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HEAD START AND SCHOOL READINESS

by

Robert Bruce Turner

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Child Development

Approved:

Major Professor

Committee Member

Committee Member

Dean of Graduate Studies

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Robert Bruce Turner

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ABSTRACT

Head Start and School Readiness

by

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Utah State University, 1974

Major Professor: Dr. Don C. Carter
Department: Family and Child Development

The effect of compensatory education was studied as it influences school readiness in preschool children. The research was conducted in the Logan and Providence areas of Cache County, Utah, with 44 children who had completed the kindergarten year of school. Twenty-two of the children had participated in the compensatory educational experience of Head Start prior to their kindergarten experience. It was found that there was not a significant difference between the Head Start children and their neighbors in terms of their performance on the Boehm Test of Basic Concepts. Therefore, in terms of school preparedness, the Head Start children seem to be equal to their peers in basic concept knowledge as they enter the first grade.

The findings also indicate that additional studies will be needed to determine if the Head Start children in this study have maintained an ability level comparable to their nearest-neighbor peers.

(72 pages)

INTRODUCTION

The impact of an enriched pre-school environment is thought by some to be essential in preparing children from economically deprived backgrounds to be able to function in ways comparable to their peers who come from more favorable backgrounds when both must meet in the same school environment. The psychological basis for compensatory education is recent in appearing and sheds new light on some old theories. Hunt (1964) summarizes his studies by indicating that a belief in a fixed intelligence is no longer tenable. Deutch (1964) points out that a pre-school child is malleable and suggests an intervention environment to aid the disadvantaged child. Fowler (1962) says that cognitive stimulation during this transitional period is a critical factor in speeding up the development of intellectual functions. Scott (1962) points out that the time of greatest plasticity is that of initial socialization. Bruner (1966) supported this concept when he said that early deprivation of the child robs him of sufficient strategies for his problem solving situations, and that the young child can be helped to learn, if taught properly. Thus the psychological basis for compensatory education seems to indicate that an enriched pre-school environment would complement the child's early experiences.

The question of lasting effects of compensatory education to overcome the impact of early deprivation has not been resolved. A recent study produced some negative findings (The Westinghouse-Ohio University Study, 1969), but many questions have been raised about the study, and a final evaluation of benefits from an enriched environment is not yet possible.

Statement of the problem

The problem to be investigated in this study was: Is experience in an enriched pre-school environment associated with the academic performance level of socio/economically disadvantaged children as they compete with their peers in the classroom? Specifically in some small homogeneous communities, in which most of the children seem to have experienced varied but reasonably comparable life patterns in terms of school readiness, will there be a difference between test results of those children in the study who have had the Head Start experience and those who have not?

Purpose of the study

The purpose of this study is to see if experience in an enriched environment is associated with learning ability. Learning ability will be measured by the scores of a standardized measuring test. This study proposes to compare the test results on the Boehm Test of Basic Concepts of those students who have had Head Start with those who have not, at the end of the kindergarten year.

Hypothesis

The hypothesis to be tested in this study was that performance on the Boehm Test of Basic Concepts is independent of a pre-school enrichment experience in Head Start.

REVIEW OF LITERATURE

The review of literature will examine the basis for traditional beliefs, and will report, also, on more recent research findings.

The traditional beliefs in fixed intelligence and predetermined development were established in the late 1860's by Galton (1869). These beliefs prevailed through World War II. In his writing, Galton used the survival-of-the-fittest theory of evolution put forth by Charles Darwin, who was Galton's older cousin, and Galton was greatly influenced by him. Galton's book implied strongly that the capacities which make for competence are essentially fixed by heredity.

G. Stanley Hall founded developmental psychology shortly thereafter, in the early 1900's. His thesis was that the course of the individuals development recapitulates that of the race or species. Although the intelligence-testing era used the testing devices created by Alfred Binet, who believed that intelligence was not necessarily fixed but could be educated, it was the students of Galton (James McKean Cattell, for example) and of Hall (H. H. Goddard, F. Kuhlmann and Lewis M. Ferman) who initiated the intelligence-testing movement in the United States. Their teaching was that intelligence is largely fixed by, and development is essentially predetermined by, heredity (Hunt, 1964).

The assumption of fixed intelligence received apparent empirical support from the constancy in averages from age to age in the IQ's of school-age children, from substantial correlations between IQ and performance in school, and from the correlational indexes of heritability,

which attributed about 80 percent of the variance in IQ to heredity and only 20 percent to environment (Hunt, 1961; Jensen, 1969).

The assumption of predetermined development also received support from studies of embryonic development and from the finding that the correlations between the orders in which locomotor responses appeared in Shirley's 20 infant subjects, and the typical sequential order of her group, were all above .93 (Hunt, 1961).

With the claims of the leading figures in the intelligence-testing movement backed up by such evidence, the constancy of the IQ became a dogma held so strongly that it motivated strong opposition to new research. Indeed, articles and reports tried to discredit evidence that conflicted with the then popular point of view. Thus, when large variations in the IQ's of infants were observed (Bayley, 1940), the predictive validity of the infant IQ test was questioned. When the increases in IQ were found associated with nursery schooling in orphanage children, critics used defects in experimental design and statistical treatment of the study to minimize whatever suggestive value the findings might have had (Hunt, 1961).

Skeels and Dye (1939) reported their now classic study of increases in IQ associated with shifting children in their second and third years of life from an orphanage to a state institution for the mentally retarded, where they were cared for and played with by some of the older and brighter girls during most of their waking hours. When the researchers concluded that the increase in IQ was a result of the stimulation the orphans had received from the girls, their report was met with derision (Hunt, 1961).

So long as these beliefs in fixed intelligence and predetermined development were strongly held by a majority of educators and psychologists, attempts to investigate the effects of enrichment experiences on psychological development appeared to be nonsense (Hunt, 1964). Moreover, so long as these beliefs prevailed, the lesser competence (as indicated by lower than average IQ's) of people living in poverty, black or white, could quite logically be attributed to inferior heredity. So long as the poor test performances of these people could logically be considered the inevitable consequences of their genotypic potential, the moral view that equality of opportunity is the birthright of all was not considered as valid by the scientific community (Hunt, 1964). Thus there was little impetus toward the improvement of the early educational opportunities of children of the poor. When these children, who entered school with IQ's well below the national average, performed poorly academically, they were thought by teachers and psychologists to be doing as well as could be expected. Thus, a self-fulfilling prophecy came into being. It endured as the predominant view of educators and psychologists through the 1940's (Hunt, 1964).

Those who continue to see the most relevant evidence concerning the source of competence as coming from indexes of heritability received through correlational analyses of traditional intelligence-test scores still hold essentially this same position. They view race differences as biologically inevitable (Jensen, 1969).

The evidence which weakened the belief in fixed intelligence and predetermined development came from several lines of investigation which were initiated just before the start of World War II. Findings from these studies were extended through the impact of the neuropsychological

theorizing of Hebb (1949) who concluded that pet rearing rather than cage rearing of rats and dogs improved the animal's problem-solving ability by increasing the complexity of the information they encountered (Hunt, 1961).

The second line of investigation stemmed from the neuropsychological theorizing of Hebb and from the biochemical theorizing of Hyden (1960). They deprived animals of visual interaction with their surroundings by rearing them in the dark. This produced a deficiency of visually controlled motor activities and hampered neuro-anatomical maturation.

The third line of investigation came from Spitz (1954, 1946a, 1946b). He demonstrated that circumstances are important in fostering behavioral development. The impact of Spitz' work received support from Goldfarb's work. Goldfarb said that an enriched environment in the first three years of life would have persistent effects during the adolescent years. Goldfarb studied children who were institutionalized. They were exposed to an enriched environment where "good" child rearing techniques were used. He reported at the conclusion of his studies that he found a significant relationship between the effects of institutional rearing during the children's first three years of life and their later adolescent adjustment, intellect, and motivation (Goldfarb, 1943, 1947). His study was supported by Dennis (1960), who found apathy and retardation in physical maturation among infants in an Iranian orphanage. The normal home-reared child can sit alone by the time he is nine months old and can walk alone by the time he is two (Smart & Smart, 1968). Dennis found that 58 percent of the children their second year at the Iranian orphanage were still not sitting alone, and 84 percent of those in their fourth year were not walking alone (Dennis, 1960). Such evidence dramatized the point

that genotypic potential does not guarantee behavioral development unless accompanied by appropriate circumstances (Hunt, 1964).

The fourth line of investigation came from scientists who were working with electronic computers. They programmed electronic computers to solve problems of varying degrees of difficulty and came to the conclusion that the brain cannot function in the static fashion of a telephone switchboard but must include both a memory store of information and a hierarchical arrangement of active strategies for processing both the information in the memory store and the information coming through the ears and eyes (Newell et al., 1958; Hunt, 1961).

In the fifth line of investigation, this hierarchical view of competence received support from Piaget's (1936, 1937) observations of the development of intelligence and reality construction in his own three children. It was these lines of evidence that Hunt (1961) synthesized. He and others have interpreted the evidence to justify hopes of progress through early education.

Evidence coming into the scientific community since 1961 has reinforced the conclusion that behavioral development and maturation are far from being completely preprogrammed. This body of evidence has tended to enhance the importance of an ongoing informational interaction of the infant and the young child with his environment.

