

CREATIVE CONSTRUCTION OF LOWER-
AND MIDDLE-CLASS CHILDREN

by

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CHAPTER I

INTRODUCTION

Block building is one of the activities in which the young child has the opportunity to relate to materials and through manipulation to create a product based on ideas or concepts. At the present time very little research has been done to assess block building of young children of differing social classes.

Children's block building activity involves many aspects of their growth and development. It is an activity which fosters expression of intellectual concepts and perceptions as well as promotes development of physical-motor skills. The placement of the blocks depends on motor skills and/or an understanding of the possible relationships among the forms (Robinson, 1958). The choice of subjects for building depends on interests, keenness of observation, background of experience and on imagination as well as on the degree of involvement in the activity (Krotzsch, 1917; Van Alosty, 1932). The form and design qualities of the buildings are affected by awareness of the possibilities in the blocks, the skill in placing them and in concern with such aesthetic qualities as balance, symmetry, simplicity and neatness (Guanella, 1932, Robinson, 1958). Completing an extensive structure requires attention to the task, and often emotional control and patience when difficulties with construction occur. Physical, intellectual, emotional, social and personality factors combine in block building activity just as they do in other activities (Robinson, 1958).

The effects socio-economic class has on the block constructions of pre-school children has not been thoroughly researched. Recent research, (Mattick, 1965; Pavenstedt, et al., 1967) has indicated that lower-class preschool

children are not as involved in the active exploration of their environment as are middle-class children. Perhaps this is because the development of curiosity and constructive exploration requires models and guidance in a form not readily available to these children. Children need more than a basic knowledge and experience upon which to draw if they are to express their creative ability. The degree of difference in the ability to use blocks creatively or freely among children of differing socio-economic classes had not been adequately explored.

It was therefore with the hope of gaining greater insight into the unique differences in the block building activity of preschool children of the lower and middle socio-economic classes that this study was undertaken. The purpose of this study was to investigate the creative and imitative aspects of the structures built by four-year-old children of the lower and middle classes using colored parquetry blocks.

CHAPTER II

REVIEW OF LITERATURE

Characteristics of Lower-and Middle-Class Children

Developmental theorists such as Erik Erikson (1950) and Jean Piaget (1952) have long held that the young child gains an increasing knowledge and mastery of his world by a process of active exploration. As the child manipulates objects, creates change, asks questions, he comes to adapt his actions and his ideas to his accumulating experience; by the time he enters school he is usually equipped with rudimentary concepts of how the world operates and is structured. According to Minuchin (1968) the active exploration of the environment during the preschool years is probably useful in his later school learning, it gives him a sense of process and relativism that is probably necessary if he is to enter the world of symbol systems and formal teaching, and gives him an essential set toward the satisfaction of learning and finding out. This process could also foster a child's sense of mastery and his psychological growth as a confident and effective individual.

Recent work and theory concerned with children of disadvantaged families has suggested that neither this process nor the presumed concomitant learnings develop as fully, for as many of the children, as they do among middle-class children. This may be true because the "natural" development of curiosity and constructive exploration requires models, guidance and response in a form not readily available to these children, or because it is thwarted by threat and trauma in the environment, Mattick (1965); Pavenstedt, et al., (1967).

Obviously, however, children who are classed as "socially disadvantaged" and who enter preschool compensatory programs vary considerably in their resources, their behavior and the extent to which their activities are characterized by such spontaneous, active exploration, Minuchin, (1968).

According to Lueptow (1965) one basic problem of the disadvantaged is that children who receive their initial training in one sub-culture are expected to behave satisfactorily in a different one. The disadvantaged children have problems, not because they are lower class, but because there is a middle-class system that appraises them and by and large does so negatively.

The socialization and psychological nature of the lower-class disadvantaged seems to adopt three forms, described by Lueptow (1965) as: the specific content of lower-class value-orientations and life styles differ in significant ways from those of middle class patterns; compared to middle-class performances lower-class socialization is less adequate; lower-class system of interactions and relationships is characterized by what is termed by Lueptow, "primary group relatedness" while the dominant middle-class system is one of secondary as well as primary interactions and relationships.

Hollingshead and Redlich (1958) and Reiss and Rhodes (1961) found that the lower class child lives in a world where social problems appear with greater frequency than they do in a world of the middle-class child. In this sense, and probably only in this sense, he comes to school with a broader range of experiences than does the middle-class child. Becker (1952) found the lower-class child lacks the conventional manners and courtesies of the middle-class child, especially with respect to more formalized patterns and symbolic substitutes for physical action. Centers (1948) and Morse and Weiss (1955) hypothesized that the occupational value-orientation of the lower-class adults differ in ways that devalue occupations and work. While the middle-class father

tends to view work as important in itself and to merge his personality in the occupational role, the lower-class father views work as a means to other goals, such as security, activity, and immediate gratification of consumer desires, seldom as an end itself. Closely related to the occupational value-orientations are the fourth set of distinguishing factors, the cluster of characteristics described as the achievement syndrome and delayed gratification pattern. Chinoy (1955), Douvan (1956), and Rosen (1956) found that the lower-class person compared to one of the middle class, is less achievement oriented, less concerned with individual success or with attainment of high status or upward mobility as a success goal.

