and Stoddard and Wellman (1940). These studies, however, were severely questioned by Goodenough (1939) and McNemar (1940).

McNemar even reanalyzed the data of Skeels, Updegraff, Wellman and Williams (1938) and discovered that the number of subjects was inflated because an individual might have been counted more than once. Using the reduced number in the reanalysis of data, McNemar found no statistically significant differences between the experimental and control groups. The early studies in this series did have defects in experimental design and analysis which were remedied in later studies and were summarized by Wellman (1943).

There were a number of studies that indicated that nursery school programs had no effect upon a child's intelligence (Kawin & Joefer, 1931; L. D. Anderson, 1940; Bird, 1940; Jones & Jorgensen, 1940; Lamson, 1940; Goodenough & Maurer, 1940; Olson & Hughes, 1940).

Among the weaknesses of some of these early studies pointed out by Jones (1954) are the following: (1) Researchers often failed to include a control group matched on certain crucial variables such as education, intelligence, and socioeconomic status of the parents. (2) Conditions during pre and posttesting were not always comparable. For example, the experimental children were initially tested in the unfamiliar setting of the school while the controls were tested in their homes. The gains made by the experimental group might be attributed more to an increased rapport with the testers in a setting which was no longer unfamiliar, rather than to actual growth in intelligence. (3) The control group was not acquainted with the testers but the experimental group may have been. (4) Treatment groups were not always described in adequate detail. (5) Preschool studies were not generally longitudinal to determine if gains were permanent. In a

summary discussion of the effects of preschool education, Jones (1954) said, "It is quite reasonable to expect some IQ gains among children released from a static or unstimulating environment, whether this release is provided by a school, a foster home, or other environmental change" (p. 682).

There are few studies in the literature concerning the effects of nursery school attendance on the cognitive aspects of children during the 1940's and the early 1950's. However, since the late 1950's, with the rebirth of interest in early stimulation, especially concerning the disadvantaged child, there are so many programs and studies that it is impossible to include all of them in this review.

In the early 1960's many experimental compensatory intervention programs were established. Most of these programs used the middle-class nursery school curriculum as a model. However, in many cases it was found that this curriculum was inadequate to equip disadvantaged children with the skills they needed to cope with the school tasks at the same level of performance as the average middle-class child. Many of these programs began to experiment with different curricula to determine which type of programs helped children make the greatest gains in language and other cognitive skills. Since many of these are longitudinal programs, evaluations are still being conducted to determine their long-range effects.

One of the most well-known intervention programs was established in 1962 at the Institute for Developmental Studies in New York City by Martin Deutsch. At the preschool level, the curriculum concentrated on four areas: language, self-concept, perception, and conceptual

learning. In addition to these, there was a program of reading, math, and science which continued from prekindergarten through third-grade. The curriculum stressed sequential learning, individual pacing, and immediate feedback. In many respects the curriculum was based upon experiences common to children in a traditional nursery school program. For example, to help overcome language handicaps, the children took field trips, engaged in oral story telling, and used the Language Master and telephone.

A number of new materials were developed by Lassar Gotkin for this project. Some of these included the Letter Form-Board which provided a visual-motor experience in the development of letter-discrimination skills; the Language Lotto game which differed from standard lotto games in that it could be played at different language and conceptual levels, or without any language; and the Matrix Games which were used to develop cognitive abilities involved in solving problems. During the seven years of operation various evaluative measures were used in this program. Some of these were standard instruments, such as the Stanford-Binet, Peabody Picture Vocabulary Test (PPVT), and the Columbia Mental Maturity Scale, while others were developed by the project (New York University, Institute for Developmental Studies, 1966). In 1968 six waves or groups of pupils were tested: Wave 1 was in fourth-grade and wave 6 was in prekindergarten. In summary, the analysis showed that for the second through fourth waves the experimental groups performed significantly better on the first Stanford-Binet posttest (at the end of prekindergarten) when compared with the control groups. A similar difference was also found when the group

was tested after completing kindergarten, but not after first grade (New York University, Institute for Developmental Studies, 1968).

The Perry Preschool Project under the direction of David Weikert began in Ypsilanti, Michigan in 1962. This longitudinal preschool program consisted of a daily three hour cognitively oriented nursery, a weekly 90-minute home visit, and less frequent group meetings of the pupils' parents. Contact with the control group was limited to the collection of the evaluation data. The students were three and four-year-old Negro disadvantaged and functionally retarded children, whose pretest scores on the Stanford-Binet were 85 or below. There were approximately 12 three-year-old and 12 four-year-old children who participated annually. Each age group was referred to as a wave. Wave 0 was the four-year-old group which started preschool in 1962.

Waves 0, 1, 2, and 3 were exposed to an instructional method that has been described as "verbal bombardment" where the teacher maintained a steady stream of questions and comments to draw the child's attention to specific aspects of his environment. Wave 4 was exposed to an instructional program which was much more highly structured than that of the previous years (1962-1965). This new curriculum was influenced by the developmental theory of Piaget. The program aimed to facilitate the transition from sensory-motor to conceptual intelligence through an instructional program which promoted an understanding of symbolization and elementary types of relationships (Kamii and Radin, 1967).

The program was evaluated using the following instruments: the Stanford-Binet, PPVT, the Leiter International Performance Scale, and the Illinois Test of Psycholinguistic Abilities (ITPA). On the basis

of these evaluation measures differences were obtained which favored the experimental groups in the early years when the results for all five waves were combined, but by the second-grade these differences had disappeared. The California Achievement Tests and the Gates Reading Tests were given from first grade onward and showed that the experimental group significantly outperformed the control group in each grade (Weikart, 1967).

Recently a three-way comparison study was initiated whose objective was to compare Wave 5 which received the Piagetian curriculum, with a conventional preschool group and also with a group being instructed according to the Bereiter-Engleman method (Weikart & Wiegerink, 1968).

Another type of preschool intervention program was conducted by Glen Nimnicht (Nimnicht, Meier, McAfee, & Anderson, 1967) at the New Nursery School in Greeley, Colorado. This research and demonstration school opened in 1964 with 30 children, three to five years of age. The unique feature of this program was the utilization of an autotelic responsive environment in which each child spent approximately 20 minutes a day learning at an electric typewriter while being assisted by a specially trained individual. The curriculum was a combination of Omar K. Moore's (Moore & Anderson, 1967) responsive environment concept and Martin Deutsch's (1962) enriched nursery school program together with the adaptation of some techniques attributed to Maria Montessori (1917). All of these approaches stressed learning by discovery and emphasized the symbolic and linguistic skills which are considered to be the foundations for later academic performance. The program was evaluated using the Stanford-Binet, PPVT, Vineland Social

Maturity Scale, and tests developed by this project for the purpose of assessing concept formation, development of the senses and perceptions, and language skills. The results obtained on the PPVT indicated that while the control group (average middle-class children not attending school) decreased from 110 to 107 IQ points the experimental group increased from 82 to 90. This suggests that the gap between deprived children's measured scholastic ability and that of middle-class children can be narrowed, but may not necessarily be overcome in this type of preschool program.

In another comparative study in which the experimental program used a more elaborate type of responsive environment, including individual cubicles equipped with an electric typewriter, slide projector, microphone, and amplifier, no significant differences were observed between the experimental and control groups during a three year period (Blatt & Garfunkel, 1967).

Another type of intervention program was established in Murfreesboro, Tennessee by the Early Training Project at Peabody College (Gray, Klaus, Miller, & Forrester, 1966). In this study during the two preschool years and during the first year of school, special experiences were provided which were to contribute to better intellectual processes and personal adjustment for the underpriviledged child. This program differed from others in that the children attended a special nursery school only during a ten-week summer session with contacts being continued during the winter by a home visitor who provided materials and maintained a supporting and reinforcing relationship with the child. The program consisted of two experimental treatment groups,

a three-year study program and a two-year program, and two control groups which received no training. The instruments used to evaluate this program were the Stanford-Binet, PPVT, Wechsler Intelligence Scale for Children (WISC), Illinois Test of Psycholinguistic Ability (ITPA), Metropolitan Readiness and Achievement Tests, and the Stanford Achievement Tests. The results indicated that the initial gains made by the experimental groups were statistically significant and were held until the entry into first grade, when a slight decrement began to appear.

The University City School District in Missouri (Coffman & Dunlap, 1967) conducted a personalized program based on the assessment of each child's development skills. A child was placed in one of four different nursery school groups, namely, motor development, auditory-language, visual, or cognitive, depending upon his particular weaknesses. For 20 minutes daily the child worked on instructional materials adapted to his individual needs. Significant gains were made in all of the expermental groups.

Spicker, Hodges, and McCandless (1966) also based their program on diagnosing the particular needs of individual children and then developed a curriculum which was designed to alleviate these needs. In the area of language, the investigators developed a series of short, structured lessons to help develop such skills as visual-motor associations, vocal encoding (ability to express ideas in spoken words), and motor encoding (ability to express ideas through gestures). The expermental group made significant gains over the control group which stayed at home. These gains were maintained through kindergarten, but the

difference ceased to be significant after the first grade.

Sprigle (Sprigle, Van de Riet, & Van de Riet, 1967) developed a curriculum based on motor, perceptual, and symbolic development tasks. When a group of Head Start children receiving this instruction was compared with a group receiving a traditional program and a control group the experimental group performed better than the other two groups at the end of preschool on the Stanford-Binet, PPVT, Bender-Gestalt, ITPA, and the Metropolitan Reading Test, but by the end of the first grade these differences began to disappear (Van de Riet, 1967).

Perhaps the most controversial intervention program that has been developed is the Bereiter-Engelmann approach to language learning. This experimental program, developed at the University of Illinois in 1964, is referred to as the Academically Oriented Nursery School. Its development was a response to the urgent need for efficient language training of disadvantaged children and was concerned with those aspects of language which are essential to the understanding of concepts, logical thinking, and problem solving rather than to the social and expressive aspects of language. This program was based upon the premise that by the time disadvantaged children are five years of age they are two years behind their advantaged peers and in order to catch up, these children must progress at a faster than normal rate. For this reason the program emphasis was on producing language patterns rather than merely responding to them. Pattern drills, not unlike those used in teaching foreign languages, were used. Stressing language development in the areas of reading, language arts, and math, the Bereiter-Engelmann program was not concerned with the traditional preschool

activities of arts and crafts, block play, dramatic play, and group play.

Dramatic results have been found over a two-year period. For example, after a year of the Bereiter-Engelmann program, children who had tested from a year or more below average on the ITPA were able to perform at the average for their chronological age. On the Wide Range Achievement Test at the end of the kindergarten year the mean attainment expressed in grade equivalent scores in reading was 1.5, in arithmetic, 2.6, and in spelling, 1.7 (Bereiter & Engelmann, 1968). The most recent evaluations seem to indicate that gains can be made using this method, but final results of the longitudinal research are not yet available.

Most intervention programs have placed emphasis upon the curriculum the children received in a school environment. Head Start programs include the parents of the children in the teaching program and have parent meetings with the purpose of teaching parents how they can help their children. Other programs have included teacher visitation to the child's home (Gray, et al., 1966; Weikart, 1967). A unique home centered approach to early stimulation has been developed by Ira Gordon (Gordon & Guinagh, 1969) at the Institute for Development of Human Resources, University of Florida. This program is a continuation of the work done with mothers of infants under two years of age. The current program is for children two and three years of age, but there are plans to follow these children through kindergarten. In this program the parents of the children enrolled in the program are used as parent educators. These parent educators visit homes explaining

methods and materials that parents may use in working with their children. In addition there are backyard centers which are established in a home of a mother participant. Each mother and children enrolled in the program are brought to the center for four hours a week. The center director and a graduate assistant work with the children while the parent educators work with the parents. The activities are coordinated so that the parent is able to continue presenting in his home the concepts the child was working with in the backyard center. Evaluation instruments include the Bayley Infant Scales of Development, Stanford-Binet, PPVT, Leiter International Scale, and self-concept tests which are to be developed.

There are a variety of other programs that have been reported, generally ranging from relatively unstructured (Fresno City Unified School District, 1968; Minuchin & Biber, 1967) to semi-structured programs such as the Baltimore Early Admissions Project (Harding, 1964), and The Reading Readiness Nursery at the University of Chicago (Strodtbeck, 1963). Some programs, such as the Peabody Language Development Program (Dunn, 1965), the Readiness for Language Arts Program (Buchanan & Sullivan, 1967), and the UCLA Preschool Language Program (Stern, 1968, 1969) are intended as supplementary language activities rather than total curricula.

A considerable volume of research has been conducted on Head Start programs throughout the country. Studies on summer Head Start programs have indicated that children have made pre-post gain scores on such variables as school readiness (Wolff & Stein, 1966; Pierce-Jones, Boger, Linn, Caldwell, Friedman, Cunningham, Hood, Schuhmacher, Coody, & Barron, 1966), reading achievement (Ramsey & Boercker, 1967),

self-esteem (Lamb, Ziller, & Maloney, 1965), greater speed in attacking a learning task and perseverence (Porter, Leodas, Godley, & Budoff, 1965), social attitudes toward the learning tasks (Montez & Erickson, 1966), and a Montessori program where gains were made in intellectual-academic and social-emotional skills (Johnson, 1965). One study (Chorost, Goldstein, & Silberstein, 1967) found substantial gains in all performance areas between pre- and posttesting, but the only observed distinction between Head Start children and non-Head Start children after the children entered school was that the Head Start children had better school attendance.

Since cumulative evidence clearly indicates that preschool intervention programs do change children's behavior, a need has arisen to determine the different effects of the various curricula that have already been developed. A number of studies have been and are currently being conducted utilizing such curricula.

The Perry Preschool Project is currently evaluating the effects of three different curricula, namely the Piagian, Bereiter-Engelmann, and the conventional nursery school (Weikart & Wiagerink, 1968).

The UCLA Head Start Evaluation and Research Center studied the effects of two different language programs, namely, the Behavioral Research Laboratories' Readiness for Language Arts Program, the UCLA Preschool Language Program, and a Placebo Program. The Readiness for Language Arts Program consists of six teacher manuals and demonstration booklets, three of which were used for this study. The children were introduced to the following basic skills and concepts: left-right, colors, geometric shapes, numbers, story sequence, small letters, and

capital letters. The UCLA Preschool Language Program consists of a large variety of programmed learning activities to foster language skills in the following areas: natural science, social studies, problem solving and pre-reading. The Placebo Program included activities such as songs, stories, games, and coloring. In this study 104 disadvantaged children were pre- and posttested using the PPVT, The Preschool Inventory (Caldwell, 1968), the Gumpgookies, which tests achievement motivation (Baliff & Adkins, 1968), and the following tests developed by the UCLA Head Start Evaluation and Research Center: (1) the BRL to assess the instructional objectives of the Readiness for Language Arts Program, (2) the Visual Discrimination Inventory, and (3) the UCLA Early Childhood Language Tests for Four-Year-Olds, which is a battery of achievement tests to measure the instructional objectives of the UCLA Preschool Language Program. After 24 weeks of instruction, it was found that the children in both of the language programs obtained superior scores compared to children in the Placebo Program. Furthermore, it was observed that irrespective of the instructional treatments, Anglo-American and Mexican-American children tended to perform better than the Afro-American children (Edwards & Stern, 1969).

The New York State Education Department conducted an evaluative study on 1010 disadvantaged and 225 non-disadvantaged children in eight different districts (Di Lorenzo & Salter, 1967). The general curriculum in all of the programs was the same but certain activities were added to selected classes in three districts. In Schenectady, the children in two classes were given individual work with reading

readiness materials and when the children were able they were given preprimers and primers. In Cortland, half of the children used the Language Pattern Drills of Bereiter and Engelmann while the other half participated in small-group discussions planned to build language skills. In Mount Vernon half of the children came to school in very small groups for only an hour a day to participate in a program that included a brief but regular exposure to the Edison Responsive Environment (talking typewriter) while the balance of the curriculum was a modified Montessori program. In other districts the stress was on the interaction of disadvantaged and non-disadvantaged children.

The results from the Stanford-Binet, PPVT, ITPA, and the Metropolitan Readiness Tests indicated that the Schenectady program produced the greatest number of significant differences in the two-year period. Cortland's program was only in operation for one year but it produced the greatest gain and the largest differential between experimentals and controls on the Stanford-Binet. The Mount Vernon Edison Responsive Environment program was not effective nor were those programs which stressed the interaction of disadvantaged and non-disadvantaged children.

Merle Karnes has conducted a longitudinal comparative study on different preschool intervention programs. The first report (Karnes, Wallerheim, Stoneburner, & Hodgens, 1966) was on the effectiveness of a highly structured direct instructional program (Ameliorative Program) and a traditional program for culturally disadvantaged children. In the Ameliorative Program all of the activities were carefully programmed. Experiences in understanding, determining relationships,

closure, expressing ideas, and memory were included. The children were divided into three ability groups. With one of the groups of children a teacher taught all of the subject areas (math, language arts, social studies, and science). Twenty-five minutes was spent daily in each area with a 15 minute break between for a snack, a story, or music. The findings of the preliminary phase of the five-year long study found that the structured group gained more in IQ points, in perceptual development, and school readiness, but both groups of children made comparable progress in the development of psycholinguistic skills as measured by the ITPA.

A later report of the Karnes study is discussed in Hunt (1969). Three intervention programs were compared during a two-year period. These were the Direct-Verbal (Bereiter-Engelmann), the Ameliorative Program (Karnes) and a traditional program. The children in the Direct-Verbal and Ameliorative programs showed dramatic increases in their Stanford-Binet IQ scores at the end of the preschool period, and early in the first grade. However, by the end of the first grade year there were no differences between the children who had had the three different kinds of preschool experiences. The children in the traditional program had made modest gains initially, but maintained these gains throughout first grade. Children in the other two programs lost a large portion of the dramatic increases exhibited earlier.

Only a few comparative studies have been conducted using short term summer programs. One of these was conducted in the Detroit Head Start program where the effects of five different curricula were evaluated. Specifically, these programs comprised, (1) five centers

which used the basic Detroit Head Start curriculum stressing perceptual and conceptual development through multi-sensory experiences using both the Experience Record and Handbook prepared by the Detroit Public Schools; (2) five control centers which used the Detroit program and Handbook but not the Experience Record; (3) one center which used the basic Detroit curriculum plus the Frostig program, which stresses visual perception; (4) one center which used the Doman-Delacato program, which stresses mobility training exercises; and (5) one center which used only the Bereiter-Engelmann program. No differences were found on the PPVT or the Brenner Developmental Gestalt Test of School Readiness (O'Piela, 1968).

Another short term study was carried out in eight sets of matched Head Start centers in Canton, Ohio, during a six-week Head Start program. The Bereiter-Engelmann curriculum was compared to individual teacher-developed curricula. The findings for this study indicate that the experimental groups did significantly better on the Caldwell Preschool Inventory and the Engelmann Concept Inventory than the control groups, but no follow-up study has been made (Rusk, 1968).

New programs are being developed and evaluated continually.

The Child Development Laboratory at the University of Louisville is currently conducting a study comparing three different preschool programs and two control groups (Miller, 1969). These include: (1) two Montessori classrooms, (2) four classrooms using the academic drills approach of Bereiter and Engelmann, (3) four classrooms using the DARCEE program developed at Peabody College, which emphasizes reinforcement of attitudes combined with training of basic skills and

intensive work with mothers, (4) a traditional nursery school group and (5) a non-preschool control group. Among the numerous tests for cognitive skills are two from the UCLA Preschool Language Project, the Children's Auditory Discrimination Inventory and the Parallel Sentence Production Test. In addition, the study will be using four tests from the Cincinnati Autonomy Test Battery (CATB), namely, the curiosity box, the replacement puzzle for persistence, the dog and bone test for innovative behavior, and the embedded figures test for field independence.

A large scale comparative study is being sponsored by Project Head Start itself. This longitudinal study, called "Planned Variation," consists of eight different preschool program models being applied in various Head Start centers throughout the country during the 1969-1970 school year. The approaches in this study includes the Elizabeth Gilkeson's developmental approach which stresses self-direction developed at Bank Street College, the Ronald Henderson program (University of Arizona) emphasizing the development of behavioral skills and attitudes, a behavior analysis approach developed by Don Bushell at the University of Kansas, the Becker and Engelmann's Academic Preschool developed at the University of Illinois, the Piagetian cognitive-oriented program developed by David Weikart at Ypsilanti, Michigan, Ira Gordon's involvement with parent educators developed at the University of Florida, an autotelic responsive environment developed by Glen Nimnicht at the Far West Laboratory for Educational Research and Development, and David Armington's action-oriented program developed at the Education Development Center. These programs are

being independently evaluated under contract to the Stanford Research Institute, Menlo Park, California.

When results from extensive longitudinal studies such as the above mentioned ones have been analyzed, information should be available regarding the effects that different programs have on children over extended periods of time. With such information educators should be able to meet the needs of the children more adequately.

In summary, a large variety of recent preschool intervention programs have been primarily concerned with the development of those aspects of cognitive behavior in which disadvantaged children have been found to be deficient and which are considered to be most important to a child's adjustment and success in school. The most common aspect of intervention programs have dealt with a variety of ways to develop language abilities in young children. Other important behaviors that have been considered are perception, visual-motor abilities, and concept development. The intervention programs have ranged from relatively unstructured to carefully structured programs. The evaluative measures which have been used are the Stanford-Binet, the PPVT, the ITPA, and various other tests for assessing intelligence and cognitive skills. Results based on these evaluation methods indicate that children in programs which are the most structured obtain higher scores than children in less structured programs. Very little attention has been given to such aspects of behavior such as task initiation, curiosity, innovative behavior, reflectivity, field independence, persistence, persistence after distraction, incidental, and intentional learning. Additional studies are needed to determine the effect of

intervention programs upon these aspects of behavior which are exceedingly critical for the child's school success. It is this need that the present investigation is attempting to fill.

Cultural Differences

For the past decade educators have become increasingly aware that the public educational system is not meeting the needs of a vast number of children from lower income areas. In California a large number of Mexican-American and Negro children are included in this group. These children come from widely different cultures and family backgrounds and, therefore, they function differently in a classroom. When educators are talking about the "disadvantaged" they usually separate children by language differences but seldom talk about their differences in behavior. Furthermore, educators are usually unaware of the exact differences in the learning and problem solving styles of these children.

Riessman (1962) suggests that culturally differentiated children should be distinguished in terms of their own cultural idiosyncracies rather than general environmental descriptions of disadvantaged groups as a whole. On this basis, it appears important to gain further understanding of the unique dynamics of given subcultural groups, before educational intervention is attempted. It may be that the methods and materials teachers use to work with disadvantaged children would be more effective if they were based upon the behavior and needs of specific groups of children.

Since the family is the basis of a young child's value orientation, characteristic behaviors, and skills before he enters a school

program, it appears valuable to review the literature on the cultural backgrounds of Mexican-American and Negro families.

Characteristics of the Mexican-American Culture. Even though Mexican-Americans are the third largest minority in the United States (Heller, 1966) and even though they outnumber the Negro population in California (Californians of Spanish Surname, 1964) they have received relatively little attention in comparison with other minority groups.

They are among the least "Americanized" of all ethnic groups in the United States, and they are the only ethnic group which has failed to show a substantial rise in the socioeconomic status between the first and second generations (Bogue, 1959). Mexican-Americans are found in all occupations but relatively few hold high-ranking positions whereas many hold low-ranking positions. In 1960, three-fourths of the Mexican-American adults were employed in manual jobs, compared to just over half (54%) of all employed Anglo-Americans. Only 5% of the Mexican-American males were in one of the professions compared to 16% of Anglo-American males. Because of this concentration in the unskilled occupations, the Mexican-Americans earn much less than most other groups in the United States. They are an unusually homogeneous ethnic group in this respect, for whether native or foreign born, whether of native or foreign parentage, whether urban or rural, they generally rank very low as measured by standard socioeconomic characteristics (Heller, 1966).

Education, which is one of the most important methods of upward mobility, is an important area of deficit in this minority group. The average educational level is two years lower than Negro and three and

one-half years lower than Anglo-Americans in California (Montez & Ericksen, 1966). In general, Mexican-American parents believe that higher education is useless for their children, for it would not result in achievement but would rather lead to frustration and humiliation. Therefore, they do not encourage their children to seek a formal education. In one study that illustrates this, the investigators asked parents how much schooling they would "like" their children to have. Only 25% of the Mexican-Americans mentioned college, in contrast to 50% of the Negroes and 67% of the Anglo-Americans (Shannon & Krass, 1964).

During the ten year period between 1950-1960 the Spanish surname population increased by 88% in California, compared to 49% for the total California population. The birth rate of Mexican-Americans is 50% higher than the birth rate of the total population, and there are 32.9% of the families with four or more children compared to 15.5% for the rest of the population (Heller, 1966). This is an important factor in the slow upward mobility of this group, since the size of the family is inversely related to upward mobility.

About 80% of the Mexican-American population lives in towns and cities, mostly in segregated barrios. There has been some attempt to break out of these communities but this has generally been unsuccessful since there is prejudice not only with respect to the darker skin of the Mexican-American but also the different language that is usually spoken.

The principal language, whether of the first, the second, or the third generation Mexican-American, is a form of American Spanish. Many of the children are first introduced to English in school but few

overcome a foreign accent, which is a cause of considerable embarrassment and often results in their feeling self-consciousness when they are in contact with Anglo-Americans.

The family structure is somewhat different than the typical Anglo-American family. In general, Mexican-Americans come from large extended families with strong ties spread across several generations. These ties impose obligations of mutual aid, respect, and affection. Even though a child may be only five or six, he is taught to be responsible for younger siblings. With this responsibility comes a growing authority of older children over younger children, approximating parental control. In return, younger children usually respect an older sibling as they do their parents.