Hunt (1964, p. 247) evaluated the evidence concerning the psychological basis for using pre-school enrichment as an antidote for cultural deprivation. He summarized the evidence by indicating

... that the belief in fixed intelligence is no longer tenable; that development is far from completely predetermined; that what goes on between the ears is much less like the static switchboard of the telephone than it is like the active information processes programmed into electronic computers to enable them to solve

problems; that experience is the programmer of the human brain-computer, ... ; ... the nature of the experience ... is important, since an opportunity to see and hear a variety of things appears to be more important than the fate of instinctual needs and impulses; and finally, that learning need not be motivated by painful stimulation, homeostatic need, or the acquired drives based upon these, for there is a kind of intrinsic motivation which is inherent in information processing and action.

Socially disadvantaged children have been defined as coming from families that are poor and that are recent immigrants to the big cities. As the term is used, it means disadvantaged for living competently in an urban, industrial, and democratic society (Havinghurst, 1966). These children are handicapped in terms of certain family characteristics related directly to the children, in their personal characteristics, and in terms of the social characteristics of their families. Socially disadvantaged children need special attention in the schools and special help to assist them to overcome the disadvantages conferred on them by their families (Havinghurst, 1966).

Black (1966), in his studies, indicated that there are definite factors that are operative in the lives of children from disadvantaged homes. The disadvantaged children understand more language than they use. They frequently use a great many words with fair precision, but not those words representative of the school culture. They are frequently handicapped in language development because they do not perceive the concept that objects have names, and that the same objects may have different names. Disadvantaged kindergarten children use fewer words, with less variety, to express themselves than do kindergarten children of higher socioeconomic classes. They use a significantly smaller portion of mature sentence structure. They learn less from what they hear than do middle-class children. The learning patterns of disadvantaged

children are lacking in many respects for the competitive adventure of the school culture. Disadvantaged children tend to learn more readily by inductive than by deductive approaches. They are unaccustomed to insight building by external use of lectures and discussions at home. They are frequently symbolically deprived (imaginary playmates, etc.). They need to see concrete application of what is learned to satisfy immediate sensory and visual development. They tend to have poor attention spans and consequently they experience difficulty in following the orders of a teacher. Disadvantaged children seem to not be ready for formal instruction. They are often characterized by significant gaps in knowledge and learning. They generally have had little experience in receiving approval for success in a task. They are characterized by narrow experience outside the home and have very little concept of relative size. The school behavior of disadvantaged children is not patterned to achieve success. They are generally unaware of the ground rules for success in school. They are placed at a marked disadvantage in timed test situations, and they need assistance in perceiving an adult as a person of whom you ask questions and receive answers (Black, 1966).

The typical families that produce deprived children are cited in the literature as hard core poverty families, indigent families, and lower-class families (Bradshaw, 1969; Henry, 1966; Witmer, 1966).

The situation of the hard core poverty family is most desperate. The father usually works in the nooks and cracks of our economy. Employment is uncertain, pay is poor, and resources are scarce. Illusion, disorder, and destruction are a way of life. Henry asks why this is the case and then responds by saying that they lack the essential strength

of hope. Though the poor have little hope for life, they do not wish to die. Henry views the culture of the very poor and the family as an institution within the culture as a flight from death. Henry (1966, p. 398) sums up his findings by stating:

Our conclusion then must be that hope is a boundary: it separates the free from the slave, the determined from the drifting--and the very poorest from almost all those above it. A corollary conclusion--even more surprising--follows: time, space, and objects really exist for us only when we have hope.

In a study of "indigent families" in Florida, Bradshaw (1969) observed 63 families for a two year period. The families were selected from the local hospitals that delivered babies of mothers from indigent families. Her observations emphasized that only crude housing facilities are available to these families. Inadequate diets of the children cause malnutrition at an early age, and the over-all neglected health care of the young adversely effects their school performance.

The two illustrations cited above are examples of the poverty situations in which deprived children are reared. A comprehensive survey indicates who the poor are and where they live. The proportions of non-white families that are poor (47%) is more than three times as great as the proportions of whites that are poor (14%). The financial disadvantage to children in families headed by women is extreme, in that 63 percent of them are poor, as compared with 13 percent of those headed by men. Rural residence considerably increases the likelihood of poverty--26 percent of all rural families are poor as contrasted with 11 percent in the rest of the country who live in an urban residence. Living in the South also increases the likelihood of poverty (Witmer, 1966).

There seem to be very real differences among social classes in terms of the mother-child relationship. Walters (1964) observed the interaction

of mothers and children from lower-class families. He compared his findings with studies in which the interaction of the mothers from upper-class families and their children were reported. His findings indicate that there are differences in the patterns of mother-child interaction. A supportive study indicates that there is a tendency for the mothers of higher socio-economic status to be more warm, understanding and accepting of their children while the mothers of lower status tend to be more controlling, irritable, and punitive with their children (Bayley, 1960).

Hess (1965) says that the mother plays a key role in the shaping and molding of the child in his early years. The behavior which leads to social, educational, and economic poverty is socialized in early childhood. The central quality involved is a lack of cognitive meaning in the mother-child communication system. The growth of cognitive processes is fostered in family controlled systems which offer a wide range of alternatives of action and thought. In the interaction between mother and child in a poverty family such growth is constricted to the degree that only predetermined solutions are offered, with few alternatives.

The cognitive consequences of deprivation to the young child seem to indicate a need for compensatory education. Despite increasing interest in this area, systematic research concerned with specific child rearing practices as they effect particular cognitive skills is only now coming to the fore (Freeburg, 1967).

Two investigators indicate that studies concerning cognitive styles, emphasis on "learning potential," and study of differential abilities in young children add considerable dimension to our understanding and knowledge of these children. These new developments are of significant

importance because they stress the appraisal of the disadvantaged child within the totality of his culture and educational experience (Karp & Sigil, 1965).

Deutsch observed the role of social class in determining language and cognition development in the young child. Language appeared to be a dimension through which an unfavorable environment could inhibit cognitive development. He tested 292 children from various social classes. Both lower class and minority group children had "poorer language functioning." This is interpreted to indicate that the two groups mentioned above had a knowledge of the various words and phrases used in the test, but this knowledge was inadequate for use in the school culture. His studies indicated that in these two groups, poor language functioning was greater for the fifth grade children than for the first grade children. He concluded that the longer the disadvantaged child remains in school, the further he falls behind his peers (Deutsch, 1965).

Another researcher indicated that the styles of mother-child interactions reveal some clues to the early developmental stages that are blocked in deprived children's learning ability. Hess (1966) said that the central factor involved in cultural deprivation is a lack of cognitive meaning in the mother-child communication system. The basic assumption was that language does shape thought and cognitive styles of problem solving. About 160 Negro mothers and their four-year-old children were selected from four different economic levels. The mothers were taught simple tasks and then asked to teach these tasks to their children. There were marked social class differences in the ability of the children to learn from their mothers during the teaching sessions. The children from the higher economic levels ranked above children from the lower

socioeconomic levels in performance of the sorting tasks, particularly in offering verbal responses. These differences clearly paralleled the apparent relative abilities and teaching skills of the mothers from the different groups.

Gray (1967) says that both quality and quantity of research has increased, notably in studies of social class differences and of group comparison, "But in the general field of intervention studies, an impression is gained of what is almost a methodical morass." (Gray, 1967, p. 193) It has become increasingly clear that the early experience of the child has a profound impact on his cognitive development yet many questions remain to be solved, particularly the what, how and the when.

In another study a comparison was made of the child rearing environment of upper-lower with lower-lower class families. It was discovered that normal personality development, even without intellectual stimulation, permitted children from stable upper-lower class homes to adjust to and learn in the first grade culture. In contrast the retardation and deprivation in the personality development of children in disorganized multiproblem, lower class families interferes seriously with their learning ability in the first grade culture (Pavenstedt, 1965).

Bruner (1966) made some insightful observations in his study concerning the cognitive consequences of early sensory deprivation. He reviewed the developments in the field of science, especially neurophysiology, physics, and psychology. Each of these fields seemed to add yet broader dimensions to the nature of the perceptive process. Bruner (1966, p. 144) says:

In conclusion, then, I have suggested that early sensory deprivation prevents the formation of adequate models and strategies for dealing with the environment and that later sensory deprivation in normal

adults disrupts the vital evaluation process by which one constantly monitors and corrects the models and strategies one has learned to employ in dealing with the environment.

The implications from the literature indicate that being born and reared in conditions of poverty and cultural deprivation deprives a child of opportunities to learn. These children have encountered many fewer kinds of objects than the children they will meet in the classroom. They are handicapped because of their inadequate diets, their crowded circumstances, and the distractive level of noise with which they are surrounded (Hunt, 1969).

The cognitive consequences of deprivation indicate an over-all lack of readiness on the part of these children to adapt to the school culture. Addressing himself to the problem of facilitating the development in the pre-school child, Deutsch indicates that it is the transitional years from the pre-school period through the elementary school years that the child is first subject to the influence and the requirements of the broader culture. It is then that the two cultures are always present for him: The home and the school. But it is also in these transitional years that the young child is most malleable. Thus, this is the point at which efforts might best be initiated to provide an intervention environment to aid in the reconciliation of the two contrasting environments. Such reconciliation is required because, especially for the child from a disadvantaged background, there are wide discrepancies between the home and the school. In the intervention environment, preventive and remedial measures can be applied to eliminate or overcome the negative effects of the cultural deprivation (Deutsch, 1964).