The significance of these value orientations for the child probably centers around the factor of task orientation. Lueptow (1965) suggested, given the differing adult orientations to occupations, work and achievement, it is likely that the middle-class will be more task-oriented and possess greater personal competence in task contexts than will the lower-class child. Learning and school work are, of course, tasks.

In his study of social class and parental values Kohn (1959) found that the apparent goal of the lower-class mother is to teach the child to conform to authority and to be good in the sense of obedience while the middle-class mother is more concerned with the development of the child's ability to control his own behavior and to develop personally as well as socially adequate motives. From the viewpoint of the school, these differences mean that the middle class child is better equipped to behave in the task-oriented context of the classroom.

A study by Olim (1967) of 163 urban Negro mothers from lower and middle classes and their four-year-old children examined the relationship of the mothers' language styles and techniques of family control to children's cognitive development. It was found that lower-class mothers used imperative

language and were status-normative oriented, whereas middle-class mothers used instructive language and were personal subjective and cognitive rational-oriented.

Research with inner city disorganized families (Hess and Shipman, 1965; Minuchin et al., 1967; Pavenstedt, et al., 1967) pointed to certain features that characterize the disorganized segment of the underprivileged population: lack of structure and coherence in daily environment; ineffective adult models; salience of aggression and threat in the environment; limited gradations of affect and content in communication; low individuation of children; lack of specificity and elaboration in teaching, reinforcement and guidance. Such environments are weak in the kinds of models and guidance that presumably enhance optimum development.

The lower-class child through his limited and different experiences brings to the preschool or elementary school a background and set of attitudes which are reflected in his participations in the program, activities and relationship with the school personnel and environment.

Block Building

One of the experiences afforded the lower-class or middle-class nursery school child is the opportunity for building with blocks. In comparison with the extensive literature on children's paintings and drawings, very little has been written about children's block buildings. Two categories of articles and studies available are: observational studies of young children's interest in blocks in comparison with other play materials; studies of the uses of blocks as a constructive material.

Interest in Blocks

As early as 1898-1899 the Burks (1920) did an observational study of play choices in the kindergartens of Santa Barbara, California. Four kindergarten groups were observed during an activity period when the children chose play materials from a central supply and played with them at their tables. Basing their observations on 1,755 choices, the Burks found that clay and sewing cards were the most popular materials and that beads and blocks were moderately popular. Boys chose blocks more often than did girls.

On the basis of observations made during the free activity period in the kindergarten and the first grade at Horace Mann School, Garrison (1926) found that blocks were used more by the boys than by the girls. Blocks were the most popular play material at both ages for the boys. It was observed that the sets of unit blocks used for floor play were an excellent media for promoting group play at these ages.

Bridges (1927) reported that three-year-old boys in free play periods in nursery school spent longer periods of time with blocks (described as brick blocks) than with any other material available. The median time for the boys was 15 minutes; the girls' median time was eight minutes, and girls chose blocks less frequently. Color cubes were chosen equally by boys and girls. Bott (1928) included blocks among the "raw materials" which she listed as most popular with the nine preschool children she observed at nursery school. The popularity rating of materials was based on frequency of use and the aggregate of time spent with them during observation periods. Children used large blocks more than small blocks.

Markey (1929) asked individual children to make as many different things as they could with a set of five small blocks which they used at a table in an

experimental room. The children's scores included the number of items they built in five minutes, the names assigned and "other items of overt imaginative behavior and language." Total scores for the 89 children increased with age during the preschool years. Sex differences were inconsistent and unreliable. With the factor of age held constant, Markey found insignificant correlations between imaginative behavior in the experimental situation and imaginative behavior observed during free play in the nursery school. Large blocks were used more often than small blocks.

In an observational study of the free play of 10 four-year-olds in a nursery school, Hulson (1930) found that blocks rated highest among all the available play materials on four counts: number of times used, number of minutes used, persistence of use from day to day, and social value for stimulating group activity. Hulson found no relationship between the availability of blocks in the children's homes and their preference for them at school.

In her monograph on the choice of play materials of preschool children Van Alstyne (1932) reported that blocks, clay, and the doll corner were the most popular of the twenty-five play materials provided in three nursery schools and four kindergartens. Girls spent less time with the blocks than did the boys. This study stressed the value of blocks for stimulating conversation among the children and promoting active cooperation. McDowell (1937) observed the choices made by two- and three-year-old children in the free play period in nursery school. In that group boys played with large blocks more often than did girls; small and medium blocks were less popular, and were equally chosen by boys and girls.