The family authority within the nuclear unit is the father, or in case of his absence, the oldest male wage earner. The mother is an affectionate figure who exercises a considerable amount of control within the home, especially over the children, since husbands keep aloof from the petty details of the household. The division of labor between the sexes is sharply defined and the males all through life assume higher status. Since the sexual roles are clearly distinguished, the training for boys and girls is very different. The role of the brother is an extension of the father's role in terms of being a guardian and protector of his sisters and younger brothers. The ideal male image includes sexual prowess, physical strength, adventurousness, courage, male dominance, self-confidence, and verbal articulation. The boys are trained for the world, indulged, and given a good deal of freedom of movement. On the other hand, girls are closely supervised

and taught that their place is in the home (Burma, 1954).

Heller (1969) suggests that the kind of socialization that Mexican-American children generally receive at home is not conducive to the development of the capacities needed for advancement in a dynamic industrialized society. Their upbringing stresses family ties, honor, masculinity, and living in the present, and neglects such things as achievement, independence, and deferred gratification.

Good manners and respectfulness to others are important values in the Mexican-American home, but values which are conducive to achievement in school are lacking. For example, parents do not impose upon their children standards of excellence in the performance of tasks. Neither do they communicate to them that they expect evidence of high achievement. Parental love is not conditional upon a child's level of performance as is so often the case in Anglo-American homes. The Mexican-American home does not cultivate in their children the ability to defer gratification which is conducive to upward mobility. The stress on work and the rational use of time is disregarded when it interferes with other values, such as rest, thought, and enjoyment. Inactivity and leisure are dignified and worthwhile goals in the Mexican-American culture while work is a necessary concession.

The Mexican-American home also fails to provide the kind of independence training that is important for a child developing a need to achieve. Kluckhohn (1961) notes that Mexican-American children are not expected to be self-reliant and are not given the opportunity to make decisions on their own. Therefore, it is not surprising that they seldom show initiative or freely express their own ideas in school.

In a study on the affectivity orientations which were positively related to achievement it was found that for the Mexican-American such variables as independence from family authority, concern for peer over adult disapproval, and autonomy were significant (Schwartz, 1967).

Characteristics of the Negro-American Culture. Since 1940 there has been a large increase in the Negro population in California. While the white population of the state has little more than doubled, the Negro population has increased seven-fold, from 124,306 in 1940 to 883,861 in 1960. This new Negro population has settled mostly in the cities, for in 1960 there were only 5.6% of the Negroes living in rural California. The Negro population has a high birth rate and their average age is younger than Anglo-Americans.

Negroes generally occupy the lowest stratum of the lower-class subculture. Their inferior position is marked by an unstable and matriarchal type of family structure, by restricted opportunities for acquiring educational, vocational, and social status, by varying degrees of segregation from the dominant white majority, and by a culturally fixed devaluation of their dignity as human beings (Ausubel & Ausubel, 1962).

The rate of unemployment of Negro men in 1960 was almost twice as high as that for Anglo-Americans. Among employed men in California, more Negroes are working at lower skilled jobs than white men. For example, 5.6% of the whites and 17.8% of the Negroes were laborers in industries, while 14% of employed white males and 4.4% of employed Negro males were professional and technical workers. The average income rates of Negroes was also below the average income for white

groups. Even though this situation has been improving since 1960, there is still a great disparity between the two groups.

Employment discrimination has traditionally made it more difficult for the poorly educated Negro male to secure steady employment than the poorly educated Negro female. But of all the employed Negro women, 57.8% were employed in service industries and 37.2% were domestics or otherwise engaged in personal services, while only a small percentage were employed in jobs such as finance, insurance, real estate, or public administration positions.

The educational attainments of Negroes, reflecting social, economic, and educational restrictions and deprivations past and present, are lower than those of white Californians. Non-whites 25 years old and over who had not gone beyond the eighth grade numbered 39.1% while the percentage for whites was 27.5%. Of the Negroes, 16.4% had completed one or more years of college compared to 23.8% of the whites (Negro Californians, 1963). It is also interesting that more Negro females graduate from college than Negro males, while the reverse pattern is found among white Americans (Pettigrew, 1964).

Although the Mexican-American and Negro populations are somewhat similar in terms of the employment and educational opportunities open to them, their home and family backgrounds are extremely different. Where the Mexican-American family is one of closeness and unity, the Negro home is generally characterized as one of disorganization.

Both poverty and discrimination act to maintain the old slave pattern of a mother-centered family among Negroes. Poverty disturbs the healthy family life through dilapidated housing, crowded living

conditions, and restricted recreational facilities. In addition, it is difficult for the poorly-educated Negro male to secure steady employment and thus to provide a steady income for his family. When he is able to find work it usually does not pay enough to support a family. The Negro female can usually obtain a job as a domestic or some other service position, consequently creating a situation in which the wife becomes disgusted with her financially-dependent husband; her subsequent rejection of him further alienates the male from the family life.

Characteristic of both the Negro and white lower-class is a high degree of conjugal role segregation. Husbands and wives tend to think of themselves as having very separate kinds of functioning in the organization of family life and also as pursuing recreational and outside interests separately. The husband is expected to be the provider; he resists assuming functions around the home so long as he feels he is doing his proper job of bringing home a pay check. He feels he has the right to indulge himself in little ways if he is successful at this task.

The wife is expected to care for the home and children and make her husband feel welcome and comfortable. A great many Negro wives work to supplement the family income. When this is so the separate incomes earned by the husband and wife tend to be treated not as "family" income but as the individual property of the two persons involved. The wife makes most of the decisions that keep the family going and has the greatest sense of responsibility. Wives tend to look to their female relatives for support and counsel, and treat their husbands as essentially uninterested in the day-to-day problems of

family living (Rainwater, 1966). Many women become embittered by their experiences with men and often act to perpetuate the mother-centered pattern by taking a greater interest in their daughters than in their sons (Pettigrew, 1964).

One of the other distinctive characteristics of Negro families is the fact that Negro households have a much higher proportion of relatives outside the mother-father-children triangle than is characteristic of the Anglo-American. In the case of the more prosperous Negro families this is likely to mean that an older relative lives in the home providing baby-sitting services while both the husband and wife work. In the poor Negro families, where illegitimate birth is common, it is much more likely that the household is headed by an older female relative who brings under her wings a daughter and that daughter's children. If a husband is present, then the couple establishes their own home. But if the couple breaks up, the mother either maintains that household or moves back with her parents or grandparents (Rainwater, 1966).

Negroes are aware that the values and beliefs of the normal Anglo-American family life are very different from their own, which is characterized by father-absence, female dominance, and illegitimate birth. The consequences of this for Negro children appears to be a low sense of self-esteem, self-confidence, and low aspirations for educational and vocational achievement. Their character structure, interpersonal relations, and personality adjustment are also affected by the home situation.

Beginning in the pre-school period, the Negro child gradually

begins to realize the negative implications of his dark skin color for social status and personal worth. He therefore resists identifying with his own racial group and shows definite preference for white dolls and playmates (Goodman, 1952). This reluctance to acknowledge their racial membership makes it difficult for Negro children to identify with their parents. Therefore, the Negro child generally derives status from his membership in unsupervised peer groups, which perform many of the socializing functions of the white middle-class home. This is especially true for the Negro boy who often has no adult male with whom to identify in the family and who finds maleness depreciated in his matriarchal and authoritarian home.

Research indicates that children whose fathers are absent seek immediate gratification more than children whose fathers are present in the home (Mischel, 1961). This may have serious implications. Children manifesting this trait also tend to be less accurate in judging time, less socially responsible, less oriented toward achievement and more prone toward delinquency (Pettigrew, 1964). None of these behaviors are conducive to effective learning behavior in school.

A child cannot be separated from the culture in which he grows up. Educators must understand and take into account the family backgrounds and the values of Mexican-American and Negro children as they develop methods and materials which are to help these children in the development of effective learning styles and problem solving behaviors.

This study is attempting to fulfill the need for more information concerning the differences between Mexican-American and Negro children's autonomous behavior.

CHAPTER 3

METHOD AND PROCEDURE

Objectives

Autonomy is essential for effective learning, and yet there is very little known about the autonomous behavior of children from different ethnic groups, the effect that different preschool intervention programs have upon autonomy, and the relationship of autonomy to intelligence. Therefore, the three objectives of this study were the following:

1. To determine if there are measurable differences in autonomy between children of two ethnic groups, namely, the Mexican-Americans and Negroes, before they are exposed to a formal school program.

2. To determine the effects of various preschool intervention programs on the development of autonomy in Mexican-American and Negro children.

3. To determine the relationship between intelligence and the different aspects of autonomy.

Hypotheses

The following hypotheses were tested:

I. There will be significant differences between the Mexican-American and Negro children at the beginning and at the end of the seven week Head Start program in the mean scores of the following test variables:

   1. intelligence

2. task initiation
3. curiosity: curiosity box
4. curiosity: manipulation board
5. impulse control
6. incidental learning
7. intentional learning
8. innovative behavior: dog path
9. innovative behavior: dog behavior
10. field independence
11. reflectivity
12. persistence
13. persistence after distraction
14. verbalization: curiosity box-questions and comments
15. verbalization: curiosity box-fantasy and other
16. verbalization: question and comments total
17. verbalization: fantasy and other total
18. verbalization: total
19. task competence
20. social competence
21. kindergarten prognosis
22. English competence

II. There will be significant differences in the mean change of each of the test variables at the end of the seven week Head Start program, a) between the two ethnic groups, and b) among the three treatment groups.

III. The correlation between intelligence and the remaining test variables will not be significant.

Treatments

Three different preschool intervention programs were conducted. Each program was expected to alleviate some of the deficiences of Head Start children before they entered kindergarten. Specifically, these programs were conducted to determine their effectiveness in developing autonomous behavior in Mexican-American and Negro children.

1. Autonomy Program: This program was developed by the investigator for the explicit purpose of developing autonomy in young children. Six aspects of autonomy were selected to be included in the program. These were: 1) curiosity, 2) innovative behavior, 3) analytic perceptual processes, which included reflectivity and field independence, 4) impulse control, 5) persistence and persistence after distraction, and 6) incidental and intentional learning. Within these six areas of autonomy were included eleven of the autonomy variables which were evaluated in this study.

The autonomy program was administered by both the teacher and the aide as an integral part of the regular Head Start curriculum. It was designed to be a way of teaching that could be used throughout the program, rather than a specific set of materials to be used only during a 15 or 20 minute period. The program was not to replace the regular Head Start curriculum, but rather to supplement it in the area of autonomy.

The Autonomy Program Guide (see Appendix A) included suggestions as to the type of program in which the specific autonomous skills could

be fostered, the teacher's methods that were the most conducive in helping children to develop these skills, and the specific materials and activities which would help children to practice these skills. The Head Start teachers were expected to use this program as a guide. They were free to experiment with other methods and materials that they felt could also help to develop skills in these different areas. If the Head Start classrooms did not have some of the materials that were suggested in the Autonomy Program Guide an effort was made by the investigator to supply the teachers with these materials.

2. Language Program: The UCLA Preschool Language Project, funded by the United States Office of Education, is a five year experiment, under the direction of Dr. Carolyn Stern, to develop a language program for disadvantaged preschool children. One of the developments of this project has been a two-year curriculum consisting of a series of programmed learning materials directed toward developing language ability in disadvantaged children. Specifically, language development is seen as an integral part of the content of the school curriculum and thus includes materials in the areas of numbers, colors, shapes, picture reading, and problem solving.

The program has been designed so that it can easily be administered by a para-professional aide who may have had little training in teaching young children. Each daily lesson is recorded on tape, so that all that an aide must do is to learn how to operate a tape recorder, manipulate materials that the children are to work with, and supervise the children in making their responses in colorful booklets. The lessons are presented in a semi-structured fashion to groups of

approximately five children at a time.

The large variety of materials are very attractive. One series of lessons is concerned with the development of color concepts and includes stories about "Gary the Green Grasshopper" and "Fred Red". These are presented on slides which are projected on the wall. Other materials are designed so that the children can handle them or play games with them. Each lesson uses a variety of materials which keep the children's attention.

An important feature of the program is the use of booklets in which immediate reinforcement is provided by a special "magic" ink developed by A. B. Dick Company. When asked a question the children mark their responses in the booklets with a water pen. If their mark turns red then they know they must make another response, but if it turns green then they know they have marked the correct answer. The children receive a great deal of satisfaction from evaluating their own selections.

Each daily lesson takes about 15 to 20 minutes. These lessons are administered in two sections and cover different subject matter so that the children are learning two different concepts daily. The regular language program has been designed so that there are four days per week of instruction and one day for review and make-up for the children who may have been absent during the week. This procedure was modified for this study so that instruction was given daily. Only the first 25 days of the language program were used in this study. A schedule and description of the materials used for this program is in Appendix B.

3. Regular Headstart Program: The teachers and aides in the Head Start programs which served as the control group received no special instruction from the investigator as to the type of curriculum they were expected to provide for the children. However, all of the summer Head Start teachers and aides in San Bernardino were expected to take an eight week training course presented by the San Bernardino Head Start office. The teachers were also expected to attend the weekly staff meetings where instruction was given concerning the type of program they were to provide for the children. The basic Head Start curriculum included emphasis on language, concept formation, perceptual-motor skills, and the self-concept. These skills were developed through individual and small group activities as well as spontaneous play. Daily lesson plans were made by each teacher.

The Head Start classrooms were visited periodically throughout the summer by the coordinator of the Head Start programs as well as the ESEA Principal in San Bernardino. If a teacher was having any difficulty, suggestions were made and help was offered. An effort was made in San Bernardino to have all of the teachers and aides performing as adequately as possible. With such surveillance only minimal differences in teacher style and program may be expected.

Selection of Sites and Subjects

Of the 25 Head Start classes in San Bernardino, only nine met the criterion of having at least three Mexican-American and three Negro children among the 15-16 students enrolled.

Because of the nature of the experimental intervention, each of the treatments had to be assigned to a separate teacher and classroom.

At one site at which three classes meet the ethnic criterion, each of the three treatments were randomly assigned to a different classroom. To maintain maximum separation between treatments, two sites, which had two classrooms each, were assigned two of the three treatments. A fourth and fifth site with only one class each were assigned the third treatment.

From each classroom the same number of Mexican-American and Negro children were selected and pretested. The following selection method was used. The number of children in each ethnic group for each classroom was determined. All of the children were selected from the ethnic group with the fewer number of children and a matching number of children were selected randomly from the other group. Since 12 children dropped out of the study, the final number of children from each classroom was not equal. Table 1 indicates the number of children tested in each classroom by treatment groups, sex, and ethnic characteristics.

Subjects

The evaluation instruments were initially administered to 46 Mexican-American and 43 Negro children enrolled in the San Bernardino summer Head Start program. These children were all approximately five years of age and had never attended any school or Head Start program before. The families of these children met the regular Head Start requirement of a $4,000 or less annual income. Only 77 of the 89 children were posttested because of attrition or illness. Of the 42 Mexican-American children, 22 were girls and 20 were boys. Of the 35 Negro children, 17 were girls and 18 were boys. The specific

TABLE 1

The Number of Subjects Tested in Each Classroom
By Treatment, Sex, and Ethnic Group

Treatment	Site	Classroom	Mex.-Am. Boy	Mex.-Am. Girl	Negro Boy	Negro Girl	Total Boy	Total Girl	Total	
Autonomy	1	1	3	2	2	2	5	4	9	
	2	4	4	1	1	3	5	4	9	
	2	5	2	2	1	1	3	3	6	
	Total		9	5	4	6	13	11		24
Language	1	2	2	6	3	1	5	7	12	
	3	6	0	2	3	1	3	3	6	
	3	7	1	2	2	3	3	5	8	
	Total		3	10	8	5	11	15		26
Control	1	3	3	3	2	1	5	4	9	
	4	8	4	2	1	2	5	4	9	
	5	9	1	2	3	3	4	5	9	
	Total		8	7	6	6	14	13		27
Total			20	22	18	17	38	39		77

characteristics of these children are described in chapter four.

Sites

The nine Head Start classrooms in this study were located in five different sites. The characteristics of these sites and the room environment of each of the classrooms had certain unique features which may have affected the type of programs that teachers were able to plan.

Site #1 (Classrooms #1, #2, and #3 - autonomy, language, and control) was the oldest of all the schools included in this study. This was indicated by the small classrooms, approximately three-fourths the size of the other classrooms, the extremely high ceilings, and the lack of accoustical tile. One of the characteristics of these three classrooms that was not observed to the same extent at the other schools was the high level of classroom noise and the crowded conditions, which may have contributed to some of the disciplinary problems observed. The children used the regular school playground since only the Head Start classes were using the school during the summer.

Site #2 (Classrooms #4 and #5 - autonomy) had the most modern, well designed and largest classroom of all the sites. They were the only classrooms with air conditioning, wall-to-wall carpeting on three-fourths of the classroom floor, and tinted glass windows. These classrooms had their own individual restrooms and a large walk-in storage room with all types of equipment from the regular school year kindergarten programs available for their use. The public library was located next to the school so once or twice each week the children were able to visit the library. The one disadvantage was the outside play area which was located across the school grounds and required an

escorted walk to reach.

Site #3 (Classrooms #6 and #7 - language) was a community center and was used daily during the summer by a variety of community programs. In addition to the two Head Start classrooms there were three classrooms which were used as a day care facility. The classrooms were large but did not have the resource materials available that the regular kindergarten classrooms had. Many of the materials had to be furnished by the teachers. A grass area was located next to the classrooms. The teachers would place materials each day both on the inside and outside so that the children could choose either indoor or outdoor activities. There were two outdoor play areas. One was used entirely by one of the Head Start classes, the other had to be shared with the children attending the day care program.

Site #4 (Classroom #8 - control) appeared to be the newest school in terms of the total structure, however the classrooms were similar to the classroom at site #5. There were two Head Start programs operating in this school as well as a summer school program for older children. The unique feature of this school was the well-equipped private playground facility used only by the Head Start groups.

Site #5 (Classroom #9 - control) was approximately the same age and architectural style as Site #3. The one Head Start class was the only program in the school during the summer. The room was large, but only a few materials were out where the children could reach them. A large variety of materials were in a store room adjoining the classroom. The separate restroom facility and locker room opened into the classroom. The play yard was some distance from the classroom which

required the children to be escorted by the teacher.

Evaluation Instruments

All of the children participating in this study were pre- and posttested with the following instruments:

The Peabody Picture Vocabulary Test (PPVT) (Dunn, 1965a). This test was employed to provide an estimate of the child's intelligence by measuring his receptive vocabulary.

The Cincinnati Autonomy Test Battery (CATB) (Banta, 1968a). This test was used to measure autonomous functioning in the problem solving of young children. It consisted of nine separate subtests which provided scores on the 21 autonomy variables evaluated in this study. The following is a description of each of the nine subtests in the order they were administered in the test battery.

1. Task Initiation Test (task initiation). Before the child entered the room, small wooden figures were arranged on the table. When the child arrived he was seated in front of the figures. Nothing was said to the child about the figures before him. The tester busied herself with filling out the personal data on the child and waited one minute for the child to touch the figures, pick them up, or begin talking fantasy with them. If no initiation occured within this minute, the tester put the toys away and began the next test. If the child did begin to play with the figures, the tester observed the child for two minutes and rated him in the following way: (1) no initiation, (2) minimal contact, (3) initiation with minimal involvement, and (4) initiation with high degree of involvement.

2. Curiosity Box Test (curiosity - curiosity box). The curiosity

box was placed on the table in front of the child as the tester said, "Here is something for you to play with." The tester then observed the child's behavior with the box for five minutes rating him in terms of manipulatory exploration, tactual exploration, visual exploration, movement of the child to see the box, and movement of the box. High scores represented active exploratory behavior.

3. The Draw-a-Line Slowly Test (impulse control). The child was first asked to draw a line just as slowly as he could. The drawing time was recorded and the lines were later measured by a map measurer. The impulse control score was calculated by dividing the length of the line by the time it took to draw the line. The higher the rate measure, the lower the motor impulse control.

4. Find-the-Color-Green Test (incidental and intentional learning). The child was shown a number of pictures with the color green on some part of the picture. He was asked to point to the green in each of the pictures. After the book was closed he was asked what he saw with green on it. The number of responses was the score received for incidental learning. The child then was asked to label each picture as he looked at it. Again the book was closed and he was asked what he saw that had green on it. The number of responses that were given was the score for intentional learning.

5. The Dog and Bone Test (innovative behavior - dog path and dog behavior). This test consisted of a board with four houses on it and a moveable dog and bone. The child was shown two paths the dog might take to get to his bone which was on the other side of the board. He was then asked to find another way for the dog to get his bone. If

the child repeated a pathway used in the demonstrations or one of his previous pathways, he was given no credit. Only novel responses were scored. Some children found different behaviors for the dog instead of paths. This was scored as dog behavior. The child was given ten tries, each scored on the basis of originality.

6. The Early Childhood Embedded Figures Test (EC-EFT) (field independence). Children were asked to find the cone shape in fourteen test pictures, in which the cone was embedded in some way. The child then placed the cut-out of the cone on top of the cone in the picture. If any portion of the cut-out model was more than 1/2 inch away from the embedded figure, it was assumed that the child had not perceived the embedded figure and no score was given. The total score was based on the number of correct responses.

7. Manipulation Board (curiosity - manipulation board). This board had hardware on it, such as a hinge, door hook and eye, and different latches. It was given to the child with the instructions, "Here is something for you to play with." For five minutes the child was scored on his behavior with the board. The scoring was similar to the curiosity box test. This test was given later in the test battery than the curiosity box to see if the child would explore and manipulate an object more, once rapport had been established and the child felt comfortable in the situation.

8. The Early Childhood Matching Familiar Figures Test (EC-MFT) (reflectivity). In this test the child was asked to look at one picture and then find the picture on the opposite page that was just like the first picture. Half of the figures to be matched were social in

character, such as a drawing of a face. The other half of the figures were non-social such as geometric designs or a non-social object. The original form of this test was devised by Kagan (1965). Scores were based on the correct responses only. A high score indicated reflectivity.

9. The Replacement Puzzle Test (persistence and persistence after distraction). A puzzle was placed in front of the child and the tester explained that some of the pieces came out and they must be put back in the puzzle frame. The four moveable pieces were then taken out, the puzzle was rotated 180° and the child was asked to put all the pieces in flat. The puzzle was designed so that it was highly improbable that it would be solved in the allotted time. For two minutes the tester scored the child on his behavior with the puzzle. Four blocks were then placed beside the puzzle and the tester told the child he could play with the blocks or he could finish putting the pieces in flat. During the third minute the child was scored on his persistence with the puzzle or with the distracting blocks.

In addition to the 9 subtests the following rating scales were included in the CATB.

1. Verbalization - Questions and Comments, Fantasy, and Other Verbalization. The scores for verbalization were derived scores based on the children's behavior while exploring the curiosity box, manipulation board test, and the replacement puzzle test.

2. Task Competence and Social Competence. There is a distinction made between task roles and social roles in problem solving. Bales (1958) suggested that those persons who become "task specialists" are

not likely to become "social-emotional specialists". Therefore, the task and social competence scales were included to assess the relation between these two aspects of autonomous functioning. These rating scales originally appeared in the Stanford-Binet Record Booklet, Form L-M in 1960.

The children were rated on a scale from 1 (poor) to 5 (optimal) on the following item under the task competence rating: absorbed by task, persistent, eager to continue, and challenged by hard tasks. The items in the social competence rating included the following: socially confident, comfortable in adult company, assured, and needs minimum of commendation.

3. Kindergarten Prognosis. The kindergarten prognosis scale was intended to estimate a child's ability to cope with a conventional kindergarten situation where classes are large, programs are structured, and children are encouraged to conform. The children were rated on a scale from 1 (poor) to 5 (optimal) on how well the tester considered their adjustment to kindergarten would be according to how they performed on the CATB and PPVT.

4. Competence in English. This scale estimated a child's ability to speak standard English as it is spoken in the school systems. The children were rated on a scale from 1 (poor) to 5 (optimal) according to the vocabulary and verbalization used during the testing session.

The following instruments were used to evaluate the characteristics, attitudes toward autonomy and language, and classroom behavior of the teachers and aides in the three treatment groups.

UCLA Characteristics of Teaching Staff. This instrument was

modified for use in this study to determine if there were basic differences in the characteristics of the teachers and aides in the three treatment groups. A copy of the form used is included in Appendix D.

UCLA Teacher Expectations of Achievement for Children in Head Start (TEACH). A modified version of this instrument, shown in Appendix E, was given to all of the teachers and aides in each treatment group. This instrument consists of 52 items which were divided into the following six categories: language, curiosity, creativity, analytic perceptual processes, impulse control, and persistence. This instrument was used to determine if there were significant differences in teachers and aides attitudes toward autonomy and language in any of the three treatment groups. This questionnaire was completed by the teachers before the autonomy and language training sessions.

Observer's Rating Form (ORF). A modified version of this instrument was used by the investigator to rate the classroom behavior of the teachers and aides in the three treatment groups during two observations. Ratings were made on the following categories: language, curiosity, creativity, analytical perceptual processes, impulse control, persistence and persistence after distraction, incidental and intentional learning, miscellaneous autonomy, and against autonomy. (See Appendix F.) This was to determine if there were observable differences in the teaching behavior and the curricular emphasis employed by the teachers in the different classrooms.

Teacher's Reaction Sheet. In order to evaluate the autonomy and language treatment teacher's and aide's reactions to the study, they were asked to complete the following statements: (1) The things I

liked most about the study were..., (2) The things I liked least about the study were..., and (3) If I were to participate in this study again, these are the things I would like to see done differently.