Indicating the need for an intervention environment has elicited many and varied responses from the literature as to programs for

compensatory education. Hunt suggests that the work of Maria Montessori be re-examined for ideas about how to proceed. She successfully based her teaching method on the spontaneous interest of children in learning by giving them individual freedom to choose which of the various circumstances they liked from among those which were made available at any given time (Hunt, 1969).

Roeper and Sigel (1966) say that the teacher (whether the teacher can be the mother or is at all times the classroom teacher is not indicated in their study) is the key person in influencing the child's thought process. Research from such people as Flavell (1963), Hunt (1962), Elkind (1961), and Lovell (1961) indicates that the child's growth in thinking ability follows certain predetermined sequences and that he cannot successfully skip any of the developmental steps involved. They suggest that the teacher is in the best position to obtain clues to the disadvantaged child's thought processes so that she may enhance true communication and thereby influence his thoughts by facilitating a carefully planned education. A supportive study identifies the teacher as the important person in helping the disadvantaged child. The study demonstrates that the key in helping these children is the teacher who recognizes the skills that the children possess then provides opportunities to combine these skills with new ones. Teachers need to use new techniques to bring out the creativity of the children, and they need to help the parents become aware of their children's problems (Pease, 1966).

The implications behind the proposal for any pre-school program have been identified as follows: Necessary experiences are essential which give stimuli a pattern of sequential meaning. New words need be taught with ideas and events related to one another. The transition

that a child must make from a cognitive style of immediate reactivity to one of problem solving must be made by experiences with authority, not with machines (Hess, 1965).

The core of any basic proposal for pre-school programs for the disadvantaged child is three-fold in nature: These children need to be given pre-school training in which the basic perceptions that other children acquire without apparent effort will be deliberately taught. The child should have this perceptive competence before he starts school. More "teachers" need be included so that small groups of children can be taught (Henry, 1966).

In the implications and proposals for compensatory education that abound in the literature, Hess pinpoints an almost overlooked concept. He says that the behavior which leads to social, educational, and economic poverty is socialized in early childhood. That is, it is learned. He also says that a long-range program of intervention cannot be effective unless it concerns itself with socialization or re-socialization of the children of deprived families. A rehabilitation program will be a futile salvage operation unless it deals with the most basic family processes: The socialization of the young (Hess, 1966). In conjunction with this caution, Light and Smith (1970, p. 26) have had this to say concerning strategies for designing and evaluating new programs:

Large scale educational intervention programs at the national level should incorporate evaluation as an integral part of the program development. Rather than judge a total program as either worthy or otherwise, a segmental approach is suggested which searches out those few versions which are working well so that they can be improved and replicated in future centers. Possible statistical techniques are suggested and the Head Start experience utilized to illustrate many of the proposed points.

Hunt (1969) supports this concept by indicating that the reinforcing bond between the intervention program and the home is the parents, in

particular the mother. The concepts and ideas taught in the Head Start program need be taught to the mothers, that they may know how to read stories to their children at home. Mothers need learn how to talk with their children, and they need to learn more about child rearing practices.

Thus a review of the literature indicates a significant need for compensatory education. The literature also suggests that programs are being tried, but sufficient time has not passed to allow for significant evaluation of these programs.

PROCEDURE

The method and procedure followed in conducting this study is described as follows: (1) Selection of the subjects, (2) description of the instrument, (3) measurement of reliability and validity, (4) personal background information, (5) administration of the test, and (6) treatment of the data.

Selection of the subjects

The subjects for this study were selected from two categories: (1) Children who had completed one school year at a Head Start Center in northern Utah, and who had also completed one year of kindergarten as of June 1, 1972. A control group of children was included. These children did not have the Head Start experience, but did attend and complete one year of kindergarten as of June 1, 1972. There were 34 children who had registered for Head Start during the 1970-71 school year. Of these children, just 22 completed the entire year. The 12 children who only partially attended did so either because of ill health or because they moved from the area. It was decided to use only the group of 22 children who completed the full year of Head Start training. Permission was given to the investigator by the Head Start Director who made it possible to obtain a complete list of the children with their addresses and telephone numbers.

The children who did not have the Head Start experience, but had completed one year of kindergarten were not selected in a random fashion, but were selected on the basis of probability of similar experiences in

the community, using geographical proximity as the key factor. That child who had just completed his kindergarten year and lived closest to the Head Start child was selected to be in this group. Thus there were 22 children selected on the basis of propinquity. They were neighbors, and often friends, of the children who had attended Head Start. The non-Head Start children were selected by asking the Head Start family, particularly the child if he had a friend who did not have the Head Start experience but had completed kindergarten with him. The response to this question was yes in all cases followed with the names of two or three children. The investigator would then restate the question emphasizing the point that the child did not participate in the Head Start program and that he lived in the house closest to the Head Start family. This cut the two or three names mentioned previously down to one specific name and address. Thus the group of non-Head Start children came into being--selected on the basis of propinquity.

The two populations of children used in this study were selected on the basis of one group having attended Head Start for a year prior to their attendance at kindergarten, and the other group being neighbors to the Head Start children. It may be assumed that residential propinquity produced some similarities in their life experiences. In some important ways, however, the two groups of families, and of children, appear to have been different from each other. Parents of the peer group children were somewhat older than the Head Start parents. The average age of the peer group fathers and mothers was 34 and 31, in contrast to 28 and 23 for the Head Start fathers and mothers. Each of the 22 peer group families had a father and mother in the home, although one of the women had previously been divorced. Seventeen of the 22 Head Start families had a mother and

father in the home, including one woman who had remarried after being widowed, and three who had remarried after a divorce. Five Head Start mothers were separated from their husbands and were living as a single parent family. The average number of years of education of the peer group fathers and mothers was 14 and 12 years, in contrast to 12 and 9 for the Head Start fathers and mothers. The average annual income reported by the peer families was \$6,500, in contrast to an average income of \$4,100 reported by the Head Start families. Median incomes for the two groups were \$5,900 and \$4,700.

Differences between the two populations were not of great magnitude, but each difference seemed to contribute to a consistent pattern of circumstances favorable to the peer group families, and to the children in those families.

Description of the instrument

Compensatory education of young disadvantaged children was under assessment. This required the selection of a scale that would in some way measure the child's knowledge of some basic concepts that are assumed to be familiar to the children as they enter the public school system. The Boehm Test of Basic Concepts which was introduced by Ann Elizabeth Boehm as part of her Doctor's thesis at Columbia University seemed to meet this demand. Three categories were selected in this scale: Space (location, direction, orientation, and dimensions); Quantity (and number); and Time. The purpose of the Boehm test is "to assess beginning school children's knowledge of frequently used basic concepts widely but sometimes mistakenly assumed to be familiar to children at their time of entry into the kindergarten or first grade." (Boehm, 1966, p. 4109-B)

The scale has two booklets (Form A Booklet 1 and Form A Booklet 2) with a total of 50 items. A copy of the scale is included in the Appendix A for the convenience of the reader.

Reliability and validity

The standardized sample came from five cities, one western, one south-midwestern, one southeastern, and two northeastern. There was no pretence of assuming a representative U. S. normative sample, but rather the author has sampled widely in reasonably representative school systems (McCandless, 1970). Reliability coefficients ranging from .68 to .90 are reported. "Content validity," the only validity reported, seems adequate since the items were selected on the basis of their relevance to currently used curriculum materials in kindergarten, first, and second grades (Smock, 1970).

Personal background information

A background information sheet was completed for the children. The purpose was to acquire some information needed in interpreting the data. The general information for the children was the following: (1) Occupation of the father; (2) occupation of the mother; (3) age of the father; (4) age of the mother; (5) marital status of the parents; (6) education of the father; (7) education of the mother; (8) total amount of annual income. (See Appendix B.)

Administration of the test

The staff of the Head Start Center phoned the parents of the Head Start children to invite them to participate in this study. This prepared the way for a personal visit to their homes. During the month of June 1972 all the children in the study were personally contacted at

their homes. The test items were administered orally by the investigator to all the children in both groups. Realizing that the child's physical and mental growth rate increases rapidly over short periods of time, an attempt was made to test the given Head Start child in group one and the child selected for group two on the same day. In five cases, this was impossible because the children in group two were not at home. These five children were then contacted on a follow up visit during the week following the first attempted contact.

During each visit, the same basic format was used: A brief friendly introduction of the purpose for the visit, following which all 44 parents gave their permission to proceed. The test was then given to the child. The child responded to the 50 items on the scale by pointing to the appropriate picture sequence. Forty-one mothers remained in the room during the testing period. Two left the room and returned after the testing was completed. One mother was not present at all. Each of the mothers responded to the questionnaire to provide background information. Of all the families only four fathers were home at the time of the visit. The mothers of the Head Start children were not asked to respond to the questionnaire as this data was compiled from the children's records maintained at the Head Start Center.

An attempt was made to use a standard or uniform technique in presenting the 50 items orally to the children. The test items were reviewed by the researcher until sufficient competency was attained to ensure uniformity in administering the test. This enhanced the prospect that each child would have an equal opportunity at responding to the test items.

Analysis of data

Data was assembled for each of the two groups of children, based on their performance on the Boelm Test. Comparisons were made between the two groups of children, in relation to their scores on the three aspects of the test: Space, Quantity, and Time.

FINDINGS

The purpose of this study was to discover if the Head Start child, in terms of school preparedness, appears to be equal to his peers after completion of kindergarten, when they are about to enter the first grade in the school system.

The findings appear to indicate that there is no significant difference between the Head Start group, and their peers, at the time of completion of the kindergarten year, in their readiness to enter school, as measured by the Boehm Test of Basic Concepts. Table 1 compares the mean scores between the two groups, and indicates that there is no significant difference between them, as measured by a t test.