These early studies all attest the popularity of blocks as play material for young children; many of them indicate that boys play more with blocks than do girls; and there is substantial agreement that blocks stimulate active and

social play.

Children's Use of Blocks for Construction

Investigators have also been interested in the use that children make of blocks for constructive activity both as individuals and in groups. Some have attempted to determine developmental stages which might be characteristic of most children.

Krotzsch (1917) observed and analyzed the constructions of one child as he grew from 2 years 8 months to 5 years 6 months. On the basis of these data Krotzsch proposed that there were four stages in the use of blocks:

- (1) Planless selection.
- (2) Choosing blocks of the same size and shape and placing them in a row, side by side or in a pile.
- (3) Space forming; subordination of materials to a purpose; striving to imitate forms in the environment.
- (4) Selection of materials and attempt of child to create his own forms.

Krotzsch (1917) detected four steps in the third stage in which the child is representing forms in the environment. First, a single block represents an entire structure; second, walls are built at angles against the wall of the room or in the open; third, enclosed spaces are built beside each other (as adjoining rooms in a floor plan), and finally, enclosures are roofed.

This early study also suggested four aspects or ways of doing further research in children's block building. The four areas Krotzsch (1917) suggested were:

- (1) Representation: What objects do children imitate and create with blocks? How do they achieve representations?
- (2) Uses of blocks: Krotzsch suggested the four stages he listed above, but these would be supplemented by observing the children.

- (3) Aesthetic characteristics: Krotzsch said there were four progressive phases in the aesthetic aspect of the young child's building. These were: the choice of favored blocks, careful placing in a row, decorative motifs, and symmetry.

- (4) Block building as a form of play.

It is possible that the steps Krotzsch listed in his analyses were more characteristic of the particular child he observed than of children in general.

In her study of kindergarten children, first-and second-grade children, Farwell (1930) found that houses were the most frequently built structures, followed by a miscellaneous selection of buildings. She reported that girls built furniture while boys did not. Correlations between ratings on quality of workmanship and measures of intelligence were low. Hulson (1930) also indicated that four-year-olds built houses most often. In an experimental setting with one hundred blocks available, the four-year-olds seldom built constructions higher than twelve inches. The highest construction achieved at that age was 48 inches. The most frequently used block was a unit with the dimensions 4 X 2 X 1 inches.

Van Alstyne (1932) used time sampling in observing group play. At two-years-of-age children spent 25 per cent of their time making "miscellaneous" use of blocks (such as holding, biting, sucking, and loading them); another 26 per cent of the time was spent building towers; making simple constructions (19%), "arranging in a design" (16%) and building a "definite building" (11%). Three-year-olds spent 18 per cent of their time in a "miscellaneous" use but their most frequently observed uses of the blocks were arranging in a design (24%) and making definite buildings (26%). Definite buildings (42%) and simple constructions (28%) account for most of the time spent by four-year-old children; all other percentages were very small. By the age of five the children were making two new uses of blocks; they used them as part of a

project, and they played with the buildings after they were completed. Van Alstyne listed these percentages as: definite building (47%); used as part of a project (12%); and play with (22%).

At three the most frequently constructed buildings were garages and hangers (44%), at four, houses (44%), and at five, vehicles (46%). There was a progressive shift over the four years of development from manipulating the blocks (the miscellaneous and loading categories) to a preponderance of construction at five (89%). Van Alstyne found no correlation between block building ability at school and the child's interests at home.

Bailey (1933) developed a rating scale for block constructions of young children. She photographed 44 block constructions built individually by 36 children ranging in age from two to five, and by eight older children from six to nine years of age. The children did the building on a platform, 48 inches by 46 inches, mounted on casters which raised the top surface four inches from the floor. Each child built anything he chose, but he was asked to build on a platform so that a picture could be taken of his building. The photographs were rated twice by 109 adults using the method of equal appearing intervals. Two scales were constructed from the two sets of ratings, one when the criterion was the achievement of a plan and the second when the ratings were done on symmetry of design and care in placing the blocks. Although there was a correlation of .81 between the median positions of the constructions when raters used the two scales, it was felt that the two scales were warranted. Bailey concluded that ability to plan and carry out a plan increases with age.

In her monograph The Art of Block Building Johnson (1933) described the uses of blocks made by children in nursery and kindergarten groups. She noted first a period of manipulation which precedes real construction:

"The first use of blocks among small children is not properly building. Blocks are carried from place to place or they may be stacked or massed in irregular, conglomerate piles before the period of construction begins. During this time, the child is probably getting an experience no less real than his later one when adults can recognize the result as illustrating actual problems in balance, construction, design or representation." (p. 5).

Between two-and three-years-of-age actual construction begins, usually in repetitive forms such as towers and rows. In the manner which is characteristic of many activities at this age, the child adds one block to another and another, or repeats a simple pattern again and again. When children can handle blocks easily, they elaborate the edge to edge style of building either into spaced arrangements or ones made by alternating the sizes of blocks.