Procedure

Training of the Teachers. The teachers and aides of each treatment group were given the following information: (1) their classroom had been randomly selected to be included in a study concerning differences in Mexican-American and Negro children, (2) their cooperation was necessary for the success of the program, (3) a selected number of children would be tested in each classroom the first and last week of the Head Start program, (4) the investigator would observe each classroom approximately once a week, and (5) since the study involved three different treatments, they were not to discuss any aspect of their treatment with other teachers in the study.

The teachers and aides of the autonomy and language treatment groups were asked to attend separate two hour orientation sessions at which time they were introduced to the unique aspects of their treatment.

The teachers and aides in the autonomy treatment attended a two hour session. At this time the investigator discussed the importance of autonomy, demonstrated the appropriate learning materials and experiences that would help children increase their levels of autonomous behavior, and gave each teacher and aide a copy of the Autonomy Program Guide (Appendix A).

The training for the teachers and aides in the language treatment consisted of two one-hour long sessions. The first session introduced

the materials to the teachers, acquainted them with the running of the slide projector and reviewed the first two weeks of instructional material. Another session was held two weeks later at which time the remaining instructional materials were explained.

Selection and Training of Testers. Six paid testers administered the CATB and the PPVT to each of the children in the study. In order to eliminate as much bias as possible, the following criteria were used in selecting the testers. (1) Equal number of testers from each ethnic group (three Mexican-American and three Negro): To avoid racial bias, each tester tested approximately the same number of Mexican-American and Negro children. (2) Speak and understand Spanish: Even though all of the tests were administered in English, there was a chance that a child would answer a question in Spanish. If this should happen it was important that such a child would not be penalized by the tester's lack of understanding. (3) Completed at least one year of college. (4) Work experience with young children. (5) Female: Only females were selected in order to avoid differences in subject response that may have been introduced by testers of different sexes.

The characteristics of the testers finally selected and used are described in Table 2. From this table it can be seen that all of the testers were approximately 25 years of age, except one who was 46 years of age. Three of the six were married and three had children of their own. Two of the testers were teachers and two were studying to become teachers. Two of the testers had graduated from college and one had four years of college, but was completing a fifth year in order to meet the requirements for a state teaching credential. Two of the

TABLE 2

Tester Characteristics

Tester	Race	Age	Married	Children	Employment	Previous Work Experience	Education
1	N	27	No	0	Student	Grocery Checker Book Salesman Residence Assistant Dean	4 years 1970-Credential Home Economics
2	M.A.	46	Yes	5	Housewife	Volunteer--Headstart, Rehibilitation for Delinquents and Tutoring	2 years 1969 Sociology
3	M.A.	25	No	0	2nd Grade Teacher	Headstart Aide Clerk-Typist	5 years 1969-Elem. Ed. Cred. Spanish
4	M.A.	28	Yes	0	3rd Grade Teacher	Farm work Peace Corp Secretarial Teaching	4 years 1964-Elem. Ed. Cred. Education
5	N	26	Yes	3	Student Headstart Health-aide	Interpreter File Clerk Health Department	1 1/2 years
6	N	24	No	1	Student	Substitute Teacher Cashier Waitress	3 years 1970 Graduate English

testers had two-year degrees and one had completed all but one semester of her two-year degree program.

The CATB is a difficult test to learn to administer, since it requires the manipulation of a stop watch, a large variety of test materials, and different instructions for each of the nine subtests. In order to learn the appropriate procedure, each tester was required to attend all of the training sessions given by the investigator who was trained in the administration of the CATB by Thomas Banta, the author of the test, at the University of Cincinnati. The CATB training sessions for this study consisted of the following steps: (1) An explanation of the study, an orientation explaining the philosophy of the test, and a demonstration of how the test instrument should be administered. (2) The investigator demonstrated the administration of the CATB with a four year old child. (3) Each person observed at least one other tester administer the CATB to a young child. (4) A session was held to discuss the difficulties that the testers experienced after they administered the instrument to children in their neighborhoods. (5) The investigator observed each tester administer the CATB to a young child before the study began. (6) The investigator observed each tester administer at least one test during the first and last week of the study.

The CATB must be administered in a standardized way. The instructions to the children must not deviate in any way. Therefore, each tester was required to memorize the instructions and test procedures, even though during the actual testing everything that the tester was to say was written on the record booklets. (See Appendix C.)

Administration of Tests. The testers were randomly assigned to test in different classrooms. Each tester tested as many children as she could in one classroom each day. During the end of the testing week some of the testers had to go to two classrooms to finish testing the selected children who were absent earlier in the week. The children to be tested were all selected randomly before the tester began testing. In no instance did one tester test all of the children from one room.

During the posttesting each tester tested the same children she had tested in the pretest. An effort was made to test these children in the same order; so each child would have been examined after the same number of days elapsed between the pretest and the posttest. However, because of absences this was not always possible. The posttest was given in the same room as the pretest so that the environment was as similar as possible.

The administration of the CATB took approximately 45 minutes. The PPVT, which takes approximately 10 minutes was given immediately after the CATB. The pretest was administered during the first week of the seven week Head Start program and the posttest during the last week.

Administration of Treatments. The administration of the autonomy and language treatments did not begin until the second week of the Head Start program, when the pretesting was completed. The treatments continued for five weeks until the final week of the program when the posttesting began.

Supervision of Treatments. The investigator observed in each

classroom approximately once a week to determine the extent to which the treatment protocol was followed. The teacher's behavior was observed and rated on the modified Observer's Rating Scale during two of the observations.

CHAPTER 4

RESULTS AND DISCUSSION

The results of this study are considered in the following eight sections: subject characteristics, ethnic group differences, change in autonomous behavior, correlation of I.Q. and initial CATB scores, teacher characteristics, teacher expectations of achievement, evaluation of teacher performance, and teacher reaction.

The statistical analyses were performed using the B-STAT package programs of the Scientific Computation Facility at Loma Linda University, and the BMD package programs of the UCLA Health Science Computing Facility.*

A variety of statistical techniques have been used in the analyses of the data. These range from the t-test to the analysis of variance, the Newman-Keuls multiple range test, and factor analysis. These will be discussed in the context of the hypotheses tested.

The validity of the obtained results depends, however, on the acceptability of the following assumptions: the examiners were able to administer these tests with equal effectiveness; the teachers did not communicate among other Head Start teachers in regard to the specific program of instruction; the children selected for this study were representative of the Negro and Mexican-American populations; none of the children's performance were handicapped by their inadequacy of

*Computing Assistance was obtained from the Health Sciences Computing Facility, UCLA, Sponsored by NIH Special Research Resources Grant RR-3.

understanding English.

Subject Characteristics

The family and personal characteristics of the study group (n=77) which was pretested and posttested and of the group that withdrew (n=12) after pretesting, together with the test variable scores, are considered in this section. For some of the children their family and personal characteristics were unknown, therefore, the number on which the descriptive statistics are based may vary as indicated in the tables.

According to Table 3 which shows the characteristics of the study group (n=77) and of the cases that withdrew after pretest (n=12), it can be seen that the average age of both the Mexican-American and Negro children was five years. Considering the study group, the I.Q. of the Negro children was four points higher than the I.Q. of the Mexican-American children. The mothers of the Mexican-American children were approximately three years older than those of the Negro children. The educational level of the mothers of the Negro group was two years higher, and of the fathers three years higher than for the corresponding parents of the Mexican-American group. The remaining characteristics of the two ethnic groups were similar.

In comparing the characteristics of the 12 withdrawn cases with the 77 study children there are a number of interesting differences. The I.Q. of the four Mexican-Americans that withdrew was approximately 6 points higher than of the Mexican-American study group while the I.Q. of the eight Negroes that withdrew was approximately 12 points lower than of the Negro study group. The age of the fathers in the group that

TABLE 3

Characteristics of Pre- and Posttested and Only Pretested Samples by Ethnic Groups

CHARACTERISTICS	PRE- AND POSTTESTED (N=77) MEX-AM N	M	S.D.	NEGRO N	M	S.D.	PRETESTED ONLY (N=12) MEX-AM N	M	S.D.	NEGRO N	M	S.D.
Age of Child in Months	42	61.0	3.4	35	60.1	4.1	4	61.0	3.4	8	59.3	4.9
I. Q. of Child	42	76.3	15.6	35	80.6	16.6	4	82.5	15.0	8	68.5	14.8
Birth Order of Child	40	3.7	2.8	30	3.1	2.2	4	4.5	3.7	7	5.7	3.5
Age of Mother	41	31.7	6.5	35	28.7	6.0	4	29.5	9.5	8	29.5	4.8
Education of Mother	41	8.7	2.7	34	10.9	2.2	4	9.3	1.0	7	10.3	1.7
Occupation of Mother*	41	6.7	0.7	34	6.8	0.6	4	7.0	0.0	8	6.8	0.7
Age of Father	37	34.3	7.0	30	34.7	9.1	4	31.8	11.2	6	28.2	3.8
Education of Father	35	8.5	3.0	27	11.3	2.1	4	9.5	1.3	5	12.0	1.9
Occupation of Father*	30	5.8	0.6	26	5.4	0.9	4	5.8	0.5	4	6.3	1.0
No. of Children in Family	42	4.3	2.4	35	4.3	2.1	4	5.5	2.9	8	6.0	2.7
No. Living in House	42	6.0	2.6	35	6.0	2.1	4	6.3	1.7	8	7.1	2.5
Years in San Bernardino	42	4.5	1.3	35	4.3	1.5	4	4.0	2.0	8	3.8	1.8
Spanish Language Status+	42	1.5	1.1	35	0.2	0.6	4	1.3	1.0	8	0.0	0.0

*See Occupational Rating Scale, Appendix G.

+Frequency rating of Spanish spoken in the home: 0=Never; 1=Seldom; 2=Frequently; 3=All the time.

withdrew was lower than the age of the study father's group and this was by three years for the Mexican-Americans and by six years for the Negroes. The average number of children in the family for the Mexican-American and Negro study groups was 4.3, which was smaller than for the group that withdrew. Specifically, Mexican-Americans averaged 5.5 children while the Negroes averaged 6.0 children. The birth order differed in the two Negro groups. For the study group the average was 3.1 while for the group that withdrew it was 5.7. When these differences were subjected to a t-test, none of them were found to be statistically significant. The remaining characteristics appeared to be similar.

The means and standard deviations of the test variables for both the study group and the group that withdrew are presented in Table 4. The mean differences were subjected to a t-test analysis to determine their significance. Those differences that were found to be significant are indicated by an asterisk. These results show that in general the characteristics of the group that withdrew are similar to those of the study group with the exceptions of three test variables. The group that withdrew had significantly lower mean scores on field independence and reflectivity, and a significantly higher mean score on the verbalization-curiosity box-fantasy and other verbalization variable than the study group.

TABLE 4

Means, Standard Deviations of the Pre- and Posttested Sample, the Pretested Only Sample, Mean Differences and Their Significance.

	TEST VARIABLES	PRE- AND POSTTESTED (N=77) M	S.D.	PRETESTED ONLY (N=12) M	S.D.	DIFFERENCE
1.	I.Q.	78.6	16.3	73.2	15.7	5.4
2.	Task Initiation	2.2	1.3	2.6	1.4	-0.4
3.	Curiosity - Box	21.2	16.2	23.5	16.8	-2.3
4.	Curiosity - Manipulation Board	24.9	10.3	29.7	7.3	-4.8
5.	Impulse Control	0.8	0.5	0.8	0.5	0.1
6.	Incidental Learning	1.2	1.3	1.2	1.3	0.0
7.	Intentional Learning	2.9	1.9	2.3	2.1	0.6
8.	Innovative Behavior - Path	4.5	3.3	2.9	2.6	1.6
9.	Innovative Behavior - Dog	0.9	0.9	1.0	1.1	-0.1
10.	Field Independence	8.5	2.3	5.8	3.5	2.7**
11.	Reflectivity	6.1	2.0	4.3	2.3	1.8**
12.	Persistence	21.5	4.4	19.5	7.6	2.0
13.	Persistence After Distraction	11.0	5.1	8.5	4.5	2.5
14.	Verb.-Curiosity Box - Quest. & Com.	1.3	2.1	2.4	3.2	-1.1
15.	Verb.-Curiosity Box-Fant. & Other Verb.	0.5	1.2	2.3	4.4	-1.8*
16.	Verb.-Question & Comments Total	4.8	5.8	7.7	8.1	-2.9
17.	Verb.-Fant. & Other Verb. Total	2.1	3.6	3.8	6.6	-1.7
18.	Verb. - Total	6.7	8.3	11.5	13.5	-4.8
19.	Task Competence	3.2	0.9	3.0	1.1	0.2
20.	Social Competence	3.2	0.9	3.1	0.9	0.1
21.	Kindergarten Prognosis	3.5	1.0	3.3	0.8	0.2
22.	Competence in English	3.6	0.8	3.5	0.6	0.1

*p<.05
**p<.01

It may be seen from Table 5 which gives the characteristics of the three treatment groups, that in general, most of the characteristics of the Mexican-American and Negro children were similar. Within the Mexican-American group, those children in the control group had mothers who were approximately four years younger than those mothers of the children in the language group and two years younger than the mothers in the autonomy group. The educational level of the mothers of the children in the control group was two years higher, and of the fathers three years higher than of the parents in the language group.

The Negro children in the language group scored approximately 12 I.Q. points higher on the average than those in the autonomy group and 8 I.Q. points higher than those in the control group. The age of the fathers was also somewhat different. The fathers of the children in the control group were approximately two years younger than those in the autonomy group and three years younger than those in the language group.

TABLE 5

Characteristics of Mexican-American and Negro Children By Treatment Groups

CHARACTERISTICS	AUTONOMY MEX-AM N/M	S.D.	NEGRO N/M	S.D.	LANGUAGE MEX-AM N/M	S.D.	NEGRO N/M	S.D.	CONTROL MEX-AM N/M	S.D.	NEGRO N/M	S.D.
Age of Child in Month	14/61.1	3.3	10/58.0	2.9	13/60.9	3.2	13/60.7	3.9	15/60.9	3.8	12/61.2	4.8
I.Q. of Child	14/76.1	17.2	10/74.3	14.5	13/74.8	14.7	13/86.9	18.6	15/77.8	15.8	12/79.0	14.8
Birth Order of Child	14/ 3.5	2.4	9/ 2.7	2.3	11/ 4.5	3/2	10/ 3.8	2.3	15/ 3.3	2.9	11/ 2.8	1.9
Age of Mother	14/31.7	5.0	10/27.4	5.8	13/33.7	7.6	13/29.6	6.0	14/29.9	6.6	12/28.8	6.6
Education of Mother	14/ 8.9	2.8	9/11.6	1.1	13/7.6	2.4	13/10.2	2.8	14/ 9.4	2.8	12/11.3	1.9
Occupation of Mother*	14/ 6.4	1.0	10/ 6.7	0.7	13/ 6.8	0.4	12/ 6.9	0.3	14/ 6.9	0.5	12/ 6.7	0.7
Age of Father	12/34.1	5.6	7/34.9	10.8	12/34.1	7.4	13/36.0	9.3	13/34.6	8.2	10/33.0	8.2
Education of Father	11/ 9.4	3.2	6/10.8	2.6	12/ 6.8	2.7	11/11.6	2.5	12/ 9.6	2.3	10/11.3	1.2
Occupation of Father*	10/ 5.6	0.7	6/ 4.8	1.2	8/ 6.1	0.6	12/ 5.5	0.8	12/ 5.7	0.5	8/ 5.8	0.9
No. of Child. in Family	14/ 4.3	2.5	10/ 3.6	2.3	13/ 4.6	2.5	13/ 4.5	2.0	15/ 4.0	2.3	12/ 4.7	2.2
No. Living in House	14/ 6.6	3.2	10/ 5.6	1.8	13/ 5.8	2.8	13/ 6.2	2.3	15/ 5.7	2.1	12/ 6.1	2.3
Years in San Bernardino	14/ 4.3	1.5	10/ 3.9	1.9	13/ 4.3	1.7	13/4.3	1.5	15/ 4.9	0.3	12/ 4.5	1.2
Spanish Language Status+	14/ 1.3	0.8	10/ 0.2	0.6	13/ 1.4	1.1	13/ 0.3	0.9	15/ 1.9	1.3	12/ 0.0	0.0

*See Occupational Rating Scale, Appendix G

+Frequency rating of Spanish spoken in the home: 0=Never; 1=Seldom; 2=Frequently; 3=All the time.

Ethnic Group Differences

The first hypothesis was concerned with the differences of the autonomous behavior between the two ethnic groups at the beginning and at the end of the study. To test the hypothesis that Mexican-American and Negro children differ in each of the test variables, a t-test for two independent samples was used to test the significance of the differences of the mean scores for the two ethnic groups. This analysis was performed for both the pretest and the posttest data. To carry out these computations the B-STAT program of the Loma Linda University Computing Facility was used.

Table 6 gives the means and standard deviations of the test variables scores for the two ethnic groups, the difference of the means, and the significance of that difference for the pretest data. The same information for the posttest data is given in Table 7. The variables with significant differences are indicated by an asterisk.

The hypothesis that there would be significant differences between the Mexican-American and Negro children at the beginning and at the end of the seven-week Head Start program in the mean scores of the test variables was supported on the pretest data for task initiation and curiosity-box at the .01 level (Table 6).

It could be expected that the Mexican-American children would score lower on task initiation and curiosity because of their strong family culture which impresses children with the need to listen to the adult and wait for the adult to tell a child that certain actions are acceptable. The task initiation test and the curiosity box were the first two subtests given in the CATB. These subtests were given before

TABLE 6

Means, Standard Deviations of Pretest Scores, Mean Differences and Their Significance Between Ethnic Groups

	TEST VARIABLES	MEXICAN-AMERICAN N=42 M	S.D.	NEGRO N=35 M	S.D.	DIFFERENCE
1.	I.Q.	76.8	16.0	80.8	16.6	4.0
2.	Task Initiation	1.9	1.2	2.7	1.3	0.8**
3.	Curiosity - Box	15.3	14.3	28.1	15.8	12.8**
4.	Curiosity - Manipulation Board	24.2	10.7	25.9	9.8	1.7
5.	Impulse Control	0.7	0.4	0.9	0.6	0.2
6.	Incidental Learning	1.1	1.3	1.4	1.3	0.3
7.	Intentional Learning	2.7	1.8	3.3	2.1	0.6
8.	Innovative Behavior - Path	3.8	3.2	5.2	3.2	1.4
9.	Innovative Behavior - Dog	0.9	0.9	1.1	1.0	0.2
10.	Field Independence	8.8	2.4	8.2	2.3	-0.6
11.	Reflectivity	6.2	2.1	5.9	1.9	-0.3
12.	Persistence	21.4	4.4	21.5	4.5	0.1
13.	Persistence After Distraction	10.6	5.2	11.5	5.1	0.9
14.	Verb.-Curiosity Box - Quest. & Com.	1.0	1.8	1.8	2.3	0.8
15.	Verb.-Curiosity Box-Fant. & Other Verb.	0.3	0.8	0.7	1.6	0.4
16.	Verb.-Question & Comments Total	3.7	4.5	6.0	6.9	2.3
17.	Verb.-Fant. & Other Verb. Total	1.8	2.8	2.5	4.4	0.7
18.	Verb.-Total	5.5	6.7	8.3	9.7	2.8
19.	Task Competence	3.2	0.1	3.2	0.1	0.0
20.	Social Competence	3.1	0.1	3.3	0.1	0.2
21.	Kindergarten Prognosis	3.4	0.1	3.5	0.1	0.1
22.	Competence in English	3.5	0.1	3.6	0.1	0.1

**p<.01

the child had a chance to develop rapport with the tester. The task initiation test was given without any instructions, and the curiosity box was given with the minimal instruction of, "Here is something for you to play with." It is interesting to note the difference in scores between the two curiosity subtests--curiosity box and the manipulation board. The manipulation board was given near the end of the test battery after a child had had a chance to develop some rapport with the tester. Even though there are fewer objects to be curious about on the manipulation board the average scores for the Mexican-American children were higher on the manipulation board than they were on the curiosity box. However, for the Negro children, the average scores were lower on the manipulation board than on the curiosity box.

It is of interest to note that only three variables, impulse control, field independence, and reflectivity, had numerically higher average scores for the Mexican-American than for the Negro children. On all of the other test variables the Mexican-American children had numerically lower scores than the Negro children. One explanation why Mexican-American children scored higher on the average than Negro children on these variables is that all three of the subtests measuring these variables included specific instructions as to what the child was expected to do. Mexican-American children are taught to respond to an adults authority. They, therefore, may have felt more comfortable complying to specific instructions and therefore, scored higher on these subtests than those tests that required task initiation or curiosity.

For the posttest data the differences between the ethnic groups

in task initiation and curiosity-box were no longer significant (Table 7). The Negro children's average posttest task initiation score was lower than their pretest score and was almost the same as the Mexican-American children's average pretest or posttest score. The average scores of both ethnic groups on the curiosity variables was higher on the posttest than on the pretest, however, the increase in scores for the Mexican-American children, from 15.3 to 29.2 on the curiosity-box was a much larger increase than for the Negro group which was from 28.1 to 32.9.

There were two test variables which had a significant difference between the ethnic groups at the posttest. These were persistence and persistence after distraction. The difference in average scores on these variables was more for the Mexican-American group (from 21.4 to 23.9 on persistence and from 10.6 to 13.5 on persistence after distraction) than for the Negro group (from 21.5 to 22.9 on persistence and a decrease from 11.5 to 10.6 on persistence after distraction).

The replacement puzzle subtest which measures persistence and persistence after distraction was designed so that it was highly unlikely that young children could successfully complete the puzzle in the time allotted. It may be that Mexican-American children were more highly challenged by this difficult task after the Head Start program than were Negro children. It may also be that Mexican-American on the posttesting were more observant during the instructions than Negro children, since more Mexican-American than Negro children completed the puzzle successfully.

The standard deviations of the test variables of the Mexican-

TABLE 7

Means, Standard Deviations of Posttest Scores, Mean Differences and Their Significance Between Ethnic-Groups

TEST VARIABLES	MEXICAN-AMERICAN N=42 M	SD	NEGRO N=35 M	SD	DIFFERENCE
1. I.Q.	86.0	22.1	90.7	18.7	4.7
2. Task Initiation	2.0	1.4	2.1	1.4	0.1
3. Curiosity - Box	29.2	15.5	32.9	15.2	3.7
4. Curiosity - Manipulation Board	30.0	10.4	29.5	10.9	-0.5
5. Impulse Control	0.6	0.4	0.8	0.4	0.2
6. Incidental Learning	2.7	2.2	2.4	1.6	-0.3
7. Intentional Learning	4.0	2.1	3.9	2.3	-0.1
8. Innovative Behavior - Path	4.2	2.5	5.4	3.5	1.2
9. Innovative Behavior - Dog	0.7	0.9	1.0	1.6	0.3
10. Field Independence	10.4	2.2	9.7	2.4	-0.7
11. Reflectivity	6.9	1.5	6.8	1.9	-0.1
12. Persistence	23.9	2.6	22.9	2.9	-1.0*
13. Persistence After Distraction	13.5	5.5	10.6	5.4	-2.9*
14. Verb. - Curiosity Box - Quest. & Com.	0.6	1.4	1.0	1.6	0.4
15. Verb.-Curiosity Box-Fant. & Other Verb.	0.2	0.6	0.6	1.5	0.4
16. Verb.-Questions & Comments Total	2.3	3.6	3.9	3.8	1.6
17. Verb.-Fant. & Other Verb. Total	1.2	2.4	2.0	2.9	0.8
18. Verb.-Total	3.5	5.4	5.9	5.9	2.4
19. Task Competence	3.4	0.1	3.3	0.1	-0.1
20. Social Competence	3.3	0.1	3.2	0.1	-0.1
21. Kindergarten Prognosis	3.5	0.1	3.5	0.1	0.0
22. Competence in English	3.4	0.1	3.7	0.1	0.3

*p<.05

Americans were similar to those of the Negroes and this was the case for both the pretest and the posttest variables except for the posttest persistence scores of the Mexican-Americans which had a significantly lower ($p<.05$) standard deviation than either the corresponding standard deviation of the Negro scores or their own pretest scores.

Comparison of the results of Table 6 and Table 7 indicates that the pretest standard deviations are similar to the posttest ones for either ethnic group with the exception of the persistence scores as noted above.

Change in Autonomous Behavior

The second hypothesis was concerned with the change in intelligence and autonomous behavior during the seven week Head Start program.

The first part of the hypothesis states that there will be significant differences in the mean change of each of the test variables at the end of the seven week Head Start program between the two ethnic groups. Table 8 gives the means, standard deviations, and differences of the pretest and posttest scores for the Mexican-American and the Negro children in the study, irrespective of treatment groups. A paired t-test was used to test the significance of the pretest and posttest differences in each ethnic group.

The change in I.Q. was significant for both the Mexican-American and Negro children at the .01 level. The Mexican-American children on the average scored about four points lower than did the Negro children, but both groups increased their I.Q. scores ten points on the average during the seven week period.

For the Mexican-American group the following nine of the 21 autonomy variables had significant increases: curiosity-box, curiosity-manipulation board, incidental learning, intentional learning, field independence, persistence, and persistence after distraction with a $p<.01$, while reflectivity and task competence had significant increases with a $p<.05$. Two of the test variables, verbalization-question and comments total and verbalization-total, had significant decreases at the .05 level during the seven weeks.

For the Negro group the following five of the 21 autonomy variables showed a significant increase during the seven week program: incidental learning and field independence at the .01 level while curiosity-manipulation board, intentional learning, and reflectivity at the .05 level. Task initiation and verbalization-curiosity box questions and comments were the only two variables which had a significant decrease for the Negro group during this period. All but one of the variables which showed a significant increase for the Negro group also showed a significant increase for the Mexican-American group.

The second part of this hypothesis states that there will be significant differences in the mean change of each of the test variables at the end of the seven week Head Start program among the three treatment groups.