Table 1. Mean scores on the Boehm Test for Head Start and non-Head Start children

	Head Start Children	Non-Head Start Children	Difference
Mean Score	40.73	40.23	.5

This finding suggests that the Head Start child, upon completion of his kindergarten experience, is not significantly different from his friends and neighbors, in terms of school readiness. This finding is of interest in view of the fact that the Head Start child is presumed to be at a disadvantage in comparison with other children, in terms of readiness and school performance. It may be that the Boehm Test of Basic

Concepts does not measure children's abilities which are essential to academic performance in school. Unfortunately, it was not possible to include a pre-test of the children's performances at the beginning of the kindergarten year, so it is not known what differences may have existed between the two groups at that time.

The Head Start child may never have been at a disadvantage compared to the other children who made up the population used in this study. However, family factors appear to favor the peer group, so it is difficult to assume that there were no differences between the two groups of children. Additional study will be needed, however, to arrive at an answer to this question.

A comparison was made between the Head Start and the non-attending children in the Boehm Test categories of Space, Quantity, and Time. For a comparison of scores for the two groups of children in dealing with the concept of Space, see Figure 1. The distribution of scores for the two groups of children is interesting: No one who had the classroom experience of kindergarten scored as high as those who had the combined classroom experiences of Head Start and kindergarten. There were four Head Start children who scored higher than the non-attending children. Those who had the compensatory training scored higher (approximately 1/4) than those who did not. The distribution of scores in this category indicates that one-sixth of the Head Start children scored lower than their peers. We do not know the cause of this discrepancy. The group of Head Start children which scored low in this category minimizes the effect of the Head Start children who scored high.

Figure 2 deals with the concept of Quantity. There was no significant discrepancy between the two groups of children in this category.

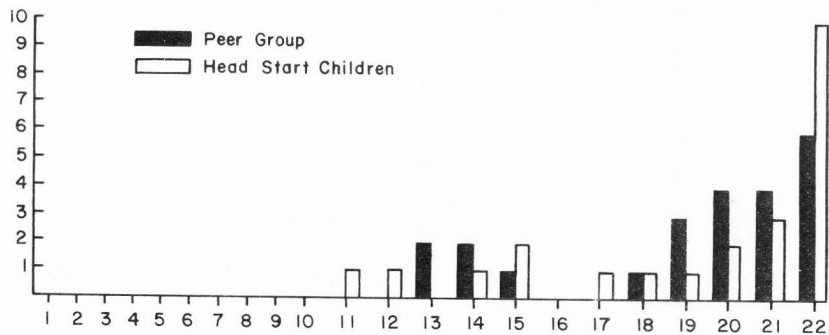


Figure 1. Scores of the Peer Group and Head Start Children.
 Concept: Space

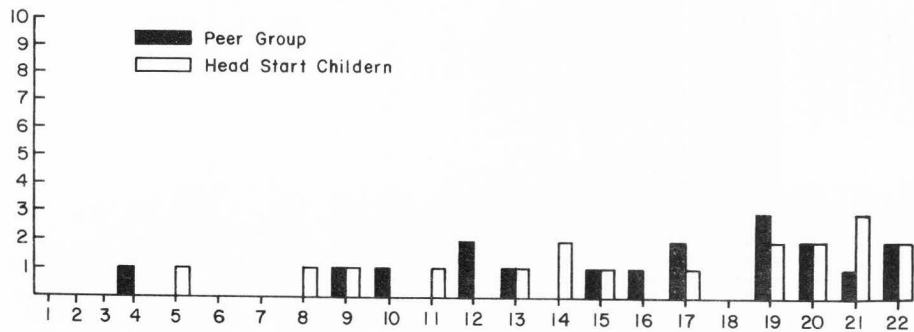


Figure 2. Scores of the Peer Group and Head Start Children.
 Concept: Quantity

It is possible that the disadvantaged children caught up with their peers. It is also possible that they have always been equal to their peers from birth to the time of this study. "If" they were equal to their peers then Head Start did nothing for them in terms of compensatory education. All that is known from this finding is that no differences were found in their group responses to this aspect of the Boehm test, at the end of their year in kindergarten.

Figure 3 deals with the concept of Time. Again, there were no reliable differences in the scores of the two groups of children. The same findings and questions related to the category of Quantity are applicable to this category also.

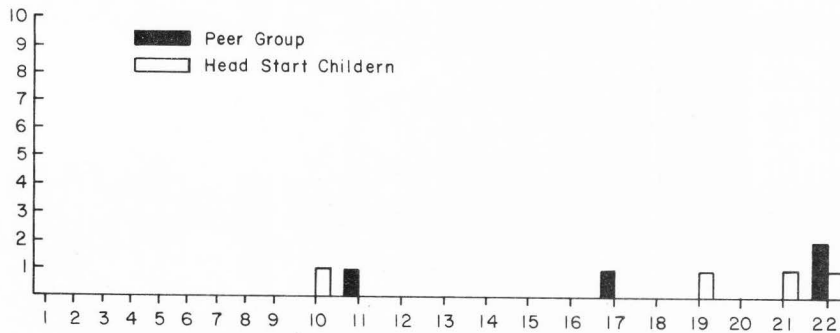


Figure 3. Scores of the Peer Group and Head Start Children.
Concept: Time

SUPPLEMENTAL FINDINGS

It may be of interest to note the pattern of responses to individual concept items in the Boehm Test. While the differences between the two groups of children are minimal, there are some substantial differences in scores on various aspects of the different concepts. In reviewing the test itself, it may be noted that in the content category of Space (see Figure 4) there were five items to which the response of both groups of children were equal. Three items concerned with the concepts of "next to," "inside of," and "behind the," received 100 percent correct response from both groups of children. One item concerned with concept of "above" received 86 percent correct responses from both groups and the remaining item concerned with the concept of "center" received a 64 percent correct response from the two groups.

Ten items on the Boehm test in the category of Space demonstrated a difference between the Head Start children and the non-Head Start children. The difference is interesting in that the Head Start children scored higher on all ten of these items than their non-Head Start friends. Three items concerned with the concepts of "through," "nearest," and "below," received 100 percent correct responses from the Head Start children compared to 96 percent for the non-Head Start children. It is interesting to speculate if this non-significant difference would have expanded to a significant level if the test had been more demanding and therefore provided more discrimination possibilities. Three additional items concerned with the concepts of "middle," "between," and "corner," received 100 percent correct responses from the Head Start children

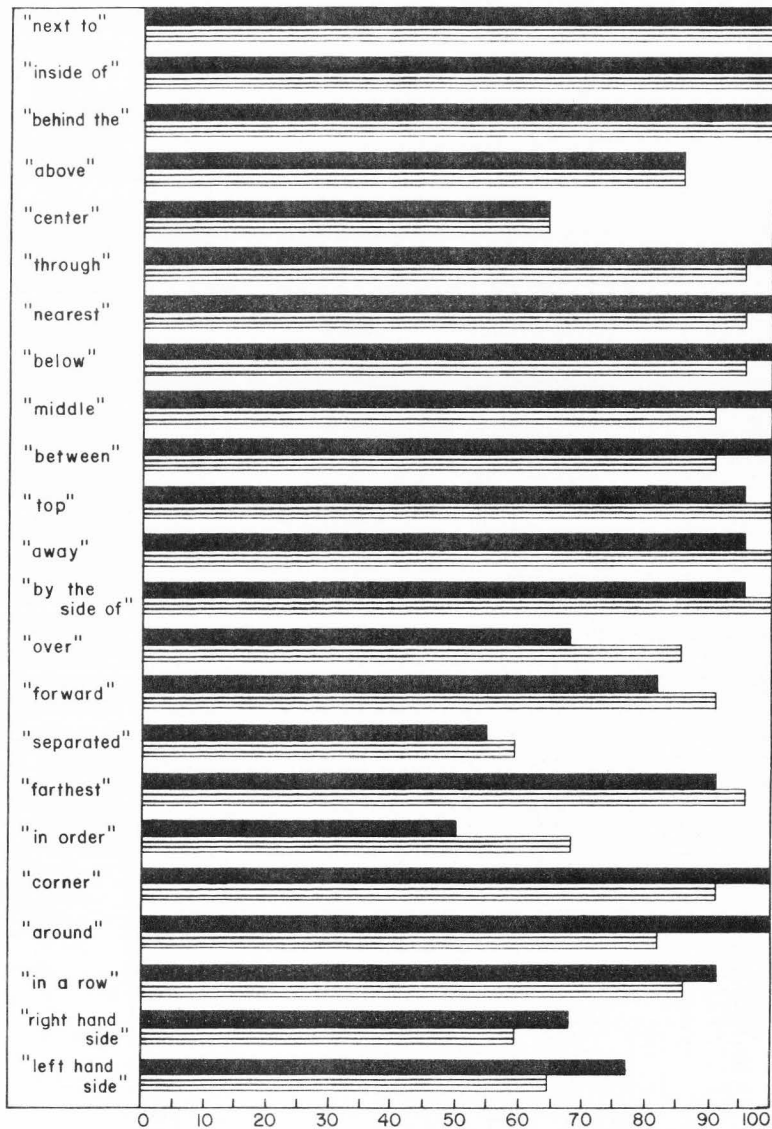


Figure 4. Concept: Space

compared with 91 percent correct responses from the second group. The remaining item in which the Head Start children received 100 percent correct responses compared with 82 percent for their peer group was concerned with the concept of "around." The three remaining items dealing with the concepts of "in a row," "right hand side," and "left hand side," each received a respective comparative percentage of 91 to 86, 68 to 59, and 77 to 64. This indicates that the Head Start children may tend to have a clearer perception of things in a row, his left hand side and his right hand side than his friends who did not have the Head Start experience. Although the difference between the two groups is not statistically significant, it is consistently favorable to the Head Start children.