Before children are 31 months old, they usually master two problems of construction: bridging and building enclosures. Bridging involves setting up two blocks, leaving space between them and roofing that space with another block. These are later combined into elaborate structures. A simple enclosure is made by putting four blocks together so that a space is completely enclosed. When children have learned this form they usually begin to make repetitive enclosures.

As children increase in age their buildings become more elaborate. Johnson (1933) found that there is a steady increase in facility, imagination, elaboration of design and actual number of blocks used. She also observed the tendency to build in balanced and decorative patterns.

"We have been led to the conclusion that blocks are essentially the most plastic material for young children, because with blocks they seem able to arrange, design, to compose.

"I do not wish to imply that any child says, even to himself, 'Now I will make a design,' but that with child after child in a group, with child after child of age after age, unnamed and unused building appear, delightful to the adult eye in the rhythm of their balance and the

originality of their design and decoration." (p. 24)

Johnson (1933) found that children at two-and three-years-of-age often name their buildings, even when there is little resemblance between the structure and the name given to it. At this age the children do not use their building as a setting for play. The use of buildings for dramatic play begins at four and five, and is most evident at five. At four or five the techniques of building are so well mastered that the children are free to incorporate block building into more elaborate dramatic play.

The most extensive study of the block building activities of children was reported by Guanella (1934) after working with 33 boys and 31 girls over a four-year period. The ages of the children ranged from 13 months to 7 years 6 months. Observations were made in the free play sessions of nursery school, and some experimental work was done with individual children. Guanella followed some of the suggestions made by Krotzsch (1917). She was concerned with four aspects of block building activity: the genetic development in methods used for controlling space, design qualities, the development in constructive ability and the space utilized. She classified the uses of blocks into non-constructional uses and organized uses. Non-constructional uses included noise-making manipulation (balancing, fitting, pressing) and body contact (chewing, riding, stepping on, etc.). For organized uses she listed the following: vertical linear, horizontal linear, vertical areal, horizontal areal, enclosed vertical, enclosed horizontal, tridimensional solid, and enclosed tridimensional space with roofing. The design qualities she observed in children's buildings were opposition of line, transition of line, repetition, a center, symmetry and asymmetrical balance.

Guanella (1934) summarized the development in constructive ability in three statements: "at two-and-a-half a child encloses a vertical space (spans

two blocks with a third); at three-and-a-half he is learning to make a roof on an enclosure; at four he substitutes units in his buildings." Guanella reported that between ages three and seven the children built buildings that were wider, higher and longer.

Guanella found no consistent age variation in the time spent, the number of blocks used, or the names given to structures in experimental sessions where the children had 85 unit blocks and 48 color cubes to use, and where the experimenter asked them whether they were finished after seven minutes of building. Most frequently named structures were houses and boats. Guanella used a point system for scoring the buildings, assigning points for such details as chimney, built-in windows, stairways, porch, etc. She indicated that block building activity "culminates at seven years."

In a study of many aspects of nursery school behavior Slater (1939) rated the block building spontaneously done by 33 children during free play periods. The children were from two-to four-and-a-half years old; many of them were rated at more than one of the levels she used. Slater described four successive levels of intricacy:

- (1) "The child built unsteadily, making only crude towers which either toppled over of their own accord, or were joyously demolished by their maker."
- (2) "The construction was still on the primitive tower-level, but the blocks fit together with sufficient nicety so that they would stand, and there was apparently some joy in workmanship as well as joy in the crashing blocks."
- (3) "Construction was in accordance with some definite plan, announced or otherwise evident usually conforming to some imaginative idea proclaimed by the child--a train, a house--somewhat recognizable."
- (4) "Construction was elaborate--houses with windows, porches, even doors to open and shut; trains on tracks; locomotives with cabs, etc."

At two-and-a-half years of age all but three of 17 children were rated at the

first two levels, but one boy was rated at the third level, and two girls were building at the fourth level. At three-and three-and-a-half two-thirds of the children were still rated at the first two levels. There were few ratings done at four-and four-and-a-half.

After a period of twenty years when no studies of block building were reported, Moyer and Gilmer (1956) completed an experimental study of children's preferences and use of block in play. They were interested in the children's preferences among ten shapes of unit blocks, frequency of usage and attention span. The subjects were 87 children (27 three-year-olds, 30 four-year-olds, and 30 five-year-olds). Each child built individually in an experimental room where he was told merely to play with the blocks. Children were observed for 15 minutes. These investigators found no significant sex differences in the children's activity. Five-year-olds built more named structures and built with more symmetry than the younger children. The mean attention span was 22.3 minutes at three; 25.3 minutes at four; and 28.8 minutes at five. The mean number of blocks used was 54.2 at three, 70.7 at four, and 70.9 at five.

Moyer and Gilmer found no evidence for stages in the selections and use of blocks. The individual differences within an age group were as great as those between groups.