The pretest means and standard deviations of the test variables of the three treatment groups are shown in Table 9 and the same descriptive statistics for the posttest scores are shown in Table 10. Table 11 shows the difference of the pretest and posttest scores and their standard deviations. To determine whether these mean differences were

TABLE 8

Means, Standard Deviations, Differences Of Pretest and Posttest Scores and Their Significance by Ethnic Groups.

TEST VARIABLES	MEXICAN-AMERICAN (N=42) PRE-TEST M	SD	POST-TEST M	SD	DIFF.	NEGRO (N=35) PRE-TEST M	SD	POST-TEST M	SD	DIFF.
1. I.Q.	76.8	16.0	86.0	22.1	9.3**	80.8	16.6	90.7	18.7	9.9**
2. Task Initiation	1.9	1.2	2.0	1.4	0.1	2.7	1.3	2.1	1.4	-0.6**
3. Curiosity - Box	15.3	14.3	29.2	15.5	13.9**	28.1	15.8	32.9	15.2	4.8
4. Curiosity - Manipulation Board	24.2	10.7	30.0	10.4	5.8**	25.9	9.8	29.5	10.9	3.6*
5. Impulse Control	0.7	0.4	0.6	0.4	-0.1	0.9	0.6	0.5	0.4	-0.1
6. Incidental Learning	1.1	1.3	2.7	2.2	1.6**	1.4	1.3	2.4	1.6	1.0**
7. Intentional Learning	2.7	1.8	4.0	2.1	1.3**	3.3	2.1	3.9	2.3	0.6*
8. Innovative Behavior - Path	3.8	3.2	4.2	2.5	0.4	5.2	3.2	5.3	3.5	0.1
9. Innovative Behavior - Dog	0.9	0.9	0.7	0.9	-0.2	1.1	1.0	1.0	1.6	-0.1
10. Field Independence	8.8	2.4	10.4	2.2	1.6**	8.2	2.3	9.7	2.4	1.5**
11. Reflectivity	6.2	2.1	6.9	1.5	0.7*	5.9	1.9	6.8	1.9	0.9*
12. Persistence	21.4	4.4	23.9	0.6	2.5**	21.5	4.5	22.9	2.9	1.4
13. Persistence After Distraction	10.6	5.2	13.5	5.5	2.9**	11.5	5.1	10.6	5.4	-0.9
14. Verb.-Curiosity Box-Quest. & Com.	1.0	1.8	0.6	1.4	-0.4	1.8	2.3	1.0	1.6	-0.8*
15. Verb.-Curio. Box-Fant. & Other Verb.	0.3	0.8	0.2	0.6	-0.1	0.7	1.6	0.6	1.5	-0.1
16. Verb.-Question & Comments Total	3.7	4.5	2.3	3.6	-2.1*	6.0	6.9	3.9	3.8	-1.4
17. Verb.-Fant. & Other Verb. Total	1.8	2.8	1.2	2.4	0.6	2.5	4.4	2.0	2.9	-0.5
18. Verb.-Total	5.5	6.7	3.5	5.4	-2.0*	8.3	9.7	5.9	5.9	-2.4
19. Task Competence	3.2	0.1	3.4	0.1	0.2*	3.2	0.1	3.3	0.1	0.1
20. Social Competence	3.1	0.1	3.3	0.1	0.2	3.3	0.1	3.2	0.1	0.1
21. Kindergarten Prognosis	3.4	0.1	3.5	0.1	0.1	3.5	0.1	3.5	0.1	0.0
22. Competence in English	3.5	0.1	3.4	0.1	-0.1	3.6	0.1	3.7	0.1	0.1

*p<.05
**p<.01

TABLE 9

Means and Standard Deviations of Pretest Scores by Treatment Groups

TEST VARIABLES	AUTONOMY (N=24) M	SD	LANGUAGE (N=26) M	SD	CONTROL (N=27) M	SD
1. I.Q.	75.7	15.9	80.9	17.5	79.1	15.6
2. Task Initiation	2.4	1.3	2.1	1.3	2.2	1.4
3. Curiosity - Box	23.4	14.7	20.7	16.6	19.6	17.5
4. Curiosity - Manipulation Board	26.6	9.5	24.5	10.3	23.9	11.1
5. Impulse Control	8.5	3.4	7.5	5.0	8.4	6.6
6. Incidental Learning	1.2	1.4	1.6	1.2	0.9	1.1
7. Intentional Learning	3.0	2.3	3.2	1.6	2.7	1.9
8. Innovative Behavior - Path	5.0	3.2	4.6	3.7	3.9	2.9
9. Innovative Behavior - Dog	1.2	1.1	0.7	0.8	0.9	0.9
10. Field Independence	8.1	2.2	9.3	2.2	8.2	2.4
11. Reflectivity	6.0	2.6	6.7	1.7	5.6	2.1
12. Persistence	20.8	4.6	23.0	3.6	20.6	4.8
13. Persistence After Distraction	11.1	4.9	10.0	5.3	11.9	5.2
14. Verb.-Curiosity Box - Quest. & Com.	1.5	2.1	1.5	2.5	1.1	1.7
15. Verb.-Curiosity Box-Fant. & Other Verb.	0.6	1.7	0.4	1.1	0.4	0.8
16. Verb.-Question & Comments Total	4.9	6.5	4.4	6.4	5.1	4.6
17. Verb.-Fant. & Other Verb. Total	2.0	4.6	2.0	3.5	2.3	2.7
18. Verb.-Total	6.5	8.8	6.3	9.3	7.3	6.8
19. Task Competence	3.4	1.0	3.0	0.9	3.2	0.9
20. Social Competence	3.4	1.1	3.1	0.8	3.1	0.9
21. Kindergarten Prognosis	3.5	1.0	3.4	0.9	3.4	1.1
22. Competence in English	3.5	0.9	3.7	0.7	3.5	0.9

TABLE 10

Means and Standard Deviations of Posttest Scores by Treatment Groups

	TEST VARIABLES	AUTONOMY (N=24) M	AUTONOMY (N=24) SD	LANGUAGE (N=26) M	LANGUAGE (N=26) SD	CONTROL (N=27) M	CONTROL (N=27) SD
1.	I.Q.	89.8	21.9	93.5	18.5	81.7	20.5
2.	Task Initiation	2.1	1.4	1.9	1.4	2.2	1.4
3.	Curiosity - Box	35.1	14.8	30.5	16.4	27.5	14.6
4.	Curiosity - Manipulation Board	30.1	11.3	28.8	9.1	30.5	11.5
5.	Impulse Control	8.2	4.5	5.4	3.2	7.4	3.4
6.	Incidental Learning	3.4	2.1	2.5	1.7	1.9	1.8
7.	Intentional Learning	4.4	2.2	4.3	2.0	3.3	2.2
8.	Innovative Behavior - Path	4.6	2.8	4.2	2.6	5.3	3.6
9.	Innovative Behavior - Dog	0.7	0.7	0.9	1.8	0.9	1.0
10.	Field Independence	9.7	2.3	11.2	1.9	9.3	2.2
11.	Reflectivity	6.8	1.7	6.9	1.8	6.9	1.7
12.	Persistence	23.3	1.7	23.3	3.0	23.7	1.1
13.	Persistence After Distraction	13.0	5.7	11.0	5.7	12.6	5.5
14.	Verb.-Curiosity Box - Quest. & Com.	0.4	0.8	1.0	1.5	0.9	1.8
15.	Verb.-Curiosity Box-Fant. & Other Verb.	0.4	0.8	0.2	0.7	0.4	1.6
16.	Verb.-Question & Comments Total	2.6	3.2	3.0	4.0	3.3	4.1
17.	Verb.-Fant. & Other Verb. Total	1.4	2.4	1.3	2.2	2.0	3.3
18.	Verb.-Total	4.0	4.8	4.4	5.8	5.3	6.5
19.	Task Competence	3.5	0.8	3.3	0.7	3.3	0.8
20.	Social Competence	3.4	0.8	3.4	0.7	3.1	0.8
21.	Kindergarten Prognosis	3.5	0.9	3.6	0.6	3.3	0.7
22.	Competence in English	3.5	0.8	3.7	0.5	3.4	0.7

TABLE 11

Means and Standard Deviations of Differences Between Pretest and Posttest Scores by Treatment Groups

	TEST VARIABLES	AUTONOMY (N=24) M	AUTONOMY (N=24) SD	LANGUAGE (N=26) M	LANGUAGE (N=26) SD	CONTROL (N=27) M	CONTROL (N=27) SD
1.	I.Q.	14.1	19.5	12.6	18.4	2.5	14.0
2.	Task Initiation	- 0.3	1.6	- 0.3	1.4	-0.1	1.3
3.	Curiosity - Box	11.7	15.8	9.8	14.3	8.0	13.2
4.	Curiosity - Manipulation Board	3.5	9.6	4.2	9.8	6.7	11.6
5.	Impulse Control	- 0.3	4.0	- 2.0	4.2	-1.0	5.4
6.	Incidental Learning	2.3	2.0	0.9	1.3	1.0	1.5
7.	Intentional Learning	1.4	1.9	1.1	1.9	0.6	2.6
8.	Innovative Behavior - Path	- 0.3	3.4	- 0.4	3.7	1.4	3.8
9.	Innovative Behavior - Dog	- 0.5	1.1	0.2	1.5	0.0	1.4
10.	Field Independence	1.6	1.9	1.9	1.9	1.2	2.4
11.	Reflectivity	0.8	2.0	0.2	1.9	1.3	2.3
12.	Persistence	2.5	4.8	0.3	4.4	3.1	4.6
13.	Persistence After Distraction	1.9	6.3	1.0	7.9	0.7	5.8
14.	Verb.-Curiosity Box - Quest. & Com.	- 1.1	1.8	- 0.5	2.2	-0.2	1.6
15.	Verb.-Curiosity Box-Fant. & Other Verb.	- 0.3	1.6	- 0.2	0.7	0.0	1.4
16.	Verb.-Question and Comments Total	- 2.3	5.7	- 1.4	6.4	-1.7	4.6
17.	Verb.-Fant. & Other Verb. Total	- 0.6	4.4	- 0.7	2.2	-0.3	2.6
18.	Verb.-Total	- 2.5	8.1	- 2.0	7.5	-2.0	6.1
19.	Task Competence	0.18	1.0	0.31	0.9	0.12	0.8
20.	Social Competence	0.00	1.0	0.27	0.9	-0.01	0.8
21.	Kindergarten Prognosis	0.04	1.2	0.15	0.9	-0.11	0.9
22.	Competence in English	0.04	1.1	0.02	0.9	-0.12	0.8

significantly different among the three treatment groups, a three way (treatment by sex by ethnic group) analysis of variance with unequal replications was carried out. To perform this analysis BMDX-64 of the UCLA Health Sciences Computing Facility was used on each of the test variables. Abbreviated analyses of variance of these results are shown in Table 12. From this table it may be seen that there was a significant difference among the mean differences of the three treatment groups for only two variables, namely, I.Q. and incidental learning. These differences were subjected to the Newman-Keuls multiple range test (Winer, 1962, p. 239) to determine which treatment means were significantly different from each other. This analysis indicated that the mean changes of I.Q. of the autonomy (14.1 points) and language (12.6 points) groups were not significantly different from each other, but they both were significantly larger ($p<.05$) than the increase of the control group (2.5 points). A similar analysis for the incidental learning variable showed that the mean change for the autonomy group (2.3 units) was significantly different from either the language (0.9 units) or the control (1.0 units) group, but the difference between the language and control group was not significant.

Significantly different mean changes were obtained between the two ethnic groups for three of the test variables. On task initiation the Mexican-Americans increased by 0.1 units while the Negroes decreased by 0.6 units; on curiosity-box the Mexican-Americans increased by 13.9 units while the Negroes by 4.8 units; and on persistence after distraction the Mexican-Americans increased by 2.9 units while the Negroes decreased by 0.9 units.

TABLE 12

Three Way Analysis of Variance Tables of the 22 Test Variables Based on the Pre- and Posttested Differences of the Three Treatments, the Two Sexes, and the Two Ethnic Groups

1. I.Q.

SOURCE	d.f.	MS	F
Treatment(T)	2	1021.1	3.67*
Ethnic(E)	1	127.9	0.46
Sex(S)	1	903.6	3.24
T X E	2	67.8	0.24
T X S	2	830.6	2.98
S X E	1	507.9	1.82
Error	67	278.7	

2. Task Initiation

SOURCE	d.f.	MS	F
Treatment(T)	2	1.07	0.56
Ethnic(E)	1	8.84	4.68*
Sex(S)	1	0.03	0.02
T X E	2	5.93	3.15*
T X S	2	1.79	0.95
S X E	1	0.85	0.45
Error	67	1.88	

3. Curiosity - Box

SOURCE	d.f.	MS	F
Treatment(T)	2	85.5	0.43
Ethnic(E)	1	1586.0	8.02**
Sex(S)	1	1.67	0.00
T X E	2	175.68	0.87
T X S	2	104.58	0.53
S X E	1	13.26	0.07
Error	67	197.85	

4. Curiosity - Manipulation Board

SOURCE	d.f.	MS	F
Treatment(T)	2	49.2	0.46
Ethnic (E)	1	71.6	0.66
Sex (S)	1	47.5	0.44
T X E	2	109.5	1.01
T X S	2	143.1	1.32
S X E	1	95.8	0.88
Error	67	107.9	

5. Impulse Control

SOURCE	d.f.	MS	F
Treatment(T)	2	612.67	0.28
Ethnic(E)	1	762.92	0.35
Sex(S)	1	1903.98	0.87
T X E	2	493.27	0.22
T X S	2	142.96	0.07
S X E	1	9031.59	4.13*
Error	67	2185.15	

6. Incidental Learning

SOURCE	d.f.	MS	F
Treatment(T)	2	13.45	6.05**
Ethnic(E)	1	6.21	2.79
Sex(S)	1	1.36	0.61
T X E	2	2.12	0.95
T X S	2	9.67	4.36*
S X E	1	6.01	2.7
Error	67	2.22	

TABLE 12 (continued)

7. Intentional Learning

SOURCE	d.f.	MS	F
Treatment(T)	2	4.53	0.94
Ethnic(E)	1	7.11	1.48
Sex(S)	1	1.06	0.22
T X E	2	6.10	1.27
T X S	2	3.78	0.78
S X E	1	0.09	0.02
Error	67	4.80	

8. Innovative Behavior - Path

SOURCE	d.f.	MS	F
Treatment(T)	2	34.52	2.64
Ethnic(E)	1	0.78	0.06
Sex(S)	1	6.34	0.49
T X E	2	33.63	2.57
T X S	2	4.46	0.34
S X E	1	0.03	0.00
Error	67	13.06	

9. Innovative Behavior - Dog

SOURCE	d.f.	MS	F
Treatment(T)	2	3.28	1.87
Ethnic(E)	1	0.10	0.06
Sex(S)	1	0.01	0.01
T X E	2	3.05	1.76
T X S	2	3.22	1.85
S X E	1	2.30	1.32
Error	67	1.74	

10. Field Independence

SOURCE	d.f.	MS	F
Treatment(T)	2	2.56	0.55
Ethnic(E)	1	0.43	0.09
Sex(S)	1	0.96	0.21
T X E	2	0.57	0.12
T X S	2	0.54	0.12
S X E	1	10.31	2.12
Error	67	4.64	

11. Reflectivity

SOURCE	d.f.	MS	F
Treatment(T)	2	7.37	1.56
Ethnic(E)	1	0.56	0.12
Sex(S)	1	0.08	0.02
T X E	2	0.65	0.14
T X S	2	0.10	0.02
S X E	1	0.84	0.18
Error	67	4.72	

12. Persistence

SOURCE	d.f.	MS	F
Treatment(T)	2	53.00	2.35
Ethnic(E)	1	13.71	0.61
Sex(S)	1	0.05	0.00
T X E	2	5.96	0.26
T X S	2	1.19	0.05
S X E	1	0.23	0.01
Error	67	22.58	

13. Persistence After Distraction

SOURCE	d.f.	MS	F
Treatment(T)	2	8.06	0.18
Ethnic(E)	1	219.42	4.90*
Sex(S)	1	18.60	0.42
T X E	2	10.74	0.24
T X S	2	14.61	0.33
S X E	1	6.03	0.13
Error	67	44.78	

14. Verb.-Cur Box-Quest. & Com.

SOURCE	d.f.	MS	F
Treatment(T)	2	6.19	1.68
Ethnic(E)	1	3.54	0.96
Sex(S)	1	1.26	0.53
T X E	2	7.88	2.12
T X S	2	0.20	0.05
S X E	1	3.71	
Error	67		

TABLE 12 (continued)

15. Verb.-Cur Box-Fant.& Other Verb

SOURCE	d.f.	MS	F
Treatment(T)	2	0.13	0.64
Ethnic(E)	1	0.00	0.00
Sex(S)	1	0.14	0.74
T X E	2	0.07	0.36
T X S	2	0.02	0.11
S X E	1	0.44	2.27
Error	67	0.19	

16. Verb.-Quest. & Comments Total

SOURCE	d.f.	MS	F
Treatment(T)	2	9.88	0.32
Ethnic(E)	1	5.54	0.45
Sex(S)	1	13.69	0.45
T X E	2	8.60	0.28
T X S	2	86.95	2.84
S X E	1	57.62	1.88
Error	67	30.58	

17. Verb.-Fant. & Other Verb Total

SOURCE	d.f.	MS	F
Treatment(T)	2	0.21	0.14
Ethnic(E)	1	0.02	0.01
Sex(S)	1	3.63	2.31
T X E	2	0.16	0.10
T X S	2	0.52	0.33
S X E	1	0.56	0.36
Error	67	1.57	

18. Verb.-Total

SOURCE	d.f.	MS	F
Treatment(T)	2	8.38	0.16
Ethnic(E)	1	3.39	0.06
Sex(S)	1	92.90	1.82
T X E	2	25.14	0.49
T X S	2	101.29	1.99
S X E	1	154.42	3.03
Error	67	50.98	

19. Task Competence

SOURCE	d.f.	MS	F
Treatment(T)	2	12.42	0.14
Ethnic(E)	1	22.09	0.26
Sex(S)	1	20.97	0.25
T X E	2	46.38	0.55
T X S	2	68.99	0.81
S X E	1	30.33	0.36
Error	67	85.07	

20. Social Competence

SOURCE	d.f.	MS	F
Treatment(T)	2	36.78	0.49
Ethnic(E)	1	135.50	1.82
Sex(S)	1	105.41	1.42
T X E	2	7.06	0.95
T X S	2	129.09	1.73
S X E	1	12.35	0.17
Error	67	74.45	

21. Kindergarten Prognosis

SOURCE	d.f.	MS	F
Treatment(T)	2	39.51	0.39
Ethnic(E)	1	3.07	0.03
Sex(S)	1	1.98	0.02
T X E	2	15.3	0.15
T X S	2	244.37	2.4
S X E	1	16.44	0.16
Error	67	101.37	

22. Competence in English

SOURCE	d.f.	MS	F
Treatment(T)	2	25.42	0.32
Ethnic(E)	1	42.22	0.52
Sex(S)	1	226.60	2.81
T X E	2	5.82	0.07
T X S	2	190.57	2.37
S X E	1	80.45	
Error	67		

*p<.05
**p<.01

On the pretest the Mexican-American children scored significantly lower than Negro children on two of these variables, namely task initiation and curiosity-box. The mean score on persistence after distraction for the Mexican-American children was lower than the Negro children but this difference was not significant. This may imply that low scoring children appear to gain the most for a school experience particularly in the areas of initiation and curiosity.

No significant differences were obtained between mean changes of the test variables for the two sex groups. One of each of the three different interaction terms was observed to be significant ($p<.05$). For task initiation it was the treatment by ethnic interaction term; for impulse control it was the sex by ethnic interaction term; and for incidental learning it was the treatment by sex interaction term.

From Table 11 one may also see that the standard deviations for some of the test variables are large which would indicate that the reliability of obtaining measurements on those test variables could be questioned. It is possible that the large variation in some of these test variables may have been the reason for the lack of significant differences among the other treatment group means.

In addition to this univariate analysis, a factor analysis using BMD-X72 was performed to determine whether these variables could be reduced to a smaller number of factors, combining the total number of cases from the pre-and posttests. Using an orthogonally rotated factor matrix, shown in Table 13, six factors were extracted and identified. The six factors and their high loading variables shown in Table 14 are competence, verbalization, learning, curiosity, intelligence, and impulse

control. This program also provides scores for each of the individual factor scores. These factor scores were next subjected to a three way analysis of variance. The abbreviated analyses of variance of these results are given in Table 15. No significant differences were obtained among the three treatment means, among the sex group means, the ethnic group means, except for the curiosity factor, and any of the first or second order interaction terms, except for the ethnic by sex interaction term for the control factor. In the analysis of the individual test variables significant differences in the ethnic group means were also obtained.

Correlation of I.Q. and Initial CATB Scores

The third hypothesis stated that the correlation between intelligence and the remaining test variables (autonomy variables) will not be significant.

To test this hypothesis, Pearson's Product-Moment correlation coefficients were computed between the I.Q. scores and each of the autonomy variables separately for each of the two ethnic groups obtained at the pretest stage. To obtain these calculations the B-STAT correlation program was used which also tests the hypothesis that these correlation coefficients were significantly different from zero by means of a t-test. Table 16 gives the correlation coefficients of the I.Q. and autonomy scores for the Mexican-American and Negro children as determined at the initial testing. Those correlations which are significant at the .05 level are indicated by means of an asterisk.

For the Mexican-American children the hypothesis was supported for all but four variables, namely, reflectivity with an r=0.33, persistence

TABLE 13

Rotated Factor Matrix of 22 Test Variables Based on the Combined Pre-and Posttest Scores of the 77 Cases with Cumulative Proportion of Total Variance

TEST VARIABLES	FACTOR 1	2	3	4	5	6
1. I.Q.	.2959	.1003	.1701	-.0412	-.5617*	.2340
2. Task Initiation	.3336	.3019	-.0406	.3018	.1882	.2512
3. Curiosity - Box	.1250	.1292	.1300	.7643*	-.0928	.1964
4. Curiosity - Manipulation Board	.1815	.0213	.1299	.7881*	-.0428	-.0747
5. Impulse Control	-.1536	-.0625	-.3642	.0742	.0522	.5347*
6. Incidental Learning	.0487	-.0450	.7793*	.0737	-.0311	-.0950
7. Intentional Learning	.1790	-.0744	.7462*	.0096	-.0718	.0891
8. Innovative Behavior - Path	.1606	.2024	.1407	.3726	-.0426	.3881*
9. Innovative Behavior - Dog	.1288	.1849	.1939	.1607	.4840*	.1056
10. Field Independence	-.1524	.0017	.3311	.1584	-.6127*	-.1767
11. Reflectivity	.0694	.1869	.5417*	.0690	-.1904	-.0797
12. Persistence	.0165	-.0582	.0334	.1756	-.7334*	-.0014
13. Persistence After Distraction	.2161	-.1887	-.1067	.3857	-.2935	-.3123
14. Verb.-Curiosity Box-Quest. & Com.	.0831	.8585*	.0243	.1014	-.0382	.0331
15. Verb.-Curiosity Box-Fant. & Other Verb.	.3394	.4666	.0504	-.2684	-.1089	.1442
16. Verb.-Question & Comments Total	.0524	.8816*	-.0361	.0229	.1022	.0865
17. Verb.-Fant. & Other Verb. Total	-.0285	.6598*	-.0908	.1336	.0209	-.1849
18. Verb.-Total	.0367	.9285*	.0105	-.0067	.1259	.0869
19. Task Competence	.8080*	.0074	.0856	.4020	.0333	-.1625
20. Social Competence	.8214*	.0729	.1852	.2700	.1133	.0210
21. Kindergarten Prognosis	.8926*	.0593	.1073	.1341	-.0105	-.0201
22. Competence in English	.8290*	.0712	.0369	-.0772	-.0995	.1206
Cumulative Proportion of Total Variances	0.19	0.32	0.40	0.47	0.53	0.58

*Indicates high loading.