Eight items of the twenty-three in the category of Space received a higher percentage score for the non-Head Start group when compared with the children who had had the Head Start experience. Three items concerned with the concepts of "top," "away," and "by the side of," received 100 percent correct responses from the non-Head Start children compared to 96 percent correct responses from the Head Start children. The concept of "over" received 86 percent correct responses from the non-Head Start children while 68 percent of the Head Start children responded correctly to this concept. In the four remaining items concerned with the concepts of "forward," "separated," "in order," and "farthest," the non-Head Start children on a comparative basis scored higher than the Head Start children. The concept of "forward" received a 91 percent to 82 percent ratio favoring the non-Head Start group. The concepts of "separated" and "farthest" were respectively in the 50's percentage and the 90's percentage. Both groups of children's correct responses were

found in these two percentage ranges with the non-Head Start children a few points higher on the percentage scale than the Head Start group. One significant difference appeared in the item concerned with the concept of "in order," indicating large to small: 68 percent of the non-Head Start children responded correctly while just 50 percent of the Head Start children responded in like manner. This may be related to the emphasis in Head Start on dealing with "small to large." In any event, however, it is interesting to note that a year in kindergarten has passed since the Head Start experience. And, again, it must be noted that the differences are not statistically significant.

In the content category of Quantity (see Figure 5) there were six items to which the responses of both groups of children were equal. One item concerned with the concept of "most" received 100 percent correct response from both groups of children. Two items concerned with the concepts of "several" and "every" received 91 percent to 96 percent correct responses respectively from both groups of children. The two remaining concepts were progressively lower with "second" receiving 77 percent correct responses from both groups and "least" receiving 41 percent correct responses from the two groups.

An additional six items in the category of Quantity demonstrated a significant positive difference in that the percentile scores of the Head Start children were higher than their peer groups'. The item concerned with the concept of "not first or last" received 100 percent correct response from the Head Start children and just 86 percent correct response from the non-Head Start children. The concept of "widest" demonstrated a difference with 96 percent correct responses from the Head Start group and only 77 percent correct response comparison from the non-Head Start

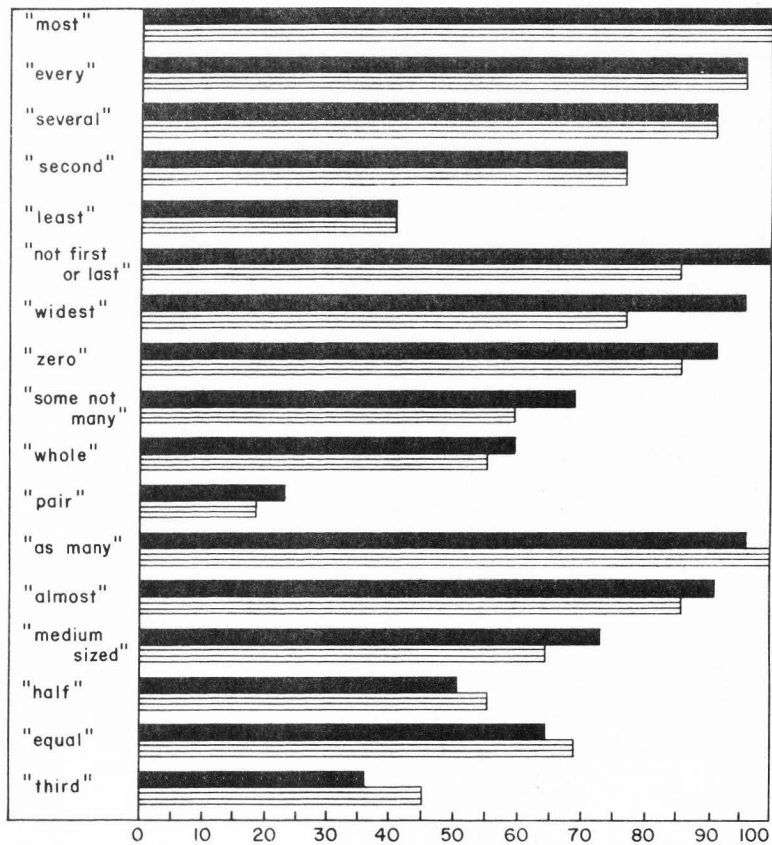


Figure 5. Concept: Quantity

group. "Zero" was introduced as a concept in this test and the Head Start group scored a 91 percent correct response while the non-Head Start children were close behind with an 86 percent correct response. "Some, not many," received a 68 percent correct response for the Head Start children compared to 59 percent for their peer group. The concepts of "whole" and "pair" seemed most difficult to both groups of children. The Head Start children scored 59 percent and 23 percent correct responses respectively, while the non-Head Start group scored a comparative 55 percent and 18 percent correct response for these two concepts.

On six items of the eighteen in the category of Quantity, the non-Head Start children scored higher than the Head Start group. One item concerned with the concept "as many" received a 100 percent correct response from the non-Head Start group compared to a 96 percent correct response from their peer group. Another item concerned with the concept of "almost" received a 91 percent to 86 percent correct response from both groups, with the non-Head Start group receiving the higher score. The item concerned with the concept of "medium sized" received a 73 percent correct response for the non-Head Start group compared to a 64 percent correct response for their peer group. The concepts of "equal" was almost equal in comparing score with 68 percent correct response going to the non-Head Start group while a 64 percent correct response was scored by the Head Start children. The concept of "half" demonstrated a close comparison also with the non-Head Start children scoring a 55 percent correct response compared to the Head Start group's score of 50 percent. The remaining item was concerned with the concept of "third." The non-Head Start children scored a low 45 percent correct response compared to an even lower 36 percent correct response for the Head Start group.

In the content category of Time (see Figure 6) there were just four test items presented. The item concerned with the concept of "always" received 100 percent correct responses from both groups of children.

The item concerned with the concept "after" demonstrated a difference as the Head Start children scored an 86 percent correct response compared with 77 percent correct response for the non-Head Start group.

Two of the four items in the category of Time received a higher percentage score for the non-Head Start group than for the Head Start children. There was a difference in the percentage scores for the last two concepts. "Beginning" received a 100 percent to 96 percent ratio favoring the non-Head Start group, while "never" received a 50 percent to 45 percent ratio favoring the non-Head Start group of children.

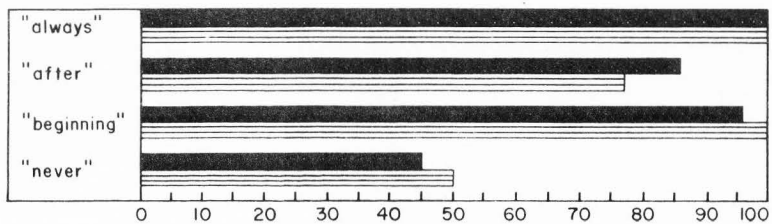


Figure 6. Concept: Time

DISCUSSION

The Head Start child, upon completion of his kindergarten experience, is not significantly different from his friends and neighbors, as measured by the Boehm test.

The children who did not have the Head Start experience, but had completed one year of kindergarten and who were selected for this study, were selected on the basis of geographical proximity. The children who had just completed their kindergarten year and lived closest to the Head Start children were selected. It may be that both groups of children used in this study were disadvantaged in relation to the other children in the population of the area. This calls into question the selection of the subjects and asks if another method would have been more appropriate for this study.

In northern Utah where this study occurred, there seems to be no segregated areas in which low income families are concentrated. It may be that the Head Start child, at the end of the Head Start year, is prepared to enter school on a relatively equal basis with his peers, as measured by the Boehm test.

The Boehm Test of Basic Concepts may not measure the children's abilities which are essential to academic performance in school. It appears that only further studies of the Head Start children's school performance, over time, will answer this question. This would be an interesting study to pursue for additional research.

The Head Start child may never have been at a disadvantage in the population used in this study. Or, the Head Start child may have

overcome any deficiencies in his knowledge of basic concepts as a direct result of his two years of educational experience.

As previously mentioned, in the county where this study drew its population, there seems to be no segregated areas in which low income families are concentrated. The control group, selected on the basis of geographical nearness of family residence, may more nearly resemble the Head Start population than the general population of children in the county. If so, it would then appear that the Head Start experience has been of little, if any, benefit to the children.

An additional item for consideration is that this study does not know how many children in each group have attended other educational programs, such as LDS Primary. It would seem that many from both groups did attend this educational program, but no measurement for basic concepts competence was taken in this study. This consideration may be helpful in planning additional research involving compensatory education in this area.

The Head Start Center that participated in this study has tried to involve the parents in the educational process of their children in a number of ways: by inviting the parents to participate in the classroom activities, by helping the parents assume the leadership in the policy-making decisions for the center; by involving the parents in the various field trips and excursions; and by helping the parents improve their teaching techniques at home. Other important benefits include: complete medical and dental examinations; a hot meal served family style each day; and the feelings of mutual concern for the success of the children felt by both parents, children, and staff. These benefits of Head Start training would apparently not be revealed by a single test as was used in this study.