In summary, it appears that investigators have given relatively little attention to the block building activities of children. A number of observational studies in free-play situations in nursery schools, kindergartens and the elementary grades, have indicated that blocks are among the most popular of the materials and toys provided for children. Boys tend to make more use of blocks than do girls. Children progress from a manipulative stage (mouthing, transporting, etc.) to a more and more organized, planful and knowledgeable use of blocks.

Creativity

Block building of lower-class and middle-class children gives investigators an opportunity to study an important aspect of the child's behavior, his creativity.

According to Starkweather (1965) the very word "creative" implies behavior that means a giving of one's self rather than behavior which is coerced or imitative. In the light of this rather broad definition, one can speculate that to be creative, an individual must be relatively free from inhibition, free to make novel combinations of ideas, and free to express his curiosity and imagination; he must be willing to try difficult tasks and willing to be a non-conformist.

Research into creativity extends back only a few years. There are still people who look upon drawing and painting as being somehow removed from reality, and children seem to them to be touched with some magical power. This feeling that "creativity is somehow tied up with the gods" may be one reason why mere humans have found difficulty in attempting to fathom the mystery around this important area of human development (Lowenfield and Brittain, 1964).

Lowenfield and Brittain (1964) stated that no child should be thought of as "uncreative." In some cases the potential may be buried beneath the surface, and it is up to an adult to help the child break through the restrictions of conformity and insecurity. On the other hand, there is no "creative" child. This would assume that the creative power is already unleashed to its fullest extent in some children and we therefore can do little to further its development. There are many levels of creative performance, from the mere drawing of a line following the directions of the teacher, to the complex integrated composition that is done spontaneously. At all levels of creative performance

children need to be encouraged to progress beyond their present capacities and to come closer to a genuinely creative spirit.

Carl Rogers (1959) defined the creative process as "the emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand and the materials, events, people, or circumstances of his life on the other;" and he defined the motivation for creativity as "man's tendency to actualize himself, to become his potentialities." (p. 71-72). Rogers implied that the individual will become or achieve his own means rather than those forced upon him. To do this the individual must be relatively free from inhibition, free to make novel combinations of ideas, free to express his curiosity and imagination; and his need for approval and affiliation must be secondary to his willingness to try the difficult and his willingness to be different.

Lowenfield (1959) referred to the untapped creative resources of the individual as potential creativity and to that part of his creativeness which the individual uses in his work and actions as functional creativity. Whether or not one believes that every child is born with a creative potential, few would deny that the expression of creative ability has been stifled in many individuals. This gives rise to the question of whether creative potential can be identified before there has been creative achievement. Golovin (1963) expressed the belief that the only identification possible at an early stage of an individual's development is his creative facility rather than his creative ability. Such identification seems necessary if the stifling of creative ability is to be avoided. Also, the identification of young children who are potentially creative is necessary if longitudinal studies are to provide information about factors which encourage and factors which handicap the development of creative ability.

Taylor (1959) categorized the characteristics of the creative individual as intellectual, those which seem to be valid indicators of creative talent, and motivational, those which facilitate the expressions of creative ability or operate as obstacles to creativity. Originality, adaptive flexibility, and the ability to sense problems are examples of motivational characteristics. Guilford (1957) found significant correlations between measures of traits of temperament and motivation (motivational characteristics) and measures of factors of ability within the area of creative performing (intellectual characteristics); e.g., impulsiveness and ascendance are related to ideational fluency; tolerance of ambiguity and less need for discipline and orderliness are related to originality. Taylor (1969) theorized that certain of the intellectual components may underlie certain motivational forces in the creative person. Similarly, Torrance (1962) hypothesized that others may operate as obstacles to creativity; and Getzels and Jackson (1962) stated that "general cognitive style and general motivational structure are inextricably related and can be separated only for analytic purposes." (p. 28) These theoretical discussions and research reports suggest that the identification of motivational characteristics may provide the means for identifying young children who are potentially creative. In other words, it may be possible to identify the creative child by his psychological freedom, his willingness to try the difficult, and his freedom to use conforming and non-conforming behavior.

Torrance (1962) and Getzels and Jackson (1962) developed instruments for the measurement of characteristics which are indicative of creative ability or essential for its expression, and used these instruments in the study of school age children and adolescents. Torrance, as a result of his findings, postulated that restrictions on manipulativeness and curiosity, overemphasis on sex roles, overemphasis on prevention and premature attempts to eliminate fantasy are

special blocks to creativity. Each of these can be seen as restriction which curtails the child's freedom. Similarly, this need for freedom in the creative process has been indicated by Getzels and Jackson (1962) in their comparison of highly intelligent and highly creative adolescents. The highly creative ones were more stimulus-free and less categorical; they had an internal locus of evaluation rather than depending upon the evaluative judgment of others; and they were able "to toy with elements and concepts" and "to make the given problematic." These studies give additional support to the contention that certain motivational characteristics are essential for the expression of creative ability.