TABLE 14

Factor Identifications With Their High Loading Variables

FACTOR	HIGH LOADING VARIABLES
Competence	Task Competence Social Competence Kindergarten Prognosis Competence in English
Verbalization	Verbalization: Curiosity Box - Questions and Comments Verbalization: Questions and Comments Total Verbalization: Fantasy and Other Total Verbalization: Total
Learning	Incidental Learning Intentional Learning Reflectivity
Curiosity	Curiosity: Box Curiosity: Manipulation Board
Intelligence	I.Q. Innovative Behavior: Dog Field Independence Persistence
Impulse Control	Impulse Control Innovative Behavior: Path

TABLE 15

Three Way Analysis of Variance Tables of the Six Factors Based on the Pre-and Posttest Factor Score Differences of the Three Treatment, Two Ethnic, and Two Sex Groups

1. Competence

SOURCE	d.f.	MS	F
Treatment (T)	2	0.15	0.12
Ethnic (E)	1	0.06	0.05
Sex (S)	1	1.64	1.34
T X E	2	0.32	0.26
T X S	2	2.15	1.75
E X S	1	0.14	0.12
T X E X S	2	0.39	0.31
Error	65	1.23	

2. Verbalization

SOURCE	d.f.	MS	F
Treatment (T)	2	1.14	1.24
Ethnic (E)	1	0.03	0.04
Sex (S)	1	1.64	1.78
T X E	2	0.70	0.76
T X S	2	2.12	2.31
E X S	1	1.72	1.87
T X E X S	2	2.39	2.60
Error	65	0.92	

3. Learning

SOURCE	d.f.	MS	F
Treatment (T)	2	0.46	0.76
Ethnic (E)	1	0.37	0.62
Sex (S)	1	0.64	1.07
T X E	2	0.61	1.01
T X S	2	1.86	3.08
E X S	1	1.14	1.88
T X E X S	2	0.12	0.20
Error	65	0.60	

4. Curiosity

SOURCE	d.f.	MS	F
Treatment (T)	2	0.12	0.14
Ethnic (E)	1	4.26	5.11*
Sex (S)	1	1.09	1.31
T X E	2	0.03	0.03
T X S	2	0.04	0.05
E X S	1	0.91	1.09
T X E X S	2	0.29	0.35
Error	65	0.83	

5. Intelligence

SOURCE	d.f.	MS	F
Treatment (T)	2	1.04	1.20
Ethnic (E)	1	0.01	0.01
Sex (S)	1	0.28	0.32
T X E	2	1.01	1.17
T X S	2	1.00	1.15
E X S	1	0.69	0.80
T X E X S	2	0.22	0.25
Error	65	0.87	

6. Impulse Control

SOURCE	d.f.	MS	F
Treatment (T)	2	0.11	0.26
Ethnic (E)	1	0.05	0.13
Sex (S)	1	0.17	0.40
T X E	2	0.53	1.28
T X S	2	0.11	0.26
E X S	1	2.17	5.27*
T X E X S	2	0.06	0.14
Error	65	0.41	

* $p < .05$

TABLE 16

Correlation Coefficients Between I.Q. and
Autonomy Variables by Ethnic Group

TEST VARIABLES	ETHNIC GROUP MEXICAN-AMERICAN N=42 r	NEGRO N=35 r
1. I.Q.		
2. Task Initiation	0.12	0.07
3. Curiosity - Box	-0.003	0.11
4. Curiosity - Manipulation Board	0.13	0.17
5. Impulse Control	-0.12	-0.09
6. Incidental Learning	-0.09	0.28
7. Intentional Learning	0.10	0.06
8. Innovative Behavior - Path	0.14	0.15
9. Innovative Behavior - Dog	0.13	-0.08
10. Field Independence	0.08	0.40*
11. Reflectivity	0.33*	0.04
12. Persistence	0.35*	0.26
13. Persistence After Distraction	0.08	-0.09
14. Verb.-Curiosity Box-Quest. & Com.	0.23	0.29
15. Verb.-Curiosity Box-Fant & Other Verb.	0.29	0.10
16. Verb.-Question and Comments Total	0.00	0.31
17. Verb.-Fant. & Other Verb. Total	0.21	0.13
18. Verb.-Total	0.09	0.24
19. Task Competence	0.25	0.18
20. Social Competence	0.27	0.28
21. Kindergarten Prognosis	0.42*	0.19
22. Competence in English	0.49*	0.32

*p<.05

with an r=0.35, kindergarten prognosis with an r=0.42, and competence in English with an r=0.49, all of which were significantly different from zero at the .05 level.

It is interesting to note that the highest correlation of I.Q. was with competence in English for the Mexican-American group. The child who is most proficient in English would also tend to be scored higher in kindergarten prognosis. The PPVT from which the I.Q. scores were derived was a verbal test measuring the child's understanding of vocabulary. Therefore, one might expect high correlations of competence in English and kindergarten prognosis with the I.Q. scores. One should also expect reflectivity and persistence to correlate highly with intelligence since in order to do well on the PPVT a child must be able to consider the four pictures presented and then stay at the task long enough to select the one that is associated with the word given by the tester. Banta (1968a) however, did not find that persistence was correlated significantly with intelligence scores as measured by the Stanford Binet.

For the Negro children the hypothesis was supported on all but one of the variables, namely, field independence, which was significant at the .05 level with an r=0.40.

Field independence and reflectivity are similar autonomy variables, both being included in what Banta calls the analytical perceptual processes. One might therefore, expect children who do well in one area to do well in the other area and for both of these variables to correlate highly with I.Q. This, however, is apparently not true, for this group, since the Mexican-American children's scores in reflectivity show a high

correlation with I.Q. while there is almost no correlation of their I.Q. scores with field independence. Just the opposite appears to be true with the Negro children, for whom a high correlation was observed of I.Q. with field independence but almost no correlation of reflectivity with I.Q.

Teacher Characteristics

No attempt was made to match teacher characteristics in the different treatment groups. Nevertheless, such characteristics may be of importance. These characteristics are tabulated in Table 17 for teachers and in Table 18 for aides. From it one may observe the following differences. The teachers in the autonomy group on the average were slightly younger and did not have as many years of educational background or experience as did the teachers in either the language or control groups. None of the autonomy teachers had graduated from college, while one language teacher and two control teachers had degrees. The autonomy teachers also had fewer courses in early childhood education. Every Head Start teacher and aide in San Bernardino must take an eight week training course. Two of the autonomy teachers were taking the course for the first time during their summer of work, while all of the teachers from the language and control groups had already taken the training and were now taking refresher courses.

Only four of the teachers in the total program were regular Head Start teachers. One of these was in the autonomy group, one in the control group, and two in the language group. All of the teachers in the language group were teachers during the regular school year, two in Head Start and one in first grade. Only one autonomy teacher was a

TABLE 17

Characteristics of Teachers by Treatment Groups

CHARACTERISTICS	AUTONOMY	LANGUAGE	CONTROL
Age (No., Interval)	1 16-21 1 22-27 1 34-39	1 22-27 1 34-39 1 46-51	2 22-27 1 52-57
Ethnicity	1-MA 2-Anglo	2-Negro 1-Anglo	3-Anglo
Level of Teacher Preparation	1-1 yr or less 2-3 yr	1-2 yr 1-3 yr 1-Course beyond B.A.	1-3 yr 2-Course beyond B.A.
Formal Training in Early Childhood Education	2-Undergrad courses 1-1 yr	1-Undergrad courses 1-2 yr 1-Grad courses	1-Undergrad courses 1-BA 1-Grad courses
Special OEO Training	2-8 wk 1-8 wk +	3-8 wk +	3-8 wk +
Length of Paid Experience with Pre-school Children other than H.S.	None	2-None 1-3 yr	2-None 1-1 yr
Years of H.S. Employment	2-None 1-3 yr	1-None 1-3 yr 1-5 yr	2-None 1-1/2 yr
Summer H.S. Employment including this summer	2-1 1-4	1-2 summer 1-4 1-5	1-1 2-3
Employment during regular year	1-Teacher 1-Ed. Handicapped Aide 1-Student	3-Teachers	1-Student 2-Teachers
Grade level	1-Head Start 1-3,4,5	2-Head Start 1-1st	1-Head Start 1-Kindergarten

TABLE 18

Characteristics of Aides by Treatment Groups

CHARACTERISTICS	AUTONOMY	LANGUAGE	CONTROL
Age (No., Interval)	2 40-45 1 46-51	1 16-21 1 22-27 1 40-45	1 16-21 1 22-27 1 40-45
Ethnicity	1-Negro 2-MA	2-MA 1-Anglo	2-Negro 1-MA
Level of Teacher Preparation	1-H.S. 2-Undergrad courses	1-H.S. 2-Undergrad courses	1-H.S. 2-Undergrad courses
Formal Training in Early Childhood Education	None	1-None 1-Undergrad courses 1-1 yr	None
Special OEO Training	3-8 wk +	1-8 wk 2-8 wk +	2-8 wk 1-8 wk +
Length of Paid Experience with Pre-school Children other than H.S.	None	None	None
Years of H.S. Employment	1-1 yr 1-2 1/2 1-4 yr	2-None 1-2 yr	2-None 1-3 yr
Summer H.S. Employment including this summer	1-3 2-5	1-1 1-2 1-4	2-1 1-3
Employment during regular year	3-Teachers Aide	1-None 1-Student 1-Teachers Aide	1-Student 1-Teachers Aide 1-Other
Grade level	Head Start	Head Start	Head Start

teacher during the regular school year. Two control teachers were teachers during the year, one in Head Start and one in kindergarten. None of the autonomy teachers had any previous paid experience with preschool children while one teacher in both the language and control groups had some experience.

The experienced aides who had worked in Head Start before and had taken the eight week training program and a number of refresher courses were placed with those teachers who had not had previous Head Start experience. Therefore, the autonomy group had aides who were more experienced on the average than the aides in the language or control groups. There was also an effort made to place a Mexican-American aide, or an aide who spoke Spanish, with teachers who were Negro or Anglo and could not speak Spanish. (See Appendix D for questionnaire)

Teacher Expectations of Achievement

In order to obtain information concerning the teacher's attitudes toward the variables that would be measured in this study, teachers were evaluated by means of a questionnaire. A modified version of the UCLA Teacher Expectations of Achievement for Children in Head Start (TEACH), shown in Appendix E, was given to all of the teachers and aides in each treatment group. This evaluation was done to determine if there were differences between any of the teachers and aides in the different treatment groups.

There were 52 items in the TEACH. These items were divided into 6 different categories. The categories and the item number comprising each are listed below, with the exception of 4 items (7, 28, 35, 49) which were stated negatively but were not included in this analysis.

These numbers identify the TEACH questions.

1. Language: 4, 11, 18, 21, 25, 32, 39, 46, 52
2. Curiosity: 3, 10, 14, 17, 24, 31, 38, 45, 50
3. Creativity: 6, 13, 20, 27, 34, 41, 42, 48, 51
4. Analytic Perceptual Processes: 1, 8, 15, 22, 29, 36, 43
5. Impulse Control: 2, 9, 16, 23, 30, 37, 44
6. Persistence: 5, 12, 19, 26, 33, 40, 47

Each teacher and aide was asked to respond to the six categories consisting of statements concerning goals for children in Head Start. If they felt the statement was "not important" they were to circle the numeral 1; if "slightly important", the numeral 2; if "moderately important", the numeral 3; if "highly important", the numeral 4. Therefore, 4.0 was the highest possible score any item could receive.

The TEACH category scores of the teachers and aides in the different treatment groups are given in Table 19. To determine if there were significant differences among the three treatment groups a one way analysis of variance was performed for each of the categories. The results of this analysis are shown in Table 20. As shown in this table there was a significant difference among the three treatment group means for two of the teacher's and two of the aide's TEACH categories. To determine how the means differed from each other a Newman-Keuls multiple range test was used.

This analysis indicated that for the curiosity category the mean of the control group teachers (3.2) was not significantly lower than that of the autonomy group (3.5), but both of these were significantly lower ($p<.05$) than that of the language teachers (3.9). For the

TABLE 19

TEACH Category Means and Standard Deviations
by Treatment Group for Teachers and Aides

CATEGORY	AUTONOMY M	AUTONOMY SD	LANGUAGE M	LANGUAGE SD	CONTROL M	CONTROL SD
			Teachers			
1. Language	2.4	1.0	2.8	1.1	2.6	1.2
2. Curiosity	3.5	0.6	3.9	0.3	3.2	0.9
3. Creativity	3.5	0.7	3.6	0.6	2.9	1.0
4. Analytic Perceptual Processes	3.0	0.7	3.4	0.9	2.8	1.1
5. Impulse Control	3.1	0.8	3.3	0.9	3.1	0.9
6. Persistence	3.0	0.9	3.1	1.2	2.7	1.0
			Aides			
1. Language	2.3	1.1	2.3	0.9	3.1	1.1
2. Curiosity	3.4	0.8	2.9	0.8	3.3	0.9
3. Creativity	3.1	0.8	2.9	0.8	3.1	1.0
4. Analytic Perceptual Processes	2.8	0.9	2.4	0.9	3.4	1.0
5. Impulse Control	2.5	1.1	2.6	0.8	2.8	1.2
6. Persistence	2.6	1.2	2.9	0.8	2.9	1.0

TABLE 20

One Way Analysis of Variance Tables of Six TEACH ategories of the Three Treatment Groups for Teachers and Aides

	TEACHERS				AIDES			
1.	Language				1.	Language		
	SOURCE	d.f.	MS	F		SOURCE	d.f.	MS	F
	Treatments	2	0.97	0.8		Treatments	2	5.98	5.41**
	Error	78	1.25			Error	78	1.11	
	Total	80				Total	80		
2.	Curiosity				2.	Curiosity			
	SOURCE	d.f.	MS	F		SOURCE	d.f.	MS	F
	Treatments	2	3.01	6.89**		Treatments	2	1.81	2.60
	Error	78	0.44			Error	78	0.70	
	Total	80				Total	80		
3.	Creativity				3.	Creativity			
	SOURCE	d.f.	MS	F		SOURCE	d.f.	MS	F
	Treatments	2	4.15	6.78**		Treatments	2	0.60	0.79
	Error	78	0.61			Error	78	0.76	
	Total	80				Total	80		
4.	Analytic Perceptual Processes				4.	Analytic Perceptual Processes			
	SOURCE	d.f.	MS	F		SOURCE	d.f.	MS	F
	Treatments	2	2.21	2.58		Treatments	2	5.35	6.46**
	Error	60	0.86			Error	60	0.83	
	Total	62				Total	62		
5.	Impulse Control				5.	Impulse Control			
	SOURCE	d.f.	MS	F		SOURCE	d.f.	MS	F
	Treatments	2	0.25	0.34		Treatments	2	0.49	0.45
	Error	60	0.73			Error	60	1.10	
	Total	62				Total	62		
6.	Persistence				6.	Persistence			
	SOURCE	d.f.	MS	F		SOURCE	d.f.	MS	F
	Treatments	2	1.06	0.96		Treatments	2	0.49	0.48
	Error	60	1.11			Error	60	1.02	
	Total	62				Total	62		

**p<.01

creativity category the mean of the language group (3.6) was not significantly different from the mean of the autonomy group (3.5) teachers, but both of these were significantly different ($p<.05$) from the control group (2.9) teachers. For the aides on the language category the means of the language and autonomy group were the same (2.3) but these were significantly different ($p<.01$) from the mean of the control group (3.1). For the analytical perceptual processes category the mean of the language group (2.4) was not significantly different from the means of the autonomy group (2.8), but both of these were significantly lower ($p<.05$) than the mean of the aides in the control group (3.4).

It is of interest to note that for the curiosity and creativity categories which had significantly different treatment means the control group teachers scored lower than the other teachers. Specifically, for the curiosity category they were significantly lower than the language group teachers and for the creativity category they were significantly lower than both the autonomy and language group teachers.

Just the opposite was true of the control group aides who scored significantly higher than either the autonomy or language aides on both the language and analytical perceptical processes categories.

The only significant difference between the autonomy and language group teachers was on the curiosity category, where the language group teachers scored higher. There were no significant difference between the autonomy and language group aides.

Evaluation of Teacher Performance

Each of the Head Start classrooms was visited by the investigator approximately once each week during the study. This was done on a random schedule so that the teachers were not forwarned when these visits would occur. During each visit an observation was made. Two observations were made on each teacher using the modified Observer's Rating Form (ORF) given in Appendix F. During the other observations extensive notes were taken of the classroom activities and the words that the teachers used in speaking to the children.

Each teacher was different and stressed different aspects of the program. Differences in teacher performance have been found to be a significant factor affecting the achievement and intelligence of children. (Edwards and Stern, 1969; Conners & Eisenberg, 1966; Pierce-Jones, et al., 1966) Therefore, a brief description of the teachers and aides in each classroom according to treatment groups is given.

Autonomy Treatment Classroom #1. This teacher did not have any Head Start experience and very little educational training before taking this teaching position. Even though the aide was experienced, there was a lack of direction, control, and knowledge of children's needs on the part of the teacher. This, however, improved during the study period. The emphasis in this classroom was on routines, following the teacher's directions, and the self-reliance of the children. The teacher followed closely the activities outlined in the Autonomy Program Guide and planned at least one "autonomy activity" each day. However, after the activity was finished the investigator did not

observe much evidence of teaching for autonomy on the part of the teacher.

Classroom #4. This teacher was the most unstructured of all of the teachers in the study. She planned specific activities, but often would deviate from her plan and follow the interests of the children. She allowed the children to participate in activities without an emphasis upon teacher direction. Often the children worked for long periods of time without any comments from the teacher. Of all the teachers, this teacher provided the most varied and unique science materials for the children to explore. However, even though the materials were provided for the children, she did not point out or emphasize these activities verbally. Therefore, this autonomous aspect of the program was not indicated in the ratings on the ORF.

Classroom #5. The strength of this teacher was in her musical background. It was in this area that she encouraged the children to be creative. However, in the art area, the activities were specific, stressing the importance of a product rather than the creative process. Other aspects of autonomy were stressed throughout the program in an incidental teaching manner. Because classroom #4 and #5 were located in the same center there was considerable teacher interaction and sharing of ideas and materials. In many aspects these teachers were more alike than other teachers in the study.

Language Treatment. All of the teachers in the language treatment group were experienced San Bernardino teachers, two of them in Head Start and one in first grade. The first grade teacher had taught summer Head Start classes for five years. These teachers, even though

they were selected randomly to be in the language treatment, all stressed language considerably more than any of the other teachers in the study. This is indicated on the ORF analysis shown in Table 21.

Classroom #2 and Classroom #7. The teachers in these classrooms were very similar. They had specific plans for each day which they followed effectively. Time was set aside daily to work with very small groups or individual children on specific concepts and learning activities, many of which resembled tasks that were outlined in the Autonomy Program Guide, even though autonomous behavior was not their goal. Language was stressed in every activity. Both teachers spoke slowly and carefully to the children and emphasized among the children correct language usage. In both of these classrooms the aides took over the complete responsibility for presenting the UCLA Preschool Language Program to small groups of children.

Classroom #6. The teacher in this classroom used the verbal bombardment technique. She was constantly talking to the children, questioning what they were doing, why, how they were going to complete the task, and what colors, numbers, or shapes they were working with. The classroom activities centered around this teacher. The aide in this classroom stayed in the background, and was even unsure about taking the responsibility of presenting the UCLA Preschool Language Program to all the children. Therefore, the teacher and aide shared this responsibility, the aide taking the group of children who were easiest to handle and the teacher taking the remaining children. This arrangement was not considered as effective as when the aide took over the total responsibility for the Language Program so that the teacher

TABLE 21

Mean Teacher Performance Scores by Categories and Treatment Group Classrooms

CATEGORY	AUTONOMY CLASSROOMS				LANGUAGE CLASSROOMS				CONTROL CLASSROOMS			
	#1	#4	#5	M	#2	#6	#7	M	#3	#8	#9	M
Language	1.6	1.7	1.5	1.6	3.4	3.7	3.6	3.6	1.2	1.8	1.7	1.6
Curiosity	1.7	2.2	1.8	1.9	2.7	2.3	2.7	2.6	1.7	1.3	1.3	1.4
Creativity	1.5	2.3	2.0	1.9	1.3	2.3	2.3	2.0	1.0	1.2	1.0	1.1
Analytic Perceptual Processes	1.3	1.2	1.3	1.3	2.2	2.3	2.8	2.4	1.3	1.4	1.0	1.2
Impulse Control	1.3	2.0	2.0	1.8	2.3	1.7	2.3	2.1	1.0	2.5	1.0	1.5
Persistence	1.7	2.1	1.5	1.8	1.7	1.3	3.0	2.0	1.3	1.5	2.3	1.7
Incidental-Intentional Learning	2.0	1.5	2.5	2.0	2.0	3.0	3.0	2.7	1.0	2.5	1.0	1.5
Miscellaneous Autonomy	1.5	2.3	1.5	1.8	1.8	1.3	2.5	1.9	1.3	1.5	2.0	1.6
Against Autonomy	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.7	4.0	4.0	2.0	3.3

could be free to work with the other children.

Control Classroom #3. This teacher had never taught before and had difficulty maintaining control of the children in her room. She gave a lot of directives but did not help the children to follow through with them. There was a tendency to overlook disciplinary problems. Because of this situation, very little teaching was accomplished.

Classroom #8. The emphasis in this classroom was to prepare the children for the routines and procedures in kindergarten. For example, the children were made to line up before walking to their play yard, which was right outside the door; they were not allowed to run and were asked to put their hands behind their backs so they would not touch another person in the line. The children had to wait until everyone was served before starting to eat, and they were always reminded to say "please" and "thank you". The most unique characteristic in this classroom was the strong, verbal aide. She was constantly giving directions to the children about the limits of the classroom, how they were suppose to do the activities, and what they were to say.

Classroom #9. The teacher in this classroom had the most organized curricula. Every activity of the day was planned around a certain concept. For example, when the color red was introduced, she talked about red apples and had them served for snack. An emphasis was also made upon learning nursery rhymes. The art activities were particularly structured, emphasizing the product rather than the process. There was also an emphasis on the children relying on each other rather than the teacher for help in such things as putting on

their smocks.

The Observer's Rating Form was a measure of the emphasis that the teachers gave to certain aspects of their program. The form contained nine categories, the first category was language and the remaining eight were the autonomy categories of curiosity, creativity, analytical perceptual processes (which contained reflectivity and field independence), impulse control, persistence and persistence after distraction, incidental and intentional learning, miscellaneous autonomy, and against autonomy. The teachers were rated on each item in the categories in the following manner: (1) no emphasis, (2) slight emphasis, (3) moderate emphasis, and (4) continual emphasis. The mean scores of each category for the teachers in the nine classrooms and the three treatment groups are given in Table 21. Inspection of these results indicates that the ORF tended to rate those teachers higher who were more verbal and conducted a more structured classroom. Those teachers who talked a great deal to the children and gave more examples of teacher emphasis in different areas were, therefore, rated more often as giving "continual emphasis" to certain items than teachers who were not so verbal.

Considering the mean scores of the nine different variables it is seen that there is very little variation among the teachers within each treatment group. However, the total average scores of each category for the different treatment groups does indicate a difference. On every category, except the category against autonomy, the language group scored higher than the other two treatment groups. The autonomy treatment group scored the next highest. And on every category except

against autonomy, the control treatment scored below the other two treatments. The scores of Table 21 when subjected to a two way (treatment by category) analysis of variance provided the results shown in Table 22 which indicate there were significant differences between the treatment group category means and in the treatment by category interaction term. Using the Newman-Keuls multiple range test it was found that the control group mean (1.6) was not significantly different from the autonomy group mean (1.8), but that both of these were significantly different ($p<.01$) from the language group mean (2.3). The finding that there were significant differences between the different categories is what might be expected.

It was expected that the autonomy teachers, since they were trained in the importance of emphasizing the different aspects of autonomy, should score higher on the autonomy categories. This expectation was not substantiated. One explanation for the higher scoring of the language treatment teachers than the autonomy teachers, is that the ORF was a measure of teacher emphasis. This would tend to rate higher those teachers who were more verbal and were continually emphasizing anything that could help children have a better understanding of the world and the concepts that are important in school. Such an emphasis may have been given continually throughout the program, however, there was no measure as to the number of children involved in each teacher encounter. It was observed that the autonomy teachers planned specific autonomy activities which usually involved a group of children. When rated on the ORF, this type of emphasis, because if did not occur continually throughout the program, was not

TABLE 22

Two Way Analysis of Variance of Teacher Evaluation Performance Scores of the Three Treatment Groups and Nine Categories

SOURCE	d.f.	MS	F
Treatments(T)	2	3.29	12.92**
Categories(C)	8	0.56	2.20*
T X C	16	0.94	3.70**
Error	54	0.25	
Total	80		

*p<.05
**p<.01

rated as high as on teachers who were constantly emphasing these things to individual children.

A related explanation may be the amount of involvement of the teacher in the activities of the children. The language teachers appeared to be totally involved in the activities of the children, whereas the autonomy teachers were more prone to observe the children as the children worked and experimented with materials and would step in only when a child needed help or an explanation.

On a whole the language treatment programs were slightly more structured, with definite activities planned at specific times, than were the autonomy treatment programs, or the control treatment programs. This may have had some effect upon the ratings on the ORF.

From the general observations that were made by the investigator, it was observed that each teacher was carrying out her specific treatment group requirements. However, this was done with varying amounts of emphasis.

Teacher Reactions

The teachers and aides in the two experimental groups (autonomy and language) were asked to complete the following statements.

1. The things I liked most about the study were...
2. The things I liked least about the study were...
3. If I were to participate in this study again, these are the things I would like to see done differently...

The responses to these statements are tabulated in Table 23.

In response to the first statement concerning the things liked most in the study, the majority of teachers and aides from both

TABLE 23

Frequency of Reactions of Teachers and Aides

COMMENTS	AUTONOMY TEACHER	AUTONOMY AIDE	LANGUAGE TEACHER	LANGUAGE AIDE
What I liked most about the study:				
Variety of materials	2	2	3	2
Ideas for lesson plans	1	1	1	0
Orientation session	2	1	0	0
Sequentially organized steps of learning	0	0	2	1
What I liked least about the study:				
Didn't know enough about study	2	0	0	0
Would liked to have seen observations	1	0	0	0
Too short of a time for the study	1	0	1	2
Inadequate time for make-up materials	0	0	1	1
Testing during snack or lunch time	1	1	0	0
Testing room was inadequate	0	1	0	0
Length of the testing time	0	1	2	0
Testers not dependable	1	0	0	0
Materials not adequate	0	0	1	1
Not enough teachers	0	0	1	0
What I would like to see done differently next time:				
More explanation about the study	2	0	2	0
Longer period of time for the study	2	1	2	2
Test for a shorter period of time	1	1	0	0
More meetings with teachers and aides during the study	1	0	0	0

experimental groups mentioned the variety of materials that were provided for their use in the program and the ideas given for lesson plans. The language teachers and aides mentioned that they liked the sequentially organized steps in the learning materials which was unique to the language materials. The autonomy teachers mentioned they liked the orientation session where teaching ideas and suggestions were made concerning autonomy. This session was only given for the autonomy treatment. From this response it appears that the teachers and aides appreciated most the things which could directly benefit them in the teaching of the children, such as materials and teaching ideas.