This study is significant in that it seems to demonstrate that the Head Start children have not started the first grade in the public school system less well prepared than their neighborhood friends and neighbors. It appears that they may be entering on an equal basis with their peer group.

SUMMARY AND CONCLUSION

The purpose of this study was to see if experience in an enriched environment is associated with learning ability. The hypothesis was that: Performance on the Boehm Test of Basic Concepts would be independent of a pre-school enrichment experience in Head Start.

The method and procedure followed in conducting this study was as follows: The subjects were selected from two categories: Children who had completed one school year at a Head Start Center in northern Utah, who had also completed one year of kindergarten as of June 1, 1972. A second group was composed of children who did not have the Head Start experience, but did attend and complete one year of kindergarten as of June 1, 1972. The children who did not have the Head Start experience were not selected in a random fashion, but were selected on the basis of residential proximity to the Head Start children.

Compensatory education of young disadvantaged children was under assessment. This required selection of a scale that would provide a measure of the child's knowledge of some basic concepts that are assumed to be familiar to the children as they enter the public school system as first graders. The Boehm Test of Basic Concepts seemed to meet this demand.

A personal background information sheet was completed for the children. The purpose was to acquire information needed in interpreting the data.

The staff of the Head Start Center phoned the parents of the Head Start children and invited them to participate in this study. This

prepared the way for a personal visit to their homes. During the month of June, 1972, all the children in the study were personally contacted at their homes. The non-Head Start children were selected by asking the Head Start family, particularly the child, if he had a friend who did not have the Head Start experience but had completed kindergarten with him. Thus, the group of non-Head Start children came into being--selected on the basis of propinquity.

An attempt was made to use a standard or uniform technique in presenting the 50 items orally to the children. The test items were reviewed until sufficient competency was attained to insure uniformity in administering the test. This enhanced the prospect that each child would have an equal opportunity in responding to the test items.

The statistical test used in testing the hypothesis was the t test. There does not seem to be a significant difference between the Head Start children, and their neighbors, in terms of their performance on the Boehm Test of Basic Concepts. Therefore, in terms of school preparedness, the Head Start children seem to be equal to their peers in basic concept knowledge as they enter the first grade.

Conclusion

The findings of this study support the conclusion that Head Start children, in this particular area and situation, are not a visible, separate or isolated group of disadvantaged children at the end of the kindergarten year which followed their participation in Head Start. Additional studies will be needed to determine if the Head Start children in this study have maintained an ability level comparable to their nearest-neighbor peers, or if they have improved their concept ability

performance and, as a result of their educational experiences, have achieved a higher level of performance, comparable to that of their peers.

Suggestions for further study

Study a Head Start group with a representative non-Head Start group of children to determine their comparative strengths and deficiencies at the time the Head Start child begins his participation in the program, and again at the end of the school year.

Study the same children at the beginning and end of the kindergarten year, as a basis of comparison with the findings of this study.

Such studies as these may help to provide answers to the questions raised by the present study.

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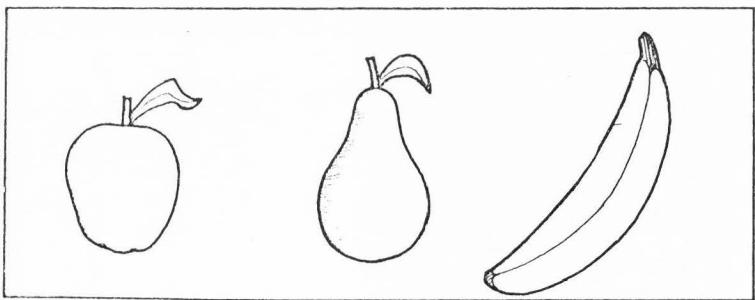
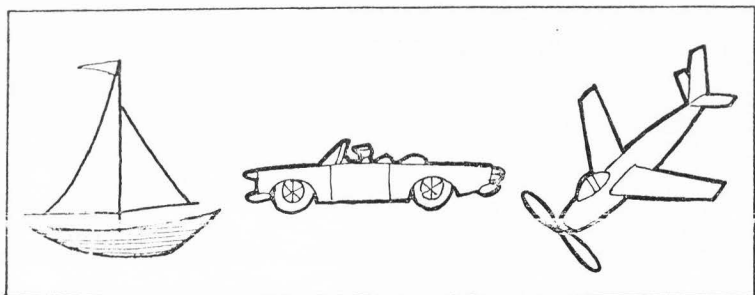
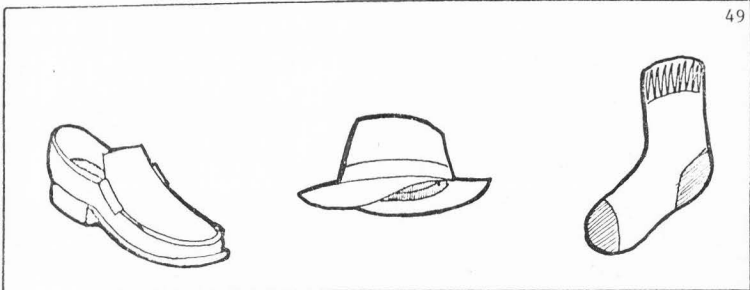
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APPENDIX

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APPENDIX A

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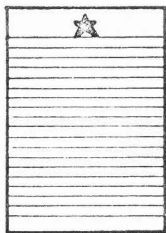
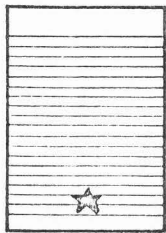
BOEHM
TEST *on basic concepts*

Ann E. Boehm

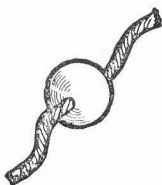




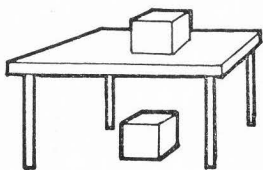
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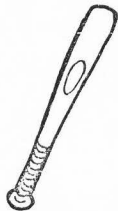
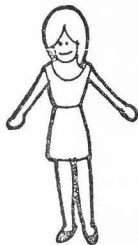
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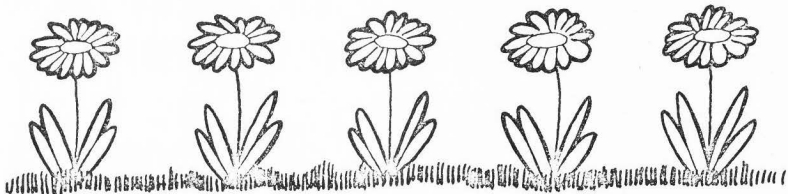
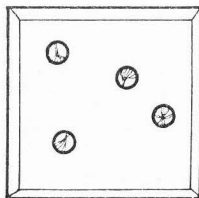
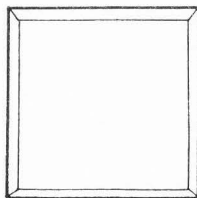
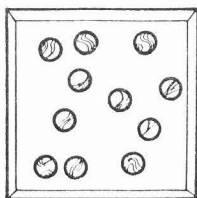
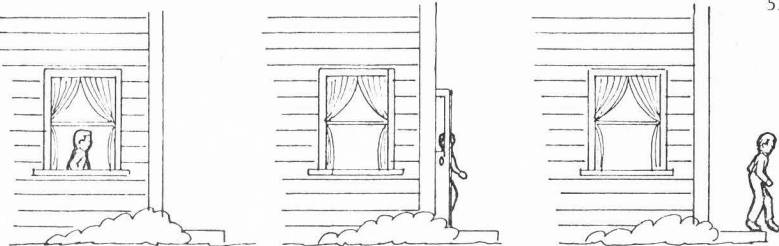


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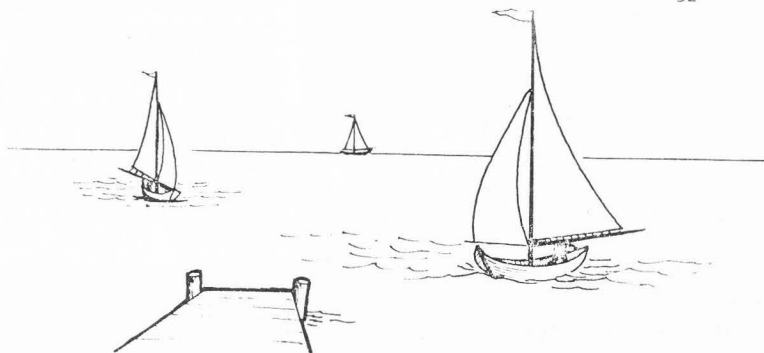
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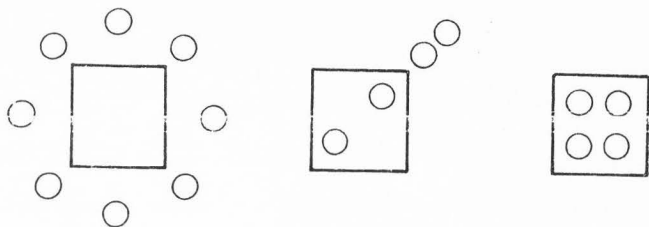