The development of creative ability is one of the primary objectives of education. Educators make a distinction between knowing and discovering, between remembering and inventing, between intelligent behavior and creative behavior; nevertheless, the focus of attention has been on ability and progress, i.e., intelligence and achievement, and the development of creative ability has been left largely to chance. The problem is complex. Children need a wealth of knowledge and experience upon which to draw if they are to express their creative ability. Thus, from the educator's point of view, the problem is one of how to leave the imaginations of children free while giving them the facts and experiences necessary for possible creative activity.

CHAPTER III

PROCEDURE

Statement of the Problem

The purpose of this study was to determine the difference between children of different socio-economic classes in their creativeness in block building and the degree to which they imitated an adult model. Thirty-two colored parquetry blocks, eight squares, eight triangles, and sixteen diamond shaped blocks were available to the children for their constructions.

Null Hypotheses to be Tested

1. When no model is provided, there is no significant difference in the block building of children of different socio-economic-levels in terms of:
 - a. Complexity-number of blocks or shapes employed
 - b. Complexity-intricacy of structure
 - c. Balance
 - d. Unity of Structure
 - e. Representativeness
 - f. Aesthetic Qualities-relationship of parts
 - g. Aesthetic Qualities-use of color
 - h. Creativity
2. When a model is provided and removed, there is no significant difference in the block building of children of different socio-economic-levels in terms of:
 - a. Complexity-number of blocks or shapes employed
 - b. Complexity-intricacy of structure
 - c. Balance
 - d. Unity of Structure
 - e. Representativeness
 - f. Aesthetic Qualities-relationship of parts
 - g. Aesthetic Qualities-use of color
 - h. Imitation

3. When a model is provided and retained, there is no significant difference in the block building of children of different socio-economic-levels in terms of:

- a. Complexity-number of blocks or shapes employed
- b. Complexity-intricacy of structure
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color
- h. Imitation

4. There is no significant difference in the block building of middle-class children when a model is not provided and when a model is provided and removed in terms of:

- a. Complexity-number of blocks or shapes employed
- b. Complexity-intricacy of structure
- c. Balance
- d. Unity of structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color

5. There is no significant difference in the block building of middle-class children when a model is provided and removed and when a model is provided and retained in terms of:

- a. Complexity-number of blocks or shapes employed
- b. Complexity-intricacy of structure
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color
- h. Imitation

6. There is no significant difference in the block building of middle-class children when a model is not provided and when a model is provided and retained in terms of:

- a. Complexity-number of blocks or shapes employed
- b. Complexity-intricacy of structure
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color

7. There is no significant difference in the block building of lower-class children when a model is not provided and when a model is provided and removed in terms of:

- a. Complexity-number of blocks or shapes employed
- b. Complexity-intricacy of structure
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color

8. There is no significant difference in the block building of lower-class children when a model is provided and removed and when a model is provided and retained in terms of:

- a. Complexity-number of blocks or shapes employed
- b. Complexity-intricacy of structure
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color
- h. Imitation

9. There is no significant difference in the block building of lower-class children when a model is not provided and when a model is provided and retained in terms of:

- a. Complexity-number of blocks or shapes employed
- b. Complexity-intricacy of structure
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color

Choice of Subjects

The subjects selected for this study were ten children from middle-class homes and ten children from lower-class homes in Manhattan, Kansas. The children ranged in age from 48 months to 59 months.

Method

The procedure for collecting data followed the interview or testing schedule described below. The child was taken by the examiner to a room in which there was a small table, two small chairs, two sets of parquetry blocks, a bookcase, a tape recorder on a stand and a camera. The entire session was taped. The tape recordings are being analyzed by another investigator.

The children were told they were going to play a game with the examiner and were going to have their picture taken. The examiner began the interview by saying:

Task 1. "I have all these blocks here. I would like you to build something. You may build anything you want. You may use any or all of the blocks here."

a. When the child finished the construction the examiner said:

1. "Tell me about what you have built."
2. "Tell me some more about what you've built."
3. "Tell me about the _____. " (Something mentioned in the child's first statements.)

b. Upon completion of the structure and the explanation of the project, a picture was taken of the block construction and the child to use in rating the structure on creativeness.

c. No child refused to build a structure, therefore, it was not necessary to ask any of the children to build with the blocks on another day.

- d. If a child talked during the construction of his project, the examiner merely reflected his statements or answered his questions. This was so the examiner did not encourage or direct interaction and therefore, did not influence the child's building or verbalizations.

Task 2. The examiner then said, "Now I am going to build a garage." She built a uniform structure out of the same blocks the child used. She asked the child if he could see the garage and where the cars drove in; all the subjects said they could see the garage. The researcher then disassembled the garage.

- a. The examiner said, "Now you build a garage."
- b. Upon completion of the structure, a picture was taken to rate it on degree of imitation.