In response to the second question concerning what the teachers and aides liked least about the study, the majority of the responses centered around three subjects which were, lack of information about the study, length of time for the study, and the method of testing. The teachers didn't feel that they knew as much about the study in the beginning as they would have liked to have known. They considered that the seven week period for the study was too short of a time to accomplish everything that needed to be done in the study and the Head Start program. Concerning the method of testing, two of the teachers felt that the length of time involved, which was two weeks out of the seven week period, was too long. One teacher and aide mentioned that they didn't like their children to be tested during snack or lunch time. One aide felt that the testing room was not adequate since the children also received immunizations there and were therefore apprehensive about going to that room. A few comments centered around the unique aspects of the language treatment. For

example, one teacher felt that some of the materials concerning colors and the short sentences used were too repetitious for the children in her class. One teacher and aide mentioned that there was inadequate time to make-up the lessons with the children who had been absent and there were not enough teachers in the program when one needed to give the language lessons. The problem concerning the need for more teachers may be related to the adequacy of the aide in the Head Start program. When the classroom had an aide that was capable of giving the Language Program to all of the children, the teacher was able to work with the rest of the group without difficulty. It was observed, however, that in the two language classrooms which did not mention a need for more teachers, there were always one or two volunteers, which was more than a teacher might have regularly during the school year.

There were two major suggestions that the teachers and aides had concerning what they would like to see done differently.

1. More explanation concerning the study should have been given before the study began. The teachers would like to have known what the different treatments were, what hypotheses had been made concerning the treatments, and a demonstration of the test instrument. This information was purposely kept from them since the investigator considered a detailed description of the study and test instrument may have influenced some of the teachers to teach for the test instrument by offering the children learning opportunities based upon these procedures. However, when the study was completed, a detailed explanation was given to the teachers and aides and some of them

observed a demonstration of the test instrument.

2. The study should have been conducted during the regular school year when there could have been a longer period of time for carrying out the testing program. The summer Head Start programs in San Bernardino were extremely busy. All of the children were to receive medical examinations and immunizations during the program. The only time for the neighborhood worker to see the teacher was during the daily program. Field trips were taken at least once a week. The teachers were responsible for administering a complete test battery on each child. This took approximately one hour of class time for each individual. The teachers also held weekly parent meetings and were expected to attend weekly staff meetings. Furthermore, they made home visits and held special parent conferences. With this type of schedule, it was understandable that the teachers felt that the study should have been conducted during the school year when there is more time for the children to become adjusted to the program as well as more time for the teachers to perform the things required of them.

Another suggestion recommended that a shorter amount of time be used for testing the children. They felt it would have been better to test all of the children in one or two days rather than having the testing period cover an entire week. One autonomy teacher suggested that more teacher-aide meetings should be held during the study so that more instructions could have been given that may have been useful for the Head Start program.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Summary

Preschool intervention programs have focused upon the development of intelligence, language, and other cognitive skills of the disadvantaged young child. Results from these experimental programs indicate that children who attend classes which are structured and have goals for specific behaviors appear to make greater gains on standard intelligence tests and other evaluation instruments than children who are attending classes with more traditional types of curricula. From a review of the literature there appears to be a number of important variables which affect cognitive and language development which have not been adequately evaluated. Some of these important variables include task initiation, curiosity, impulse control, incidental and intentional learning, innovative behavior, field independence, reflectivity, persistence and persistence after distraction. For the purposes of this study these variables have been subsummed under the rubric of "autonomy" and defined as self-regulating behaviors that facilitate effective problem solving.

It has been found that structured preschool programs appear to foster the development of field independence and reflectivity while children in permissive programs gain skills in curiosity and creativity. Since all of the autonomy variables are important for effective learning, it is important to determine what types of preschool intervention programs foster different aspects of autonomy. The ideal would be a

program which would foster skills in each of these areas.

Since children from different ethnic groups and cultural backgrounds have developed unique aspects of behavior, it becomes important to determine what effect ethnic group differences have upon the development of autonomy.

Therefore, the major objectives of this study were: (1) to determine if there were measurable differences in autonomy between Mexican-American and Negro children, (2) to determine the effects of three different preschool intervention programs upon the development of autonomy in Mexican-American and Negro children, and (3) to determine the relationship between intelligence and the different aspects of autonomy.

This study evaluated Mexican-American and Negro children enrolled in the San Bernardino summer Head Start program. Nine classrooms were selected and were randomly assigned to the following three treatment groups: (1) Autonomy treatment, which utilized a specially prepared Autonomy Program Guide, containing suggestions about how the teachers could foster the development of autonomy in young children, (2) Language treatment which utilized the UCLA Preschool Language Program that stressed the development of language as it related to the different subject areas in school, and (3) Regular Head Start treatment, which served as the control group.

The data on the children were obtained by utilizing the Peabody Picture Vocabulary Test (PPVT) as a measure of intelligence and the Cincinnati Autonomy Test Battery (CATB) as a measure of autonomy. These tests were administered at the beginning and end of the study. Data on

the teachers and aides were obtained by the use of the following instruments: the UCLA Characteristics of Teaching Staff, UCLA Teacher Expectations of Achievement for Children in Head Start (TEACH), Observer's Rating Form (ORF), and a teacher's reaction sheet.

The data were analyzed using a variety of statistical techniques. The following were the major findings of the study.

1. The family and personal characteristics of the Mexican-American and Negro children were similar in each of the treatment groups and irrespective of treatment groups.

2. At pretest the Mexican-American children scored significantly lower than the Negro children on only two variables, task initiation and curiosity-box, but this difference was not found at posttest. At posttest the Mexican-American children scored significantly higher than the Negro children on two other variables, persistence and persistence after distraction.

3. There were significant increases in intelligence for both the Mexican-American and Negro children, irrespective of treatment groups.

4. In the Mexican-American group nine autonomy variables had significant increases during the study. These were curiosity-box, curiosity-manipulation board, incidental learning, intentional learning, field independence, persistence, persistence after distraction, reflectivity, and task competence. There were significant decreases on the variables of verbalization-questions and comments total and on verbalization-total.

5. In the Negro group five autonomy variables had significant increases during the study. These were curiosity-manipulation board,

incidental learning, intentional learning, field independence, and reflectivity. There were significant decreases in the variables of task initiation and verbalization-curiosity box-questions and comments.

6. Intelligence and incidental learning were the only variables that were found to have significant differences among the three treatment groups. The autonomy group increased their I.Q. on the average of 14.1 points, the language group 12.6 points, and the control group 2.5 points; the differences of the two experimental groups were statistically significant from the control group. On incidental learning the autonomy group was found to be significantly different from either the language or the control group, but the difference between the language and control group was not significant.

7. There were significant differences on task initiation, curiosity-box, and persistence after distraction between the two ethnic groups with respect to the mean post-pretest differences. On each of these variables the Mexican-American children increased significantly more than did the Negro children.

8. There were no significant differences between the two sex groups with respect to the mean post-pretest differences.

9. The 22 test variables consisting of I.Q. and autonomy variables may be reduced to the following six factors: competence, verbalization, learning, curiosity, intelligence and impulse control.

10. For the Mexican-American group a positive significant correlation was found between intelligence and the four autonomy variables of reflectivity, persistence, kindergarten prognosis, and competence in English. For the Negro children the only autonomy variable that

correlated significantly with intelligence was field independence.

11. The teachers in the autonomy group were on the average slightly younger and did not have as many years of educational background or experience as did the teachers in either the language or control groups.

12. For both teachers and aides in the different treatment groups the expectation of achievement differed significantly on a number of categories. On curiosity expectations the control teachers scored significantly lower than the language group teachers and on the creativity category the control teachers scored significantly lower than both the autonomy and language teachers. The only significant difference between the autonomy and language teachers was on curiosity where the language teachers scored higher.

The control group aides scored higher than either the autonomy or language group aides on language and analytical perceptual processes expectations. There were no significant differences between the expectations of the autonomy and language aides.

13. The teachers in the language treatment were observed to emphasize language and the autonomy variables in their programs more than did the teachers in the other treatments. The autonomy treatment teachers emphasized these categories more than did the control group, but these differences were not significant.

14. According to the reactions of the teachers and aides, the major recommendations for the study were that more information should have been given to them before the study began and that the study should have been conducted over a longer period of time, such as

during the regular school year.

Conclusions

A number of conclusions may be drawn from this study.

1. In general, Mexican-American and Negro children appear to be very similar in various aspects of autonomy.

2. Autonomous behavior tends to increase when children are in a preschool program, irrespective of different types of supplimentary curricula.

3. Mexican-American children tend to increase more in autonomous behavior during a preschool program than do Negro children.

4. Intelligence can be increased significantly in seven weeks when children are in a preschool program that emphasizes either language or autonomy.

5. Intelligence correlated positively only to those aspects of autonomy which may be considered cognitively oriented, for example, competence in English, task competence, persistence, field independence, and reflectivity.

6. Differences in teacher expectations and teaching performance should not be ignored when studying the effects of different intervention programs.

Recommendations

The area of autonomy has not received much attention in research studies concerning preschool education. Separate aspects of autonomy have been evaluated but the study of a large number of related variables concerning self-regulating behaviors that facilitate problem

solving needs further research. This study has indicated a number of areas that need further investigation.

This study was only concerned with the differences in the autonomous behavior between two ethnic groups. Other studies (Wasserman, 1969; Edwards and Stern, 1969) indicate that Mexican-American and Negro children have more similarities than when either group is compared with Anglo children. Therefore, research needs to be conducted on different ethnic groups. It may be that there would be more significant differences between children from ethnic groups not included in this study.

One study (Banta, 1967) found that lower class children were not as autonomous as middle-class children. No attempt was made to assess the development of autonomy in middle-class children in this study. The effect of the socioeconomic class upon the development of autonomy is another area that needs further research.

This study was only concerned with five year old children in a preschool program. It may be that children of a different age would exhibit different aspects of autonomous behavior and different types of curricula would affect older children differently. More research needs to be conducted on children of different ages.

This study was only concerned with the development of autonomy and intelligence. Further research needs to be conducted where the development of autonomy is compared with the development of other skills in the same children. Since one of the treatment groups emphasized language it appears important to assess how much language was learned during this period and if the children in the language

treatment would score higher than the children in the other treatments where the emphasis was upon other skills. One aspect of this study was concerned with how much autonomous behavior children would develop as a by-product when they became competent in another skill such as language. It would also be important to determine how much language a child would develop as a by-product of becoming more autonomous.

Even though differences were not found between the treatment groups, the Mexican-American and Negro children did obtain significant increases in some aspects of autonomous behavior during the seven week program. No attempt was made to determine the long range effect of these changes. More research needs to be conducted where children would be tested after the summer vacation to see if autonomous behavior would remain at the same level or revert to the initial level because of the influence of the family. Research also could be conducted during or after the kindergarten program to determine the effect of a conventional kindergarten atmosphere upon the retention of autonomous behavior.

Another suggestion for further study would be an evaluation of a control group of children who are not enrolled in a preschool program with the purpose of determining the changes in intelligence and autonomous behavior due to normal development and familiarity of the testing procedure and instruments.

Since significant differences occurred between the three treatment groups for only two of the 22 variables during the short seven week summer program, further research needs to be conducted over a longer period of time. Even though changes in children's behavior

have been found in eight week programs using different curricula, it may be that because the curricula used in the three treatment groups of this study were only supplimentary to the regular Head Start curricula that a longer period of time is needed for behavioral differences to become evident.

This study was not concerned with changing the teaching styles and methods of the teachers in the program. Rather an attempt was made to help teachers to add a new aspect of emphasis to their program. Differences in teacher style were observed. Even though teachers were randomly assigned to the different treatment groups, there appeared to be similarities within each treatment group in the teacher's methods of teaching. Since it has been shown that teacher belief systems have an influence upon the teaching methods used and the classroom atmosphere created by that teaching method (Harvey, 1965), it would appear important to assess the belief systems of teachers before assigning them to specific treatments.

It is difficult, if not impossible to change a teacher's style or method of teaching to a very great degree. Therefore, it would also seem important to assess the teacher style and methodology before assigning the teacher to a specific treatment. If this were done there could be an attempt to control for such things as the amount of emphasis teachers give to certain aspects of their program, such as language or autonomy.

The structure of the program may be another variable that effects the development of autonomy in young children. Banta (1967) found that children in a permissive program developed different aspects of autonomy

than did children in a structured program. There was no attempt to control for the structure of the individual programs in this study. Every teacher made out a daily lesson plan, but not every teacher followed this plan to the same extent. Upon analysis of the lesson plans, it was observed that some teacher's plans were much more highly detailed. For example, they included specific activities for specific children. Some teachers had planned the exact activities the children would work with that day, while other teachers waited for the children to express an interest in certain activities. It would be of interest to determine what effect different amounts of structure has upon the development of autonomy.

Only when more research has been completed in the area of the development of autonomy will educators be able to better understand the differences in children and what type of educational programs can best foster an increase in these important problem solving behaviors.

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APPENDIX A

AUTONOMY PROGRAM GUIDE*

*Developed by Kay Kuzma in collaboration with Dolores Deutsch, Barbara Phelps and Ruth Goodman, 1969.

Curiosity

A child expresses curiosity by exploratory behavior, which includes looking, tasting, manipulating, feeling, smelling, listening, asking questions and talking about what he is exploring.

A. Type of program:

1. Attractive and safe materials should be provided for the children to manipulate and explore.

2. The children should be given freedom to explore without having the fear of destroying fragile materials or having a teacher censor their every move.

3. There should be enough adult supervision so that children can be free to be curious with the materials and environment without needless restrictions being placed upon them.

4. There should not be so much supervision that children feel inhibited.

5. The children should be given freedom to explore the environment within reasonable limits.

6. Time should be provided for the children to explore materials and the environment.

7. The children should be given time to talk about their experiences if they are interested in doing so.

B. Teacher:

1. The teacher must believe that exploratory behavior is important and that a child learns through his unstructured, random explorations.

2. The teacher should stimulate a child's curiosity through challenging questions.

Example: NOT: "Look, the trees are getting leaves."

BUT: "The branches on this tree look different, I wonder why?"
"I wonder if we can pull a branch down?"

"I wonder how it feels?"
"How does it smell? taste? sound?"

3. When a child is exploring materials he should be allowed time to complete his explorations.

   Example: Do not let the structure of activities and a time schedule interfere with exploration.

   NOT: "Come in to snack right now."

   BUT: "When you are finished you may come in for snack."
   "Let's take 'it' into snack."
   "Let's have snack here with what you are working with."

4. When a child develops an interest in something, every effort should be made to provide materials to satisfy that interest.

5. Encourage the children to talk about what they are exploring.

C. Activities and materials:

1. There should be a large variety of attractive and safe materials for the children to explore.

2. Costly materials are not necessary to stimulate curiosity.

3. Unusual objects which the children have probably not seen before should be included.

   Example: Manipulative tools: a level, drill, screw driver or a long nozzle oil can.

   Fruits or vegetables: broccoli, brussel sprouts, artichokes, avocado or a pineapple.

4. Materials should be included which can be explored by the child's different senses.

   Example: Objects that he can smell: onion, perfume, horse radish, etc.

   Objects that he can taste: cloves, salt, sugar, etc.

   Objects that he can produce sounds with: different lengths of pipe, bottles filled with water, gourds, etc.

Objects that he can feel: sandpaper, sponge, fur, etc.

5. The teacher can provide the children with a "surprise box," in which she places a different object each day. The children can feel these objects and try to guess what they are. At sometime during the day the box can be opened to see if the children have guessed correctly.

6. The teacher may make a booklet that has many different types of materials in it. The children may then experience smoothness, softness, coarseness, etc.

Innovative Behavior

A child expresses innovative behavior by doing things in unusual ways and by finding alternative solutions to problems. Creativity can be expressed in words, songs, dances and actions.

A. Type of Program:

1. The children must feel free to use materials in a variety of ways.

2. Time must be provided for children to be creative.

B. Teacher:

1. The teacher must accept innovative behavior.

2. The teacher should feel that individuality is important that every child need not act the same way.

3. The teacher should create an atmosphere which encourages the children to be creative.

4. The teacher must help the children to feel comfortable in the school and to become familiar with materials so that they can feel free to be creative with them.

5. The teacher should make comments and ask questions to stimulate creativity.

Example: "There are many ways to put the paint on the paper."
"How many different ways can you put on the paint?"
"How many different things can you use this object for?"
"That's a good idea--I never thought about doing it that way."

6. The teacher should reward creative behavior in such a way that the child will have an intrinsic feeling of worth.

   Example: "That's a good idea. You thought of a new way of doing this."
   "You look like you enjoyed making this picture."

7. Do not make models in activities where the children can be self-expressive.

   Example: Make rhythms creative movement not imitative movement.

   NOT: "A duck walks like this."

   BUT: "How many different ways can you think of walking like a duck?"
   "You be your own duck--this is the way I like to do it sometimes."
   "How do you feel like doing it?"

   NOT: "This is walking music."

   BUT: "How many different ways can you walk." (backwards, sideways, high, low, fast, slow, on tip-toes, on heels, etc.)

   Example: Art

   NOT: "What colors should a tree be?"
   "The tree should be green."

   BUT: "You have made a tree that no other person has made. It is your very own. I really like your tree."

8. Provide opportunities for the children to make up stories, songs and dances.

C. Activities and materials:

1. Materials should be provided which can be used in a variety of ways.

2. There should be a large variety of materials.

3. A large variety of art media should be included, such as:

   a. Clay or dough

   b. Paint: A large assortment of colors and different sizes and types of paper and brushes are important.

c. Collage: A large assortment of materials can be used for collage.

d. Wood working: Nails, string, wire, spools and glue are among the materials that can be used.

4. Musical instruments: Use materials that are not usually thought of as musical instruments. Such as:

a. Gourds which can be shaken.

b. Nails hanging from strings can be hit together.

c. Different sizes of pipes can be hit with a mallet.

d. Wood doweling can be hit together.

e. Sandpaper covered blocks can be scraped together.

f. Jingle bells put on strips of elastic can be put over a child's arms and legs and can jingle as he moves to the beat of the music.

g. Coconut halves can be hit together.

h. Clothes pins clipped to a piece of cardboard make an interesting sound when a mallet is run across them.

i. Coffee tins with inner tube rubber over the ends can be used as drums.

Analytic Perceptual Processes

In order for a child to exercise analytic thinking he must develop skills in the processes of reflectivity and field independence. Reflectivity is the tendency to wait before making a response that requires analytic thinking, when the task demands it. Field independence is the tendency to separate an item from the context of which it is a part. These processes may be developed through activities requiring discrimination of the different characteristics of objects.

A. Type of program:

1. The room should be organized so there are areas where children can work on quiet activities and not be disturbed by children who are working with more active and noisy materials.

2. There should be a large variety of materials.

3. There should be time to experiment with materials, to find out how they work and to discover how they are different from other materials.

B. Teacher:

1. The teacher should help the children to use all of their senses to find out about materials.

2. Ask the children to point out similarities and differences in materials and objects.

   Example: "How are these objects the same?"
   "Find one just like this one."

3. Help the children to follow directions by making the directions simple, giving one at a time and making sure the child is listening.

4. Stimulate the children to think logically.

   Example: "If you do this, what will happen?"
   "Why does this happen?"

C. Activities and materials:

1. Provide sensual materials for discrimination.

   a. Feel: Provide different types of materials or fabric which the children can match those that have a similar feel.

   b. Hear: Provide different objects that can be put in containers. The children can shake the containers and then match those that sound alike.

   c. Taste: Provide different materials that have a peculiar taste, such as onions, sugar, salt or different spices. The children can taste them and then talk about their differences.

   d. Smell: Provide different things that have a peculiar smell, such as onions, roses, or fresh cut grass. The children can smell these and talk about their differences.

2. Provide a large variety of matching materials, such as:

   a. Lotto games: shape, objects, animals and colors.

   b. Large dominoes: pictures and numbers.

3. All types of science materials are important. Each classroom should have the following:

   a. Magnifying glasses, so the children can see more easily the parts of an object.

   b. Magnets and a variety of materials to use with the magnets, such as sand, nails and a mixture of objects that will and will not be attracted to the magnet.

   c. Other science materials may include: animals, insects, shells, rocks, seeds and growing plants.

4. Discrimination activities:

   a. Have the children look for certain characteristics in objects.

      Example: "Find the red fork."
      "Find the pencil with an eraser on it."
      "Bring me a block that looks just like this one."

   b. Have the children look at pictures and point out certain objects.

   c. Place a variety of objects on a table and have the children find the object you ask for or find the object just like the one you show them.

Impulse Control

A child expresses impulse control when he is able to restrain his motor activities when the task demands it.

A. Type of program:

   1. The program should be organized to follow a simple daily routine so the child can begin to anticipate the following activity.

   2. There should be a variety of activities throughout the day. Quiet activities should follow active ones; individual activities should follow group activities.

B. Teacher:

   1. The teacher must have time to give individual attention to each child as he needs it.

2. The teacher should introduce new ideas when a child is becoming frustrated in one activity.

3. Activities must meet the needs of the child.

   Example: If a child is frustrated by working on small materials, help him to change to large muscle activities.

   If a child is becoming overly excited in noisy, active play, help him to find a quiet activity which he will enjoy for a while, before going back to his active play.

4. Look for the cause of the child's impulsive actions and try to treat that cause. He may be impulsive for the following reasons:

   a. He may be tired, hungry, or ill.

   b. He may become frustrated easily.

   c. He may feel insecure or afraid.

   d. He may be modeling behavior he has seen in his home or among his peer group.

C. Activities and materials:

1. Water pouring: Paint lines on clear plastic containers that the child can see through. A child can practice pouring in water and stopping when it reaches a certain line. Colored water may be easier for the child to see.

2. Ball rolling: Draw lines or place strings across a sidewalk at different distances from a child. Have the child roll balls and try to get them to stop on the different lines.

3. Red light--Green light: Have the children run or walk when someone says, "green light." Then when someone says, "red light" have the children practice stopping their movements.

4. Music activities: Have the children play rhythm instruments to different types of music. Encourage them to change from fast to slow, from loud to soft and from an uneven to an even rhythm as the music changes.

   Example: "Tell me if the music sounds different."
   "In what way is it different?"
   "Can you do that with your instrument?"

5. Body movement activities:

   a. Play the strings of the autoharp from low to high. The children can move their hands, body, or feet (lying down) in the direction of the sound of the music. After doing this for a number of times, continue playing slowly in the middle range to see if the children can stop their bodies half way up or down.

   b. Ice cream cone: Have the children pretend that they are an ice cream cone. The teacher may suggest that they add scoops of ice cream and the children may then stretch as tall as they can. Pretend they go out into the sun and they begin to melt, very slowly, until they are a puddle of milk on the floor.

   c. Pop corn: Have the children be a kernel of corn. The teacher can pretend to turn on the pop corn popper and the children can wait until the music says it is time to "pop".

   d. Jack-in-the-box: Have the children pretend that they are a Jack-in-the-box and must wait inside the box until the music says "jump".

   e. Rising sun: Talk about how slowly the sun rises and moves across the sky. Then say, "if you were the sun, how would you come up?" Encourage the children to move slowly to the sound of the music.

Persistence and Persistence after Distraction:

Persistence refers to attending to a problem or task when the goal has been identified until a solution is reached or the task is finished. If a child enjoys a task and gets a feeling of accomplishment when it is finished, he will gradually learn to resist distraction in order to complete the task.

A. Type of program:

   1. Time should be allowed for the child to finish activities.

   2. Plan projects that can be finished in a short time--not more than one day.

B. Teacher:

   1. Help the children to either finish the activities they have started or to reach a point where they can feel good about their work. This will help them to have a feeling of accomplishment.

2. Give the children a reason or incentive to complete a project or task.

   Example: "It will be a surprise for your mother."
   "That will look lovely on our wall."
   "You will feel good when you have finished this."
   "You may show the other children what you have made."

3. Point out to the child the activity that will follow as soon as he finishes his task.

   Example: "You need to finish because we will be marching next and will need to put the materials away."

4. A teacher may have to point out to a child that, "some things we do, not because we want to, but because it is good for us or because we have to do them."

5. Use positive reinforcement.

   a. Let the child know that you expect him to finish the tasks he begins.

   b. Plan tasks in such a way that he is capable of finishing them.

   c. Reward him when he does finish.

      Example: "You look like you are happy with what you have done."
      "It makes me happy when you finish what you begin."
      "Let's put it on the bulletin board."

6. Give him encouragement.

   Example: "I will help you if you need me."
   "It is almost completed."
   "Just one more piece."

7. Tell him you understand how he feels.

   Example: "I know it is hard but I can help you."
   "I know you don't want to do it, but it will make your mother happy."
   "I know it takes a long time but you are almost finished."
   "I know you don't like to clean up but it is time to go home."
   "You must have worked hard to get so much done."

8. Substitute materials when a child is becoming frustrated because what he is working on is too difficult. Help him to find success with simple materials first.

9. Make a game out of finishing the task.

   Example: "It will surprise us to see what it is when it is finished."
   "What will it look like when it's finished?"

10. Do not pressure him into finishing EVERY task or ELSE. It is important that he learns to finish tasks because it is meaningful and rewarding for him--not just the teacher.

C. Activities and materials:

There should be a variety of materials at different levels of complexity.

Example: Puzzles with different numbers of pieces.

Matching of large shapes and matching of smaller, harder to distinguish shapes.

Incidental and Intentional Learning

Incidental learning is the tendency to acquire information that is not specifically taught while intentional learning is acquiring information that is indicated in the teacher's instruction. Memory appears to be a significant factor in a child's incidental and intentional learning.

A. Type of program:

Activities should be repeated so that the children will become familiar with them and be able to recall what was learned previously.

B. Teacher:

1. The teacher should expect the child to remember things.

2. The teacher should ask the child to recall things that have happened in the past.

C. Activities and materials:

1. Show a child an array of objects. Hide one object and see if he can remember what object is missing from the array.

2. Have three bowls or boxes that are just alike. Place an object under one bowl, move them around and see if the child can follow and remember under which bowl the object was placed.