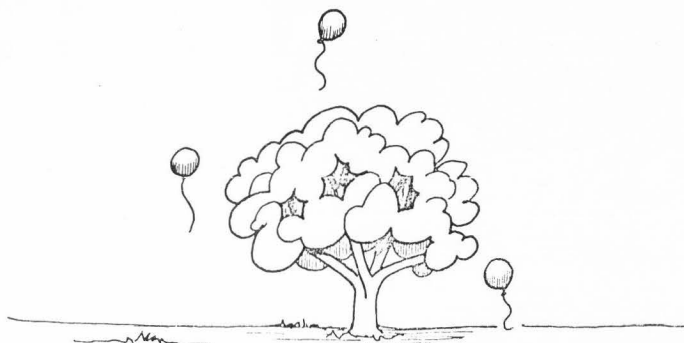
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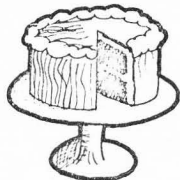
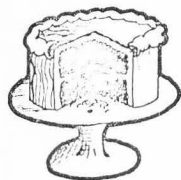
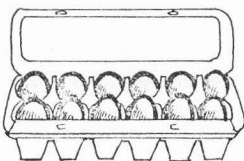
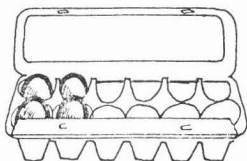
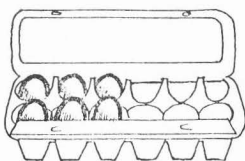
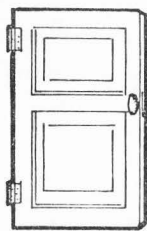
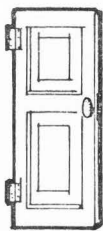
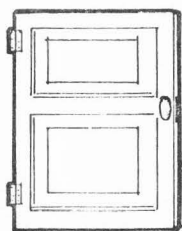


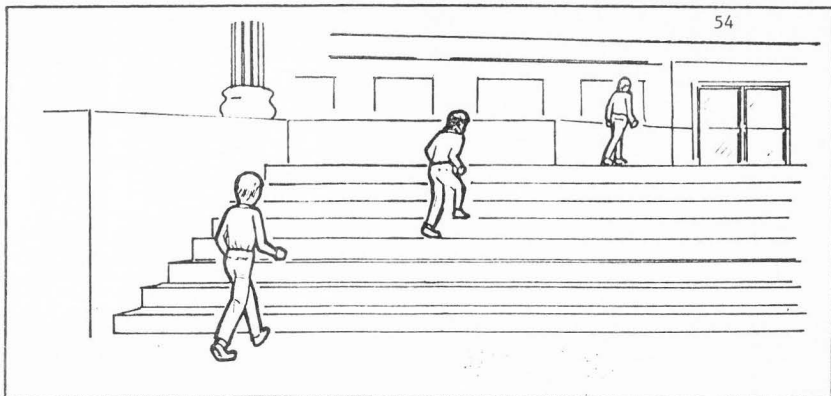
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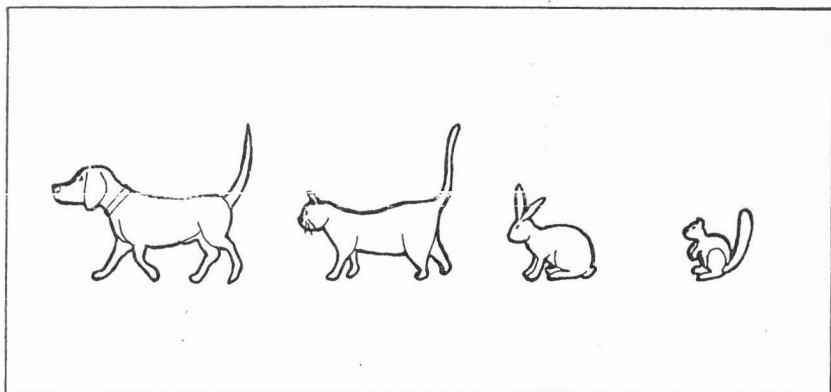
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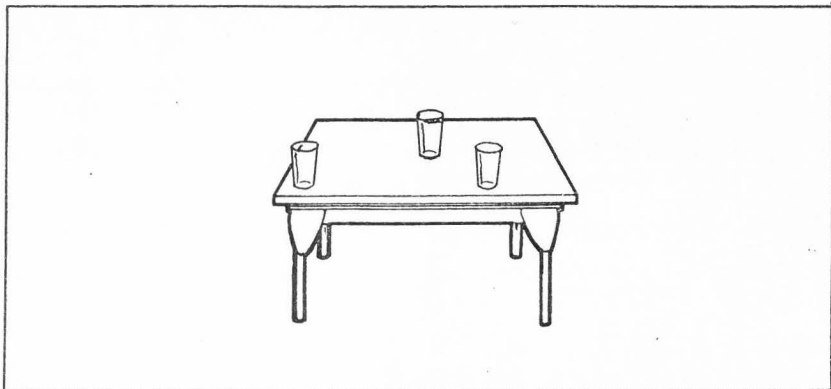




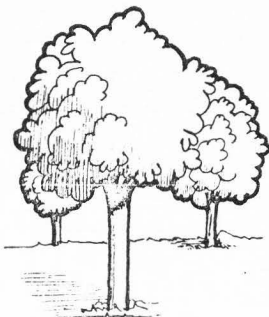
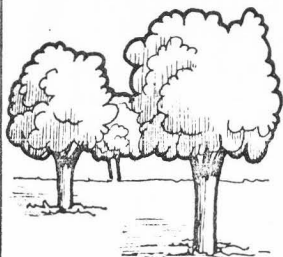
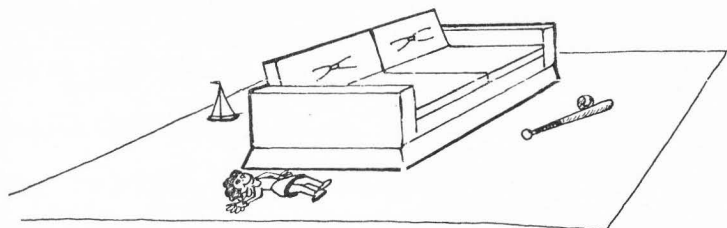
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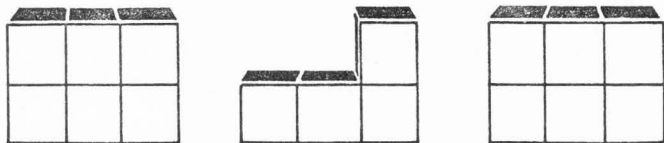


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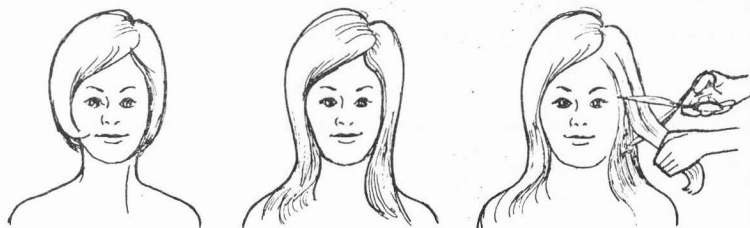


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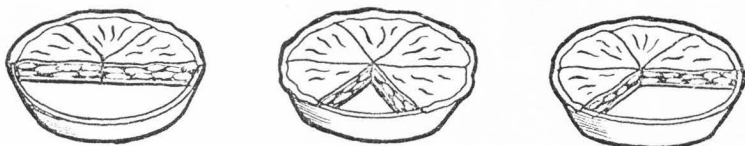
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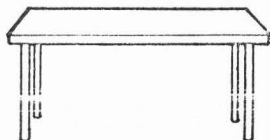


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NAME _____

Form A
Booklet 2

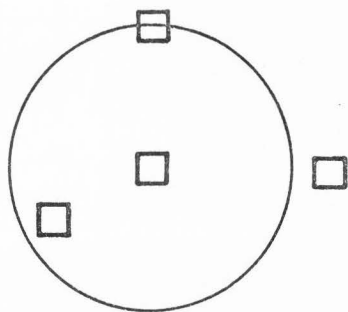
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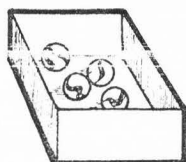
BOEHM
TEST of basic concepts

Ann E. Boehm

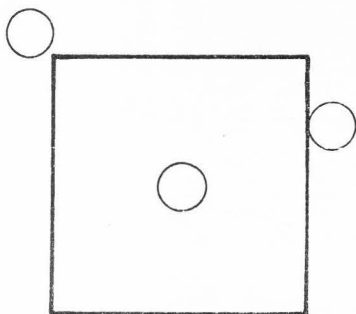




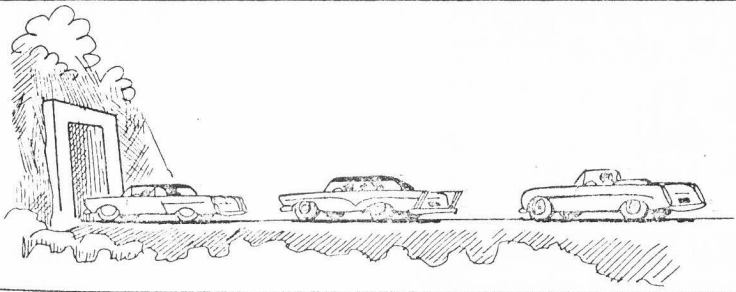
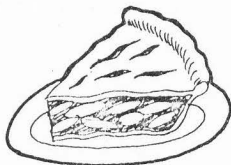
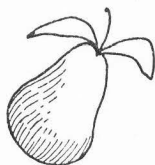
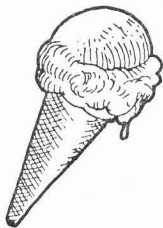
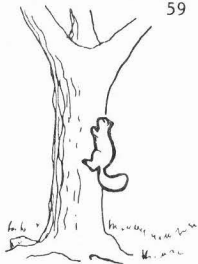
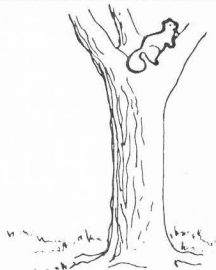
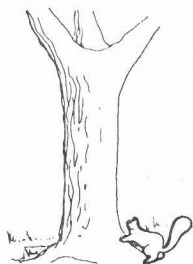
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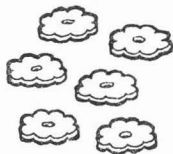
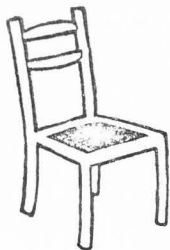