Task 3. The examiner then said, "Now I am going to build a garage." This time she left the structure assembled and brought out a duplicate set of blocks for the child to use. (This set of blocks was on the bookcase, that was parallel to the testing table and could be seen by the child.)

- a. The examiner said, "Now you build a garage."
- b. Upon completion of the structure, a picture was then taken to rate it on degree of imitation.

Scoring

A criteria for rating the block constructions was adapted from the topics suggested by Robinson (1958) for assessing children's block building (Table 1). Three teachers in the Child Development Laboratory Nursery School at Kansas State University, were trained on how to score and rate each picture. The criteria for rating the block constructions were put on a five point rating scale. The topics used were the following:

Table 1. CRITERIA FOR RATING BLOCK CONSTRUCTIONS

Complexity:Few blocks or shapes
employed

1 2 3 4 5

Unelaborate, simple,
few angles

1 2 3 4 5

Many blocks or shapes used

Intricate structure, many
angles, different anglesBalance:Asymmetrical, informal
balance

1 2 3 4 5

Symmetrical, formal balance

Unity of Structure:Random placement, dis-
persed, scattered

1 2 3 4 5

Planned, unified, presented
as a wholeRepresentativeness:Non-representational,
does not represent any
form or object

1 2 3 4 5

Representational, close
resemblance to a form, shape,
or objectAesthetic qualities:Parts of the structure
relate to one another

1 2 3 4 5

Parts of structure are
nonrelated

Unplanned use of color

1 2 3 4 5

Planned use of color

Creativity: (To be used only for rating pictures in Group A)Common ordinary use of
blocks or shapes

1 2 3 4 5

Unique use of blocks or
shapesImitative: (To be used only for rating pictures in groups B and C)Highly imitative of
model garage

1 2 3 4 5

Structure independent of
model garage

Complexity-number of blocks
 Complexity-intricacy
 Balance
 Unity of Structure
 Representativeness
 Aesthetic Qualities-relationship of parts
 Aesthetic Qualities-use of color
 Creativity
 Imitation

The socio-economic level of the child's family was determined by having the mothers fill out a McGuire-White Short form that asked the following questions (Table 2):

The occupation of the head of the family
 The major source of family income
 The education of the head of the family

The background of each child was also obtained by having the parents fill in the following information on the form (Table 3):

Age in months
 Sex
 Race
 Previous educational experience
 Number of siblings
 Ordinal position of child

Analysis of Data

The block constructions of the middle-and lower-class groups were compared utilizing the Mann-Whitney U, a non-parametric statistical test. The scores were considered significant at the .10 level. The constructions were compared on the criteria for rating block constructions that was previously described. The middle-class children's and the lower-class children's scores in the three testing situations were also compared, for example, the middle-class subjects' scores when a model was not presented and when a model was presented and removed were compared. In these comparisons the effect of the presence of a model on each group of subjects was studied.

Table 2. Description of Parents of Subjects

	Lower Class	Middle Class
1. Occupation of Family Head		
a. Professional		10
b. Service	4	
c. Clerical	1	
d. Student	4	
e. Homemaker	1	
2. Education of Family Head		
a. Some high school, not graduated	1	
b. Was graduated from high school	4	
c. Some college or business school	2	
d. Was graduated from college	3	2
e. Has an advanced college degree		8
3. Major Source of Family Income		
a. Investment	1	
b. Profits, fees		1
c. Salaries, commissions yearly earnings	4	9
d. Weekly or daily wages	1	
e. Public relief, welfare or social security	4	
4. Intact Family		
a. Both parents residing in the home	5	10
b. Mother only parent residing in the home	5	

Table 3. Description of Subjects

Variables	Lower Class	Middle Class
<u>Age in months</u>		
48	1	0
49	1	2
50	0	0
51	3	0
52	1	1
53	0	2
54	1	0
55	1	0
56	0	1
57	0	3
58	1	0
59	1	1
<u>Sex</u>		
Male	7	5
Female	3	5
<u>Race</u>		
Caucasion	5	10
Negro	5	
<u>Educational Experience</u>		
None	1	
Nursery School	5	10
Day Care or Head Start	4	
<u>Number of Siblings</u>		
0	2	0
1	4	5
2	1	2
3	1	2
4	1	1
5	0	0
6	0	0
7	1	0

Table 3. (Contd.)

Variables	Lower Class	Middle Class
<u>Ordinal Position</u>		
1	6	6
2	0	0
3	1	1
4	1	2
5	1	1
6	0	0
7	0	0
8	1	0

Description of Subjects

The subjects in this study were ten children from middle-class homes and ten children from lower-class homes in Manhattan, Kansas (Table 3). The children ranged in age from 48 months to 59 months. Eleven of the subjects, six lower-class children and five middle-class children were in the 48-months to 54-months-range. Nine of the subjects, four lower-class children and five middle-class children were in the older half of the age continuum ranging from 54-to 60-months.

Half the middle-class subjects were male and the other half were female. Seven of the ten lower-class subjects were male and three were female.