3. Tell a story and ask the children to recall parts of it.

4. Show pictures to the children and talk about certain aspects of the picture. Put the picture away and have the children recall things from the picture that were not talked about.

APPENDIX B

UCLA PRESCHOOL LANGUAGE PROGRAM

CONTENT MATERIAL IN THE LANGUAGE PROGRAM

1. Language of Instruction I, II, III, IV, V, VI.

2. Colors:
   1: Green
   2: Red
   3: Green and Red
   4: Yellow
   5: Red, Green and Yellow
   6: Color Review

3. Numbers:
   1: Introduction to Numbers
   2: Counting 1 and 2
   3: More than one
   4: More than one
   5: Counting 1-2-3
   6: More than two
   7: Counting 1-2-3 and More Than Two
   8: How Many?
   9: How Many and More Than
   10: How Many Fingers
   11: The Three Bears

4. Problem Solving:
   1: Negation 1
   2: Negation 2
   3: Negation 3
   4: Disjunctive Argument 1
   5: Disjunctive Argument 2
   6: Sequencing 1
   7: Sequencing 2
   8: Sequencing 3

5. Picture Reading: 1, 2, 3, 4, 5, 6

6. Shapes: 1, 2, 3 (circle, triangle, square)

UCLA PRESCHOOL LANGUAGE PROGRAM: WEEK 1

DAY	PROGRAM	OBJECTIVES	VOCABULARY
June 30	Language of Instruction I	Children will be able to listen, look, find and point to objects and pictures of objects and to echo sentences. Children will develop rapport with teacher.	look comb find check point rattle bell
July 1	Language of Instruction II	Children will be able to listen, look, find and point to objects and pictures of objects and when given a statement about a picture will be able to produce a parallel sentence.	point find look horn cricket
July 2	Language of Instruction III	Child will be able to listen, look, find and point to objects, pictures of objects, and to echo sentences. Child will continue to develop rapport with teacher and when shown pictures from D1 and D2 he will be able to produce sentences about them.	
July 3	Color 1: Green Slides & I See Green (I)	Children will identify the color green.	color green
July 4	VACATION		

UCLA PRESCHOOL LANGUAGE PROGRAM: WEEK 2

DAY	PROGRAM	OBJECTIVES	VOCABULARY
July 7	Color 2: Red Slides (I)	Children will identify the color red.	
July 8	Color 3: I See Red & Green (I)	Child will name colors, and discriminate between red and green to answer in sentence.	
July 9	Language of Instruction 4: Introduction to Color Feedback	Children will name colors red and green, discriminate between these colors; turn pages in booklet, and mark items to get red and green color feedback.	spots mark red is wrong green is right turn the page magic pens
July 10	Numbers 1: Introduction to Numbers Language of Instruction 5: Booklet Instructions	Children will count parts of body (e.g. two eyes, one nose, etc.) Given 12 pictures child will label color as red or green; given booklet child will turn page when bell rings and mark picture as instructed, distinguishing between a correct and an incorrect response.	one two red mark green right wrong spot
July 11	Language of Instruction 6: Review of Red and Green Feedback Problem Solving 1: Negation 1	Children will discriminate between red and green color feedback. Child will show he understands meaning of word "NOT" by selecting correct answer	green red

UCLA PRESCHOOL LANGUAGE PROGRAM: WEEK 3

DAY	PROGRAM	OBJECTIVES	VOCABULARY
July 14	Numbers 2: Counting 1 and 2	Children will count one, two	one two
	Problem Solving 2: Negation 2	Children will understand meaning of "NOT" by selecting correct answer.	not
July 15	Numbers 3: More than one.	Children will count 1-2 and respond to terms one more and more than one.	
	Color 4: Introduction to color yellow	Children will name and select the color yellow.	yellow
July 16	Color 5: Red, Green, Yellow Lotto	Children will identify colored objects and answer in complete sentences.	red green yellow
	Picture Reading 1	Given echoing experiences with pictures, children will produce a sentence about a comparative picture.	
July 17	Shapes 1	Given an instance of shape (circle, square, or triangle) children will produce the name of the shape and identify non-instances of each.	shape square name circle triangle
	Numbers 4: More Than One	When presented with picture booklet and asked to point to one item, children will tell if there is more than one.	
July 18	Numbers 5: Counting 1-2-3	Children will count 1-2-3 by pointing to three checkers.	three
	Problem Solving 3: Negation 3	Children will understand meaning of the word "NOT" by selecting correct response.	

UCLA PRESCHOOL LANGUAGE PROGRAM: WEEK 4

DAY	PROGRAM	OBJECTIVES	VOCABULARY
July 21	Picture Reading 2	Given echoing experience with pictures, child will produce a complete sentence about a parallel picture.	
	Problem Solving 4: Disjunctive Argument 1	Children will select answers using disjunctive argument.	
July 22	Color 6: Color Review - Cars in Garages	Children will name three colors and answer questions about colors in complete sentences.	
	Shapes 2	Given three shapes (circle, square, triangle), children will give the shape name, and mark a specific shape when instructed to do so.	circle square triangle shape
July 23	Numerals 6: More Than Two	Children will count to two and tell if there are more than two.	more than two
	Shapes 3	Given a marking booklet, children will mark a circle, triangle or square that is paired with another object.	circle triangle square
July 24	Picture Reading 3	Given echoing experience with pictures, children will produce a complete sentence about a parallel picture.	
	Problem Solving 5: Disjunctive Argument 2	Children will select answers using disjunctive argument.	
July 25	Numerals 7: Counting 1-2-3 and More Than Two	Children will count to three and tell if there are more than two.	three
	Picture Reading 4: Picture Reading Lotto	Children will identify and match small cards to large Lotto board and verbalize a description of the small cards.	

UCLA PRESCHOOL LANGUAGE PROGRAM: WEEK 5

DAY	PROGRAM	OBJECTIVES	VOCABULARY
July 28	Numerals 8: How Many?	Children will point and respond to the question "how many?"	how many?
	Picture Reading 5: Tom and Betty Balloon Surprise 1	Children will echo sentences.	
July 29	Numerals 9: How Many and More Than	Children will hold up fingers showing how many and respond to terms "how many" and "more than".	how many more than
	Problem Solving 6: Sequencing 1	Child will discriminate between first, middle and last pictures in a series.	first order middle last
July 30	Picture Reading 6: Tom and Betty Balloon Surprise 2	Given a statement to describe picture A, children will produce a parallel sentence for picture B.	
	Problem Solving 7: Sequencing 2	Child will discriminate between first, middle and last pictures in a series.	first order middle last
July 31	Numerals 10: How Many Fingers	Children will respond to "show me one or two fingers" and "how many?"	how me three how many four one five two
	Picture Reading 5: Tom and Betty Balloon Surprise 3	Given two parallel pictures, children will produce previous modeled sentences for each.	
Aug. 1	Problem Solving 8: Sequencing 3	Children will discriminate the order of three and four pictures in sequence.	first last next order
	Numerals 11: The Three Bears	Children will recognize numeral 3 and associate the numberal 3 with 3 objects.	

APPENDIX C

CINCINNATI AUTONOMY TEST BATTERY RECORD BOOKLET*

Record Booklet-CATB

Child's Name _____ Tester _____

School _____ Autonomy Language Control
(circle one)

Teacher _____ Classroom _____

Date of Test ____ ____ ____
Year Month Day

Child's Birthdate ____ ____ ____
Year Month Day

Age ____ ____ ____ (add 1 mo. if 15 days or more)
Year Month Day

Age in months _____

*Adapted by Kay Kuzma from the Banta Cincinnati Autonomy Battery Record Booklet for use in the present study.

Task Initiation: (circle proper rating)

1 minute for initiation: 1 minute more for play.

1. No initiation. Child sat with hands in lap and watched E. Child sat and looked about the room.

2. Minimal contact. No real involvement is shown - child touched figures but withdrew. Child knocked figure down and immediately withdrew.

3. Initiation but minimal involvement. Child moves figures about randomly but no organization. Child lays all figures down - no systematic play.

4. Initiation. High degree of involvement - organized activity. Child pairs all animals or stands them side by side. Child groups figures and puts them inside barricade. Child puts figures on top of one another.

Curiosity Box

Say: "Here is something for you to play with."
Prompt: "This is for you to play with."

	Activity							Verbalization			
								Box Related		Other	
Time	Manip. Explor.	Tact. Explor.	Visual Explor.	Other	Move.-Subject	Move.-Box	Time	Quest. &/or Comment	Fantasy	Quest. &/or Comment	Fantasy
30sec	M M M M	T T T T	visual	other	m-subj.	m-box	30sec	q &/or c	fantasy	q &/or c	fantasy
1 min	M M M M	T T T T	visual	other	m-subj.	m-box	1 min	q &/or c	fantasy	q &/or c	fantasy
1/30	M M M M	T T T T	visual	other	m-subj.	m-box	1/30	q &/or c	fantasy	q &/or c	fantasy
2 min	M M M M	T T T T	visual	other	m-subj.	m-box	2 min	q &/or c	fantasy	q &/or c	fantasy
2/30	M M M M	T T T T	visual	other	m-subj.	m-box	2/30	q &/or c	fantasy	q &/or c	fantasy
3 min	M M M M	T T T T	visual	other	m-subj.	m-box	3 min	q &/or c	fantasy	q &/or c	fantasy
3/30	M M M M	T T T T	visual	other	m-subj.	m-box	3/30	q &/or c	fantasy	q &/or c	fantasy
4 min	M M M M	T T T T	visual	other	m-subj.	m-box	4 min	q &/or c	fantasy	q &/or c	fantasy
4/30	M M M M	T T T T	visual	other	m-subj.	m-box	4/30	q &/or c	fantasy	q &/or c	fantasy
5 min	M M M M	T T T T	visual	other	m-subj.	m-box	5 min	q &/or c	fantasy	q &/or c	fantasy

Child's Name _____

"Watch what I do."

Impulse Control: "I'm going to draw a line real fast." "Now you draw a line real fast--right here."

Total Length ___

Total time

Ave. In./sec. ___

Slow line #1

Time: _____

Length: _____

In./sec. _____

"Now watch what I do. I'm going to draw a line very slowly--just as slowly as I can. Now you draw a line just as slowly as you can."

Slow line #2

Time: _____

Length: _____

In./sec. _____

"Now, I want you to draw a line from here to here, as slowly as you can." "Start here."

Slow line #3

Time: _____

Length: _____

In./sec. _____

"I want you to draw a line from here to here--this time even slower than the last time." "Start here."

Incidental Learning and Intentional Learning

Instructions:
Step 1 - "I'm going to teach you something about this color green"
"We're going to look at some things in this book."
"Find the green on this page."
Step 2 - "What is this? "Yes, the ____ is one of the things you saw with green on it in this book." (three training pictures.)
"Now, tell me something else you saw with green on it in this book." (9 sec. repeat) (20 sec. terminate)
Step 3 - "What is this?" "Um-Hmmm"
Step 4 - "The table is one of the things you saw with green on it in this book. You also saw the house and the apple."
(Show pictures)
"What else did you see with green on it in this book?"
(9 sec. repeat) (20 sec. terminate)

Incidental Recall	Labeling	Post-familiarization Recall
	T1. Table	
	T2. House	
	T3. Apple	
	1. Dog	
	2. Girl	
	3. Wagon	
	4. Airplane	
	5. Telephone	
	6. Bed	
	7. Shoe	
	8. Car	
	9. Hat	
	10. Boat	
Total		Total

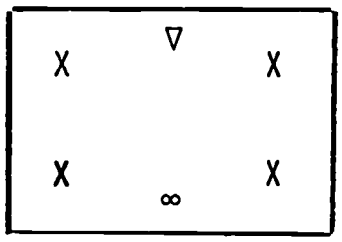
Irrelevant Responses:

Irrelevant Responses:

Dog and Bone Test - (Innovative Behavior)
Score (number of different ways)_____

Instructions:
"These are houses." "What is this?" (dog)
"This is the doggies bone. The doggie likes to chew his bone."
"One way he can get his bone is to come up this way."
"And another way he can go is around this way."
"Now you take the doggie and find another way for him to get his bone."
"Find another way for him to get his bone," (after each response)

1



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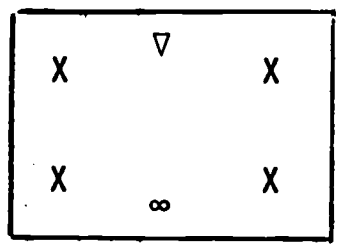

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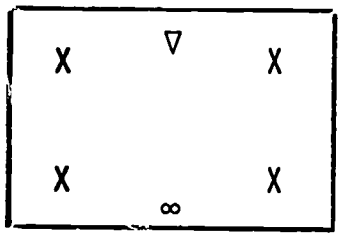

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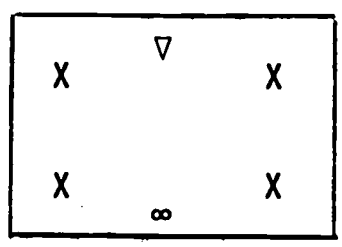

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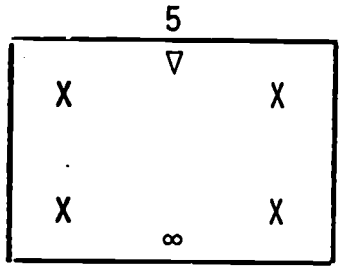

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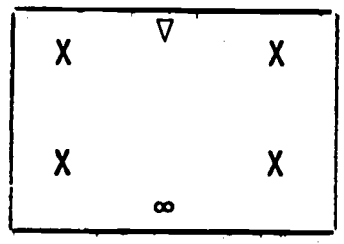

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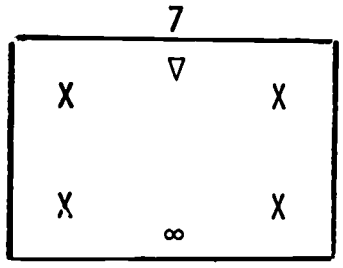

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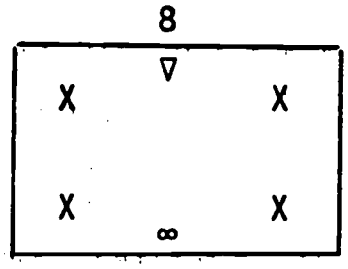

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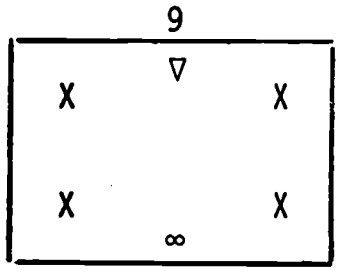

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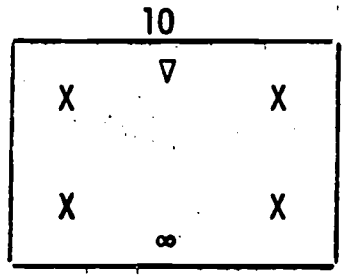
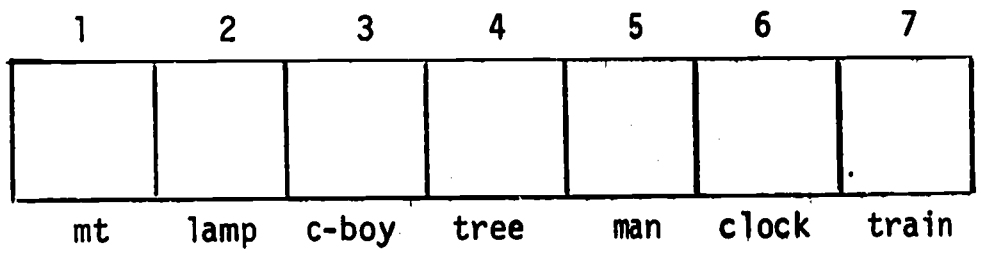
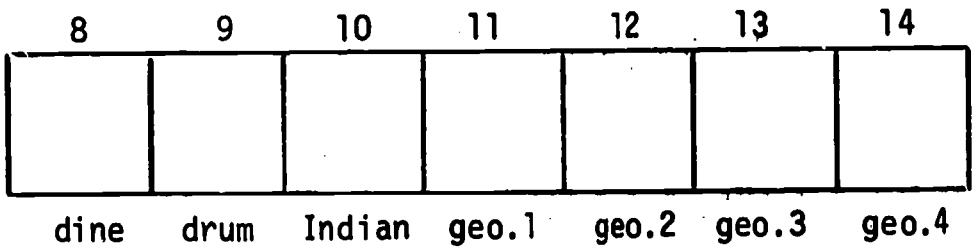


EC = EFT
Early Childhood - Embedded Figures Test

Instructions:

"What is this?"
"There is a picture of an ice cream cone on this page just like our ice cream cone."
"You take our ice cream cone and put it on top of the picture of the ice cream cone."
"Good! See how it fits right on top of the picture. See how the ice cream cone points toward you. Look how our ice cream cone covers the picture of the cone."
"There is a picture of a cone on this page just like our cone. Put our cone exactly on top of the picture of the cone."
"Put our cone exactly on top of the cone on this page." Um-Hmmm."





Cone Score: _____

Manipulation Board

"Here is something for you to play with."
"This is for you to play with." (prompt)

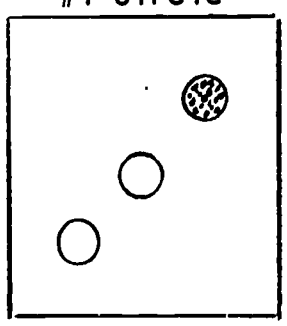
	Activity					Verbalization			
						Box Related		Other	
Time	Manip. Explor.	Other	Move.- Subjects	Move.- Boards	Time	Quest. &/or Comment	Fantasy	Quest. &/or Comment	Fantasy
30 sec	M M M M	other	m-subj.	m-box	30 sec	q &/or c	fantasy	q &/or c	fantasy
1 min	M M M M	other	m-subj.	m-box	1 min	q &/or c	fantasy	q &/or c	fantasy
1/30	M M M M	other	m-subj.	m-box	1/30	q &/or c	fantasy	q &/or c	fantasy
2 min	M M M M	other	m-subj.	m-box	2 min	q &/or c	fantasy	q &/or c	fantasy
2/30	M M M M	other	m-subj.	m-box	2/30	q &/or c	fantasy	q &/or c	fantasy
3 min	M M M M	other	m-subj.	m-box	3 min	q &/or c	fantasy	q &/or c	fantasy
3/30	M M M M	other	m-subj.	m-box	3/30	q &/or c	fantasy	q &/or c	fantasy
4 min	M M M M	other	m-subj.	m-box	4 min	q &/or c	fantasy	q &/or c	fantasy
4/30	M M M M	other	m-subj.	m-box	4/30	q &/or c	fantasy	q &/or c	fantasy
5 min	M M M M	other	m-subj.	m-box	5 min	q &/or c	fantasy	q &/or c	fantasy

Early Childhood -- Matching Familiar Figures

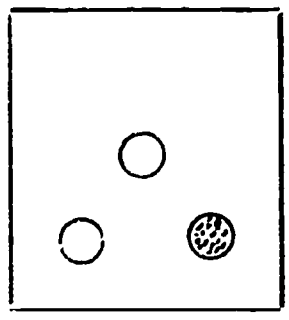
"Look at this picture." "Find the one on this page that is just like this one."
"Yes, this one is round and has lines across it, and this one is round and has lines across it."
"Um-hmmm."

Total Correct _____

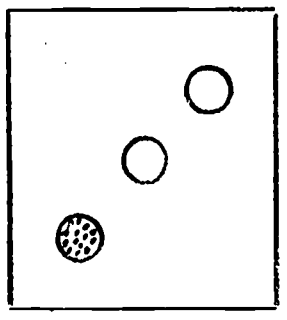
#1 Circle



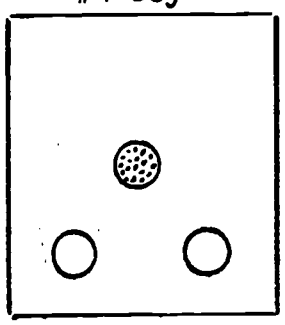
#2 Girl



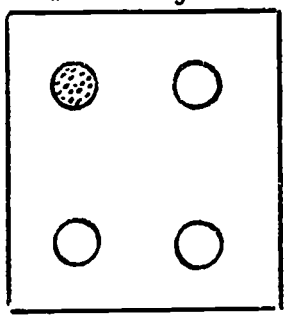
#3 Cat



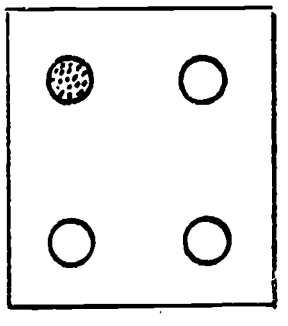
#4 Boy



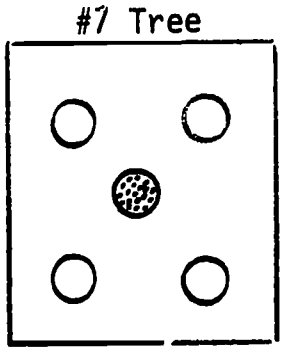
#5 Bunny



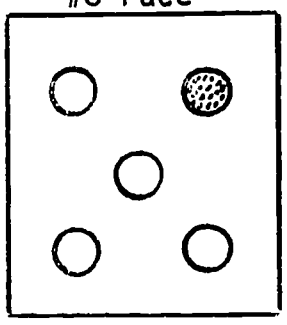
Woman-
#6 Face



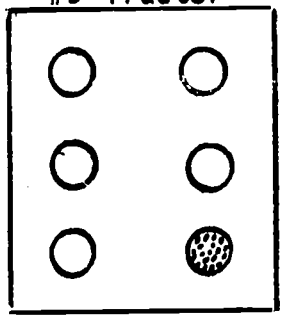
#7 Tree



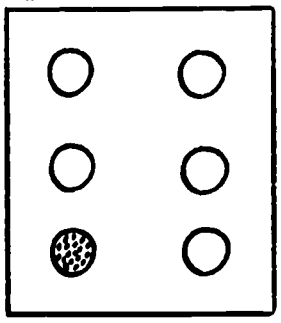
Man-
#8 Face



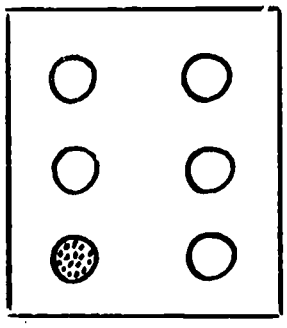
#9 Tractor



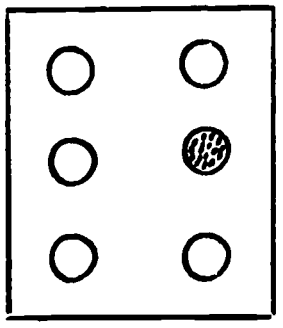
Girl-
#10 Face



#11 Plane



Boy-
#12 Face



Replacement Puzzle: Persistence and Persistence After Distraction

Instructions: "I want you to look at how flat all these pieces fit into this tray."
"This looks something like a puzzle, but there are spaces between the pieces."
"Some of the pieces come out. The boy comes out."
"When we put it back, it must not rest on other pieces--it must fit flat."
"That's very important. Now you try. Now rub your hand across here and feel how flat it is."
"I'm going to take some of the pieces out." (boy, horseshoe, plane and pear)
"Now you put those pieces back into the tray."
"Put all the pieces in flat." (prompt)
"Now you may play with these, or you may finish putting the pieces in flat."
"Would you like me to help you put these back?"

Activity						Verbalization: Puzzle or Block Related			Verbalization: Other	
Time	Puzzle-Goal Direct	Puzzle-non Goal Direct	Other	Prompt	Blocks	Time	Quest. &/or Comment	Fantasy	Quest. &/or Comment	Fantasy
20sec	goal direct	non-goal	other	p		20sec	q &/or c	fantasy	q &/or c	fantasy
40sec	goal direct	non-goal	other	p		40sec	q &/or c	fantasy	q &/or c	fantasy
1 min	goal direct	non-goal	other	p		1 min	q &/or c	fantasy	q &/or c	fantasy
1/20	goal direct	non-goal	other	p		1/20	q &/or c	fantasy	q &/or c	fantasy
1/40	goal direct	non-goal	other	p		1/40	q &/or c	fantasy	q &/or c	fantasy
2 min	goal direct	non-goal	other	p		2 min	q &/or c	fantasy	q &/or c	fantasy
2/20	goal direct	non-goal	other		blocks	2/20	q &/or c	fantasy	q &/or c	fantasy
2/40	goal direct	non-goal	other		blocks	2/40	q &/or c	fantasy	q &/or c	fantasy
3 min	goal direct	non-goal	other		blocks	3 min	q &/or c	fantasy	q &/or c	fantasy

Tester's Ratings

	5 Optimal	4 Good	3 Average	2 Fair	1 Poor	
Task Competence Rating						
Absorbed by task						Easily distracted
Persistent						Gives up easily, or can't give up
Eager to continue						Seeks to terminate
Challenged by hard tasks						Prefers only easy tasks
Social Competence Rating						
Socially confident						Shy, reserved, reticent
Comfortable in adult company						Ill-at-ease
Assured						Anxious about success
Needs minimum of commendation						Needs constant praise and encouragement
Kindergarten Prognosis						
Good conventional kindergarten prognosis						Poor conventional kindergarten prognosis
Good understanding of English						Poor understanding of English
Good speaking of English						Poor speaking of English

APPENDIX D

UCLA CHARACTERISTICS OF TEACHING STAFF*

*Developed by the UCLA Head Start Evaluation and Research Center, Dr. Carolyn Stern, Director. Modified by Kay Kuzma.