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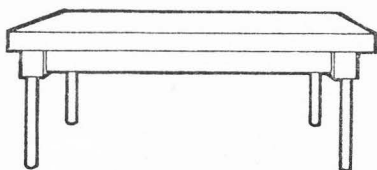


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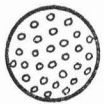
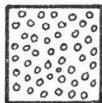
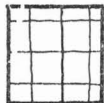
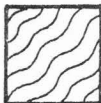




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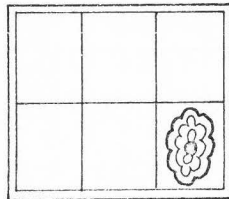
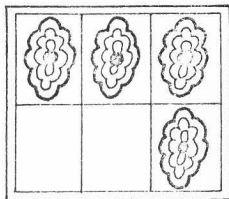
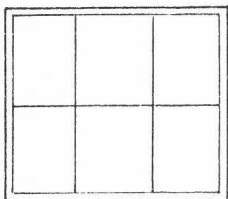
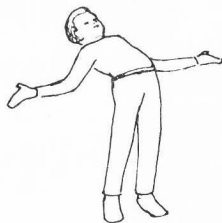
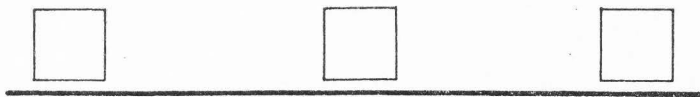
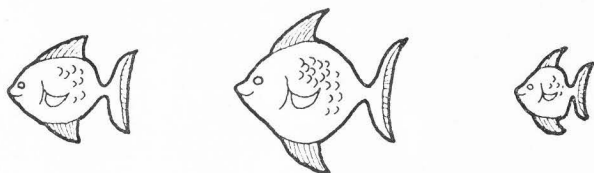
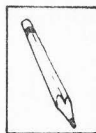
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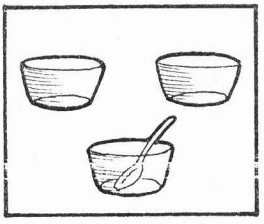
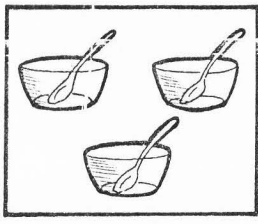
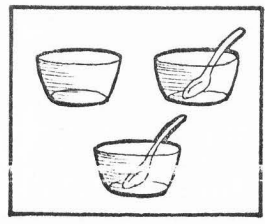


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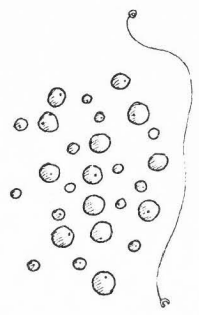
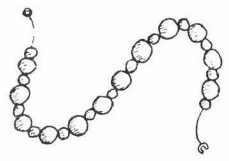
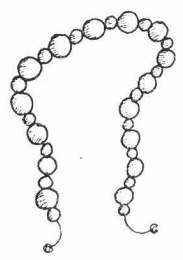




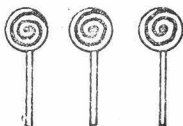
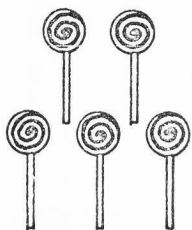
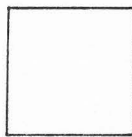
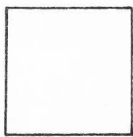
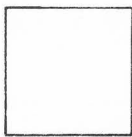
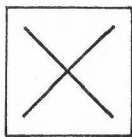
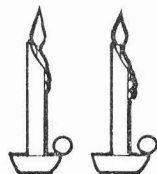
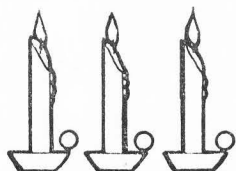
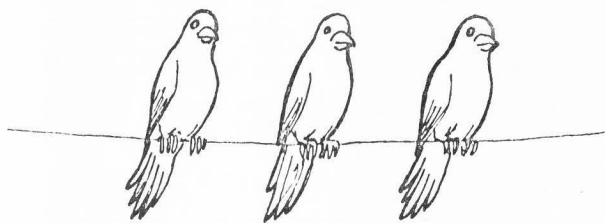
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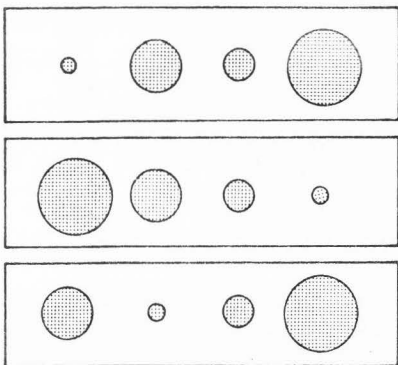


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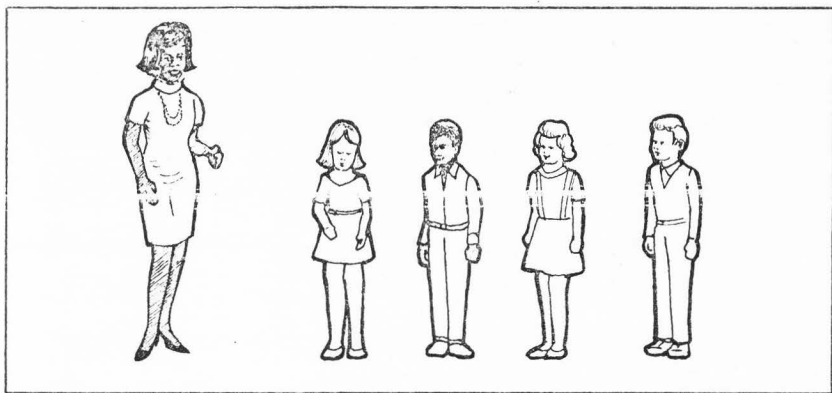


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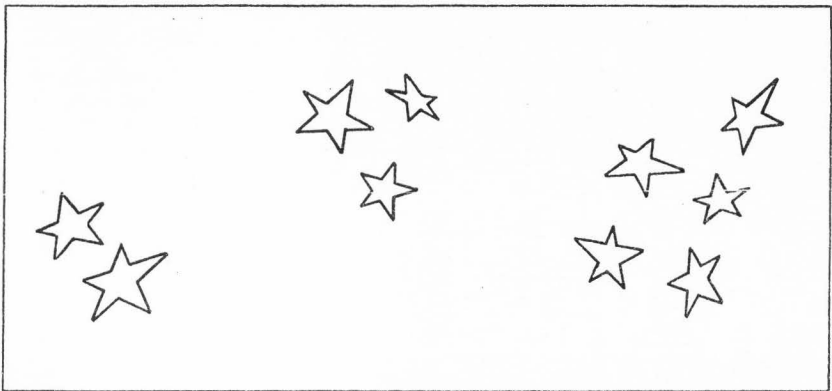




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APPENDIX B

Head Start Families

Average age of:

Father	28
Mother	23

Average number years of education:

Father	12
Mother	9

Marriage status:

Married	17
Divorced	3
Widowed	1
Separated	5

Average annual income:
\$4,100

Peer Group

Average age of:

Father	34
Mother	31

Average number years of education:

Father	14
Mother	12

Marriage status:

Married	22
Divorced	1
Widowed	-
Separated	-

Average annual income:
\$6,500

VITA

Robert Bruce Turner

Candidate for the Degree of

Master of Science

Thesis: Head Start and School Readiness

Major Field: Family and Child Development

Biographical Information:

Personal Data: Born at Provo, Utah, March 2, 1937, son of Dean L. and Tina Pauline Turner; married Sharon Johnson January 31, 1964; six children--Rachel, Stephanie, Robert, Deborah, Jonathan and Nathan (twins).

Education: Graduated from Highline High School in Seattle, Washington, in 1955; graduated from Brigham Young University in 1969 with a Bachelor of Science Degree, with a major in Child Development and a minor in Indian Studies; completed requirements for the Master of Science degree, specializing in Family Relations, at Utah State University in 1974.

Professional Experience: Teacher of Navajo Head Start children for the San Juan School District, Mexican Hat, Utah, for 3 years; psychiatric aide at the Utah State Mental Hospital, Provo, Utah, for 2 years; graduate assistant in Family Relations at Utah State University for 1 year; group leader for the Northern Utah Family Life Council for 2 years; assistant to Utah Family Life Specialist director, 1 year.