All the middle-class subjects and five from the lower-class were Caucasian. Five of the lower class subjects were Negro.

All the subjects except one child had some formal experience with other children and adults outside their families. Nineteen of the twenty subjects had attended either a nursery school, a day care center, or Head Start program.

Twelve subjects, six middle class and six lower class, held the first ordinal position in the family; eight subjects, four middle and four lower

class, were the youngest children in their families. Nine children, four lower class and five middle class, had only one sibling. Two lower-class subjects were the only children while all the middle-class children had one or more siblings. One middle-class subject had four older siblings and one lower-class subject had seven older siblings.

The fathers, of the middle-class subjects were in professional occupations (Table 2). All the middle-class fathers had graduated from college and eight of them had advanced degrees. The major source of income for nine of the middle-class families was salaries, commissions and yearly earnings. Profits and fees constituted the major source of income for one middle-class family.

The heads of the family of the lower-class subjects were involved in a variety of occupations. Four were in service occupations, four were students, one held a clerical position, and one was a homemaker. The heads of the family of four lower-class subjects had graduated from high school; two had some college or business school; three were college graduates; one had attended high school but did not graduate. The major source of family income was more varied for the lower class. Four family incomes consisted of salaries, commissions and yearly earnings; four family incomes were made up of public relief, welfare or social security payments; one family's income was composed of weekly or daily wages; one family's income consisted of investments.

All of the middle-class families were intact families with both the mother and father living in the home. Five of the lower-class families were intact families and in five lower-class families the mother was the only parent living in the home.

CHAPTER IV

RESULTS AND DISCUSSION

Block Building Scores

Comparisons were made between the scores of the lower-class subjects and middle-class subjects in each of the three testing situations. Eight aspects of the subjects' constructions were compared (Table 4). In this section the abbreviations LCS and MCS will represent lower-class subjects and middle-class subjects, respectively.

Complexity-Number of Blocks

Task 1: The mean number of blocks used by the subjects in their constructions without a model was 25.55. There were 32 blocks available. The mean for the LCS was 28.5; the mean for the MCS was 22.6. The judges' mean ratings on the number of blocks used by the two groups was 4.45 and 3.64 respectively (Table 5). The LCS utilized a larger number of blocks in their constructions, however this difference was not significant.

Task 2: The model garage structure that was presented and removed employed fourteen blocks. The mean number of blocks used by the subjects in their second construction was 16.4. The mean number of blocks used by the MCS was 13.6; the mean number of blocks used by the LCS was 19.2. The judges' mean ratings on the complexity of the structures were 2.69 (MCS) and 3.54 (LCS) (Table 5). The LCS utilized a larger number of blocks in their constructions than the MCS. This difference was significant (Table 4).

Table 4. Comparison of Lower-and Middle-Class Subjects in Block Constructions.

Variable	Mann Whitney U
Complexity-number of blocks	
Without model	28.5
Model presented and removed	26 *
Model presented and retained	29
Complexity-intricacy of structure	
Without model	41
Model presented and removed	40.5
Model presented and retained	29.5
Balance	
Without model	49.5
Model presented and removed	36
Model presented and retained	28
Unity of Structure	
Without model	34
Model presented and removed	43
Model presented and retained	33.5
Representativeness	
Without model	43.5
Model presented and removed	38.5
Model presented and retained	25 *
Aesthetic Qualities-Relationship of parts	
Without model	42
Model presented and removed	33
Model presented and retained	28
Aesthetic Qualities-use of color	
Without model	45
Model presented and removed	36.5
Model presented and retained	45
Creativity	
Without model	49
Imitation	
Model presented and removed	40
Model presented and retained	30

*Significant at the .10 level
($N_1=10$, $N_2=10$ = Sig. U = 27)

Table 5. Means of Judges' Rating on Block Constructions

Variable	Task 1			Task 2			Task 3		
	Middle Class	Lower Class	Middle Class	Middle Class	Lower Class	Middle Class	Middle Class	Lower Class	Lower Class
Complexity: Number of Blocks	3.64	4.45	2.69	3.54*	2.82	3.65			
Complexity: Intricacy	3.07	2.74	2.24	2.57	1.89	2.71			
Balance	2.59	2.67	3.51	3.10	4.13	3.16			
Unity of Structure	4.07	3.58	4.45	4.23	4.60	4.08			
Representativeness	2.61	2.09	3.50	3.20	3.97	2.86*			
Aesthetic Qualities: Relationship of parts	2.18	2.31	1.84	2.34	1.84	2.29			
Aesthetic Qualities: Use of color	1.91	2.41	2.51	1.99	2.57	2.43			
Creativity	2.61	2.61	---	---	---	---			
Imitative	---	---	2.73	3.03	2.24	3.35			

*Significant at .10 level

Task 3: The garage of fourteen blocks was presented and left up as a model for the children in the third stage of the testing. The mean number of blocks used