UCLA CHARACTERISTICS OF TEACHING STAFF

1. Teacher I.D.: 0, 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18

2. Teacher status: 1 = Head Teacher; 2 = Teacher Aide

3. Age:
   1 = Under 16
   2 = 16 - 21
   3 = 22 - 27
   4 = 28 - 33
   5 = 34 - 39
   6 = 40 - 45
   7 = 46 - 51
   8 = 52 - 57
   9 = Over 57

4. Ethnicity:
   1 = Negro
   2 = Mexican-American
   3 = White

5. First Language: 1 = Standard English
   2 = Standard + Other

   Language Used in Class:

6. Level of teacher preparation (general education):

   1=High school grad
   2=1 yr college or less
   3=A.A. degree or 2 yr
   4=3 years college
   5=B.A. or B.S.
   6=Course credit beyond B.A. or B.S.
   7=M.A.
   8=Credit above M.A.

7. Formal training in Early Childhood Education:

   1=None
   2=Undergrad courses
   3=1 year
   4=A.A. or 2 year
   5=3 years college
   6=B.A. or B.S. in Early Childhood
   7=Graduate courses in Early Childhood

8. Special OEO Training:

   1=None
   2=8 wk course
   3=8 wk course + refresher seminar or workshop
   4=Other (Specify)

9. Length of paid experience with children <u>older</u> than preschool:_____

10. Length of paid experience with preschool children:_____

11. Length of previous employment with Headstart Reg. yr.:_____

12. Number of summers:_____

13. Employment during regular school year: 1=Student; 2=Teacher Aide; 3=Teacher; 4=Other

    If teacher, specify grade level: 1=Headstart or P; 2=K; 3=1st; 4=2nd; 5=3rd; 6=4th or above

APPENDIX E

UCLA TEACHER EXPECTATIONS OF ACHIEVEMENT FOR CHILDREN IN HEAD START (TEACH)*

*Modified by Kay Kuzma in collaboration with Dr. Carolyn Stern, Director, UCLA Head Start Evaluation and Research Office, for use in the present study.

Name _____ Date _____

Position _____ Center _____

UCLA Teacher Expectations of Achievement for Children in Head Start

(TEACH)

Even among educators and specialists in child development, there is a wide difference of opinion as to what are appropriate goals and activities for children in Head Start classes. We have collected a large number of items describing behaviors which many teachers have thought to be more or less important, and would like you to express your reactions to each of them.

We would like you to indicate to what extent you think that a particular behavior or activity is important and should be included in a Head Start program. For instance, if you think that "sits quietly during lessons or storytime" is not at all important, you would give it a "low" rating of 1; if you think it is slightly important give a rating of 2; if you think it is moderately important give a rating of 3; if you think it extremely important you would give it a "high" rating of 4. Ask yourself as you mark each item. "How important is this goal for the average child in my class?"

Remember, this is not a test with right or wrong answers. There are equally good teachers who hold quite opposite opinions. Also, all your responses will be kept completely confidential, so do not hesitate to express ideas which you may feel are different from those of other teachers and child development specialists.

Filling out this checklist is a time-consuming task, but we feel that it will be of value in two ways. first it will supply a wealth of suggestions for activities in the classroom, and second, it will give us some idea of what a large group of teachers feel the content of a pre-kindergarten experience should be. In both these ways, it will promote knowledge about what Head Start is trying to do.

Circle the numeral that indicates the degree of importance of each statement.	Not Important	Slightly Important	Moderately Important	Highly Important
1. Thinks things through carefully before responding to a difficult question.	1	2	3	4
2. Sits quietly during lessons or storytime.	1	2	3	4
3. Explores a variety of solutions to a problem.	1	2	3	4
4. Names the primary and secondary colors.	1	2	3	4
5. Stays with the same task for at least 30 minutes.	1	2	3	4
6. Sings songs that he has made up.	1	2	3	4
7.* Waits for a teacher to explain the correct way of doing a task.	1	2	3	4
8. Shows that equal amounts of clay, when molded into different shapes, are still equal.	1	2	3	4
9. Stays within a printed outline when coloring or cutting.	1	2	3	4
10. Starts working on a task without waiting for a teacher to explain the correct way of doing it.	1	2	3	4
11. Given one of a pair of simple opposites, states the other. (e.g. cold-hot, tall-short, good-bad.)	1	2	3	4
12. Becomes so deeply involved with a task that nothing distrubs him.	1	2	3	4
13. Paints pictures which are unique and original.	1	2	3	4
14. Works with a large variety of learning materials.	1	2	3	4

Circle the numeral that indicates the degree of importance of each statement.	Not Important	Slightly Important	Moderately Important	Highly Important
15. Given several picture cards in random order, tells a story in the proper sequence.	1	2	3	4
16. Pours sand or water from one container to another without excessive spilling.	1	2	3	4
17. Is willing to take moderate risks in a new situation.	1	2	3	4
18. Gives correct answers to questions of "less than", "more than" and "the same as".	1	2	3	4
19. Completes what he is working on before starting something new.	1	2	3	4
20. Describes a picture imaginatively with much elaboration.	1	2	3	4
21. Writes the letters of the alphabet.	1	2	3	4
22. Recognizes that set quantities remain the same even though they may change in appearance. (e.g. the amount of water remains the same in two different sized containers.)	1	2	3	4
23. Takes out frustrations and hostility on material objects instead of attacking others.	1	2	3	4
24. Asks a wide range of questions about his environment.	1	2	3	4
25. Expresses spatial relations using prepositions such as behind, in front of, first, last.	1	2	3	4
26. Stays with the task he has started even when there are more interesting things to do.	1	2	3	4
27. Volunteers unique ideas of his own.	1	2	3	4
28.* Uses art materials in the manner prescribed by the teacher.	1	2	3	4

Circle the numeral that indicates the degree of importance of each statement.	Not Important	Slightly Important	Moderately Important	Highly Important
29. Picks out objects which are just alike from an array of objects that are slightly different.	1	2	3	4
30. Stops disruptive behavior when asked to do so by the teacher.	1	2	3	4
31. When placed in an unfamiliar room, explores the area extensively.	1	2	3	4
32. Uses newly acquired vocabulary in the correct context.	1	2	3	4
33. Persists in efforts to solve a task after several failures.	1	2	3	4
34. Uses materials freely and creatively in art activities.	1	2	3	4
35.* Answers readily, even though not sure of the answer.	1	2	3	4
36. Describes objects in terms of small and specific details.	1	2	3	4
37. Raises hand when he knows the answers to questions asked by the teacher in a group activity.	1	2	3	4
38. Seeks new information without others help.	1	2	3	4
39. Identifies simple written words like "cat", "car", "yes", "no".	1	2	3	4
40. Assembles a difficult puzzle entirely by himself even though it may take fifteen minutes.	1	2	3	4
41. Comes up with unusual answers to questions.	1	2	3	4
42. Uses materials in unusual ways.	1	2	3	4

Circle the numeral that indicates the degree of importance of each statement.	Not Important	Slightly Important	Moderately Important	Highly Important
43. Points out similarities and differences in objects.	1	2	3	4
44. Controls his impulsive actions when someone makes him angry.	1	2	3	4
45. Discovers the answers to problems on his own.	1	2	3	4
46. Names the numerals from 1 to 10.	1	2	3	4
47. Works on tasks in which he is interested whether or not he receives adult attention.	1	2	3	4
48. Acts out a variety of imaginative ideas in dramatic play.	1	2	3	4
49.* Answers questions even though not addressed to him.	1	2	3	4
50. Explores different objects by touch as well as visually.	1	2	3	4
51. Creatively moves to music without imitating other children.	1	2	3	4
52. Uses correctly the concepts "add to" and "take away from" for problems up to 5.	1	2	3	4

APPENDIX F

OBSERVER'S RATING FORM (ORF)*

*Adapted by Kay Kuzma from the Observer's Rating Form (ORF) developed for the Head Start Education under the direction of John Pierce-Jones, University of Texas, 1966.

Observer's Rating Form	Did Not Observe	No Emphasis	Slight Emphasis	Moderate Emphasis	Constant Emphasis
I. Language					
1. The extent to which the teacher stresses the use of descriptive adjectives.	0	1	2	3	4
2. The extent to which the teacher stresses the use of color names.	0	1	2	3	4
3. The extent to which the teacher stresses the use of numbers.	0	1	2	3	4
4. The extent to which the teacher stresses the use of prepositions.	0	1	2	3	4
5. The extent to which the teacher insists that the child use verbal communication. (The teacher does not accept nods, gestures, "sign language" in lieu of verbal communication.)	0	1	2	3	4
6. The extent to which each child is given the opportunity to organize and to express his ideas in explaining what he is doing.	0	1	2	3	4
7. The extent to which each child is given the opportunity to organize and to express his ideas in answering questions.	0	1	2	3	4
8. Extent to which each child is given the opportunity to organize and to express his ideas in sharing experiences.	0	1	2	3	4
9. Extent to which the teacher emphasizes the environment in which the child finds himself at any given time. (Emphasis on attention, discrimination, making comparisons, drawing conclusions from the immediate environment.)	0	1	2	3	4

	Did Not Observe	No Emphasis	Slight Emphasis	Moderate Emphasis	Constant Emphasis
10. Extent to which teacher pays attention to the development of an "elaborated" (formal) language code vs. acceptance of the "restricted" (public) code.	0	1	2	3	4
11. Extent to which the teacher uses complete sentences in communication with children.					
12. Frequency with which the teacher pays specific attention to the importance of following directions. (Gives children opportunities to follow instructions, gives them time to do so, etc.	0	1	2	3	4
13. To what extent does the teacher use consistently a feedback system in order to develop language facility. (Consistently feeds back corrections, uses models, synonyms, etc. so child can copy and correct his own language.)	0	1	2	3	4
14. Excent to which the teacher encourages communicative verbal interaction among the children in the group.	0	1	2	3	4
15. Extent to which the teacher constructively encourages the child to learn a socially acceptable standard dialect in terms of pronunciation, word formation (e.g. proper inflections and endings added to words), syntax (i.e. order and arrangement of words in a phrase or sentence) and vocabulary. ("Constructively," in a sense that the teacher does encourage the learning of an acceptable standard dialect but does not attack or belittle the child's own dialect or that of his home environment.)	0	1	2	3	4

	Did Not Observe	No Emphasis	Slight Emphasis	Moderate Emphasis	Constant Emphasis
II. Curiosity					
16. Extent to which the teacher seeks to develop a questioning orientation on the part of the child.	0	1	2	3	4
17. The extent to which the teacher allows the child to explore the materials in the classroom.	0	1	2	3	4
18. The extent to which the teacher encourages the child to explore the materials in the classroom.	0	1	2	3	4
III. Creativity					
19. The extent to which the teacher encourages a child to use art materials creatively.	0	1	2	3	4
20. Degree to which the teacher encourages creative ideas, stories and songs.	0	1	2	3	4
21. The extent to which the teacher encourages creative behavior or movements.	0	1	2	3	4
IV. Analytic Perceptual Processes (Reflectivity - Field Independence)					
22. The extent to which the teacher uses multisensory stimulation in teaching. (Various combinations of visual, auditory, tactile, olfactory, gustatory stimulation, other than usual use of words and pictures together.)	0	1	2	3	4
23. Degree to which teacher provides for auditory discrimination.	0	1	2	3	4
24. Degree to which teacher provides for visual discrimination.	0	1	2	3	4

		Did Not Observe	No Emphasis	Slight Emphasis	Moderate Emphasis	Constant Emphasis
25.	The degree to which a teacher encourages children to notice similarities and differences in objects.	0	1	2	3	4
26.	The degree to which a teacher encourages children to think about the consequences of behavior. (What will happen if... If I add water to it what will happen...etc.)	0	1	2	3	4
27.	The degree to which a child is allowed time to think on his own without constantly having to do as the teacher directs.	0	1	2	3	4
28.	The degree to which the teacher encourages children to notice the smaller details of objects.	0	1	2	3	4
V.	Impulse Control					
29.	The degree to which a teacher encourages children to control their impulsive behavior without inhibiting the child. (running, hitting, etc.)	0	1	2	3	4
30.	The degree to which the teacher encourages a child to wait until another child has finished talking and then gives that child a turn.	0	1	2	3	4
31.	Degree to which the teacher attempts to teach the children to listen.	0	1	2	3	4
VI.	Persistence and Resistence to Distraction					
32.	The degree to which a child is encouraged to finish a task that he has started.	0	1	2	3	4
33.	Degree to which the teacher is aware of pupil frustration, and helps a child to cope with it effectively.	0	1	2	3	4

	Did Not Observe	No Emphasis	Slight Emphasis	Moderate Emphasis	Constant Emphasis
34. The extent to which the teacher helps children to follow through on the directives that she gives.	0	1	2	3	4
VII. Incidental Learning and Intentional Learning					
35. The degree to which a teacher encourages all of the children to recall things they have learned or seen in the past.	0	1	2	3	4
VIII. Miscellaneous Autonomy					
36. Extent to which the teacher allows children to make a choice of the activities they would like to work with when appropriate.	0	1	2	3	4
37. Extent to which the teacher attempts to help the child develop self-discipline.	0	1	2	3	4
38. Degree to which the teacher creates an atmosphere or attitude of "self-dependency" rather than an atmosphere or attitude of "other-dependency".	0	1	2	3	4
39. The extent to which the teacher encourages children to settle differences by or share materials with each other rather than relying on the teacher to make these decisions.	0	1	2	3	4
IX. Against Autonomy					
40. The degree to which the teacher gives directives without the child being given a chance to make a suggestion. (Example: If you take too much at one time you will drop them, instead of "What will happen if you take too many?")	0	1	2	3	4

APPENDIX G

SOCIOECONOMIC STATUS ALPHABETICAL LIST OF OCCUPATIONS*

*Developed by the UCLA Preschool Language Project, Dr. Carolyn Stern, Director.

SOCIO-ECONOMIC STATUS ALPHABETICAL LIST OF OCCUPATIONS

RATINGS		
2	1	Accountant
3	2	Accountants & auditors
4	3	Actors & Actresses
3	4	Advertising agents & salesman
3	5	Agents (n.e.c.)
2	6	Airplane pilots & navigators
6	7	Apprentice auto mechanics
5	8	Apprentice bricklayers & masons
5	9	Apprentice carpenters
5	10	Apprentice electricians
5	11	Apprentice machinists & toolmakers
5	12	Apprentice mechanics, except auto
5	13	Apprentice plumbers & pipe fitters
5	14	Apprentices, building trades (n.e.c.)
5	15	Apprentices, metalworking trades (n.e.c.)
5	16	Apprentices, printing trades
5	17	Apprentices, other specified trades
2	18	Architects
3	19	Artists
5	20	Asbestos & insulation workers
5	21	Athletes
5	22	Attendents & assistances, library
6	23	Attendents, auto service & parking
6	24	Attendents, hospital & other institutions
5	25	Attendents, physicians' & dentists' office
6	26	Attendents, professional & personal service (n.e.c.)
7	27	Attendents, recreation & amusement
5	28	Auctioneers
2	29	Authors
4	30	Auto repairmen
1	31	Banker
5	32	Baggagemen, transportation
5	33	Bakers
4	34	Bank tellers
5	35	Barbers
5	36	Bartenders
6	37	Beauticians
6	38	Blacksmiths
6	39	Blasters & powdermen
6	40	Boarding & lodging housekeepers
5	41	Boatmen, canalmen & lockkeepers
5	42	Boilermakers

RATINGS

5	43	Bookbinders
5	44	Bookkeepers
7	45	Bootblacks
5	46	Brakemen, railroad
5	47	Brickmasons, stonemasons, & tile setters
5	48	Bus drivers
3	49	Buyers, department store
2	50	Biologist, bacteriologist
2	51	Building contractor
6	52	
2	53	Board of Directors of large company
3	54	Business executive (employee)
5	55	Cabinetmaker
5	56	Carpenters
7	57	Car washers
5	58	Cashiers
6	59	Cement & concrete finishers
6	60	Chainmen, rodmen, & axmen, surveying
6	61	Charwomen & cleaners (Maids:Comm.)
2	62	Chemist
3	63	Chiropractors
5	64	Clerical & kindred workers (n.e.c.) (Student Study Typing)
3	65	Clergymen (minister)
5	66	Collectors, bill & account
1	67	College presidents
4	68	Compositors & typesetters
4	69	Conductors, railroad
5	70	Conductors, bus & street railway
6	71	Cooks, except private household
6	72	Counter & fountain workers
5	73	Craftsmen & kindred workers (n.e.c.) Factory worker
5	74	Cranemen, derrickmen & hoistmen
3	75	Credit men
1	76	Cabinet member (US Gov't)
2	77	Captain (army)
4	78	Catering service
2	79	Civil Engineer
5	80	Clerk (store)
5	81	Corporal (Army)
1	82	Congressman
3	83	County Agent
1	84	Diplomat (US Gov't)
5	85	Dancers
5	86	Decorators & window dressers
5	87	Deliverymen & routemen
5	88	Demonstrators
2	89	Dentists

RATINGS

3	90	Department neads, store
3	91	Designers
5	92	Dietitions & nutritionists
5	93	Dispatchers & starters, vehicle (Domestics-see 240)
4	94	Draftsmen
6	95	Dressmakers & seamstresses, except factory
6	96	Dyers
6	97	Dock worker
2	98	Economist
3	99	Editors
4	100	Electricians
4	101	Electrotypers & stereotypers
6	102	Elevator operators
2	103	Engineers, aeronautical
2	104	Engineers, chemical
2	105	Engineers, civil
2	106	Engineers, electrical
3	107	Engineers, industrial
2	108	Engineers, mechanical
2	109	Engineers, etallurgical & metallurgists
2	110	Engineers, mining
	111	Engineers, (n.e.c.)
5	112	Engravers, except photoengravers
5	113	Entertainers (n.e.c.)
5	114	Excavating, grading & road machinery operators
4	115	Express messengers & railway mail clerks
3	116	Executive
5	117	Farm tenant and/or manager
3	118	Farm & management advisors
4	119	Farmers (Owners)
	120	
6	121	Farm laborers, wage workers
6	122	Farm laborers, unpaid family workers
5	123	Farm produce, buyers & shippers
7	124	Farm service laborers, self-employed
5	125	Filers, grinders & polishers, metal
5	126	Firemen & fire protection
6	127	Fishermen & oystermen (owns own boat)
4	128	Floormen & floormanagement, store
4	129	Foresters & conservationists
4	130	Foremen (n.e.c.)
5	131	Forgemen & hammermen
6	132	Fruit, nut, & vegetable graders & packers, except factory
3	133	Funeral directors & embalmers (undertakers)
5	134	Furnaceman
5	135	Furriers
2	136	Factory owner (about 100 employed)

RATINGS

1	137	Governor (State)
6	138	Garage laborers & greasers
6	139	Gardeners, except farm & groundkeepers
5	140	Glaziers
6	141	Guards, watchmen, & doorkeepers
4	142	Government worker (Bureaucrat)
5	143	Gas station attendant
5	144	Garage mechanic
7	145	Garbage collector
5	146	Heaters, metal
5	147	Heat treaters, annealers, & temperers
5	148	Housekeepers & stewards, except private household
7	149	Hucksters & peddlers
2	150	Instructors (college)
5	151	Inspectors (n.e.c.)
4	152	Inspectors, public administration
5	153	Inspectors, scalers, & graders, log and lumber
4	154	Insurance agents & brokers
4	155	Interior decorator
6	156	Janitors & sextons
5	157	Jewelers & watchmakers, goldsmiths & silversmiths
5	158	Job setters, metal
1	159	Judges
4	160	Labor Union Official (local)
6	161	Laborers (n.e.c.) (Assembly workers)
		6 Manufacturing
		6 Non-manufacturing
7	162	Laundresses
6	163	Laundry & dry cleaning operatives
1	164	Lawyers
4	165	Librarians
4	166	Linemen & servicemen, telegraph, telephone & power
4	167	Locomotive engineers
4	168	Locomotive firemen
6	169	Longshoremen & stevedores
6	170	Loom fixers
6	171	Lumbermen, raftsmen & wood choppers
4	172	Lithographer (silk screen printer)
4	173	Lunchstand owner-operator
1	174	Mayor (large city)
4	175	Machinists
4	176	Mail carriers
5	177	Managers & superintendents, building
3	178	Managers & officials & proprietors (n.e.c.) self-employed

RATINGS

6	179	Manicurists
5	180	Marshals & constables
5	181	Meat cutters, except slaughter & packing house
4	182	Mechanics & repairmen, airplane
5	183	Mechanics & repairmen, automobile
5	184	Mechanics & repairmen, office machine
5	185	Mechanics & repairmen, radio & television
5	186	Mechanics & repairmen, railroad & car shop
5	187	Mechanics & repairmen (n.e.c.)
6	188	Members of the armed forces
6	189	Messengers & office boys
6	190	Midwives
6	191	Miller, grain, flour, feed, etc.
5	192	Milliners
5	193	Millwrights
6	194	Mine operatives & laborers
6	195	Molders, metal
5	196	Motion picture projectionists
6	197	Motormen, mine, factory, logging camp, etc.
3	198	Musicians
3	199	Manager of small city store (owner)
4	200	Machine operator
5	201	Milkman
1	202	Minister, (Gov't.)
2	203	Mathematician
4	204	Mgr. cocktail lounge
4	205	Mgr. gas station, etc.
4	206	Nursery school teacher
7	207	Newsboys
4	208	Nurses, professional (Practice nurse-see 238)
5	209	Nurses, student professional
3	210	Newspaper columnist or reporter
5	211	Nightclub singer
4	212	Office machine operators
4	213	Officers, pilots, pursers & engineers, ship
4	214	Officials & administrators (n.e.c.) public administration
4	215	Officials, lodge, society, union, etc.
6	216	Oilers & greasers, except auto
5	217	Operatives & kindred workers
	5	Manufacturing
	6	Non-manufacturing
	6	Construction
	6	Railroads
	5	Transportation, except railroads
	5	Telecommunication
	6	Wholesale & retail trade
	5	Business & repair service

RATINGS

	6	Personal services
	5	Public administration
	6	All other industries
5	218	Opticians & lens grinders & polishers
2	219	Optometrists
2	220	Osteopaths
5	221	Painters, construction & maintenance
5	222	Painters, except construction and maintenance
6	223	Paperhangers
5	224	Pattern and model makers except paper
3	225	Personnel and labor relations workers
3	226	Pharmacists
4	227	Photographers
5	228	Photographic process workers
4	229	Photoengravers and lithographers
1	230	Physicians and surgeons
5	231	Piano and organ tuners and repairmen
5	232	Plasterers
5	233	Plumbers and pipe fitters
4	234	Policemen and detectives
6	235	Porters
4	236	Postmasters
4	237	Power station operators
6	238	Practical nurse (Nurse's aid)
4	239	Pressmen and plate printers, printing
7	240	Private household worker (n.e.c.) (Maid)
4	241	Professional, technical and kindred workers (n.e.c.)
1	242	Professors and instructors (n.e.c.)
2	243	Physicist
4	244	Playground Director
4	245	Physiotherapist
3	246	Probation Officer
3	247	Printing shop owner
2	248	Psychologist
3	249	Purchasing agents and buyers
3	250	Programmer
3	251	Radio or T.V. announcer
4	252	Radio operator
4	253	Real estate agents and brokers
4	254	Recreation and group workers (playground director)
4	255	Religious worker
3	256	Reporter
5	257	Rollers and roll hands, metal
6	258	Roofers and slaters
4	259	Railroad conductor
3	260	Railroad engineer
6	261	Railroad section hand
6	262	Restaurant worker

RATINGS

5	263	Salesmen and sales clerks (n.e.c.) (see 80 clerk, store)
6	264	Sailors and deck hands
7	265	Sawyers
4	266	Secretary (clerical supervisors)
6	267	Service workers except private household (n.e.c.)
5	268	Sheriffs and bailiffs
5	269	Shipping and receiving clerks
6	270	Shoemakers and repair, except factory
3	271	Social and welfare workers, except group
2	272	Social scientists (Sociologist)
6	273	Spinners, textile
3	274	Sports instructor and officials
4	275	Stationary engineer
6	276	Stationary firemen
4	277	Stenographer (over $400)
3	278	Stock and bond salesmen (stockbroker)
4	279	Surveyors
5	280	Stone cutters and stone carvers
5	281	Structural metal workers
5	282	Switchmen, railroad
1	283	Scientist (Physical)
1	284	Salesmen (Traveling)
7	285	Shoe shiner
6	286	Soda fountain clerk
7	287	Street sweeper
3	288	Student (college)
4	289	Service representative
6	290	Tailors and tailoresses
6	291	Taxicab drivers and chauffeurs
7	292	Teamsters
2	293	Teachers (n.e.c.)
4	294	Technicians, medical and dental
4	295	Technicians, testing
4	296	Technicians (n.e.c.)
6	297	Telegraph messengers
4	298	Telegraph operators
5	299	Telephone operators
4	300	Therapists and healers (n.e.c.)
4	301	Ticket, station and express agents
5	302	Tinsmiths, coppersmiths and sheetmetal workers
4	303	Toolmakers, die makers and setters
6	304	Truck and tractor drivers
4	305	Typists
4	306	Union Official (Local)
3	307	Union Official (International Union)
5	308	Upholsterers
7	309	Ushers, recreation and amusement

RATINGS

3	310	Undertaker
3	311	Veterinarians
6	312	Watchmen (night)
6	313	Watchmen (crossing) and bridge tenders
6	314	Waiters and waitresses (262 see restaurant worker)
6	315	Weavers, textile
5	316	Welders and flame cutters
7	317	Welfare - no job

Unknown

4	318	General middle class (nursery) (3 living area, negro private nursery)
5	319	General lower class (Day care center)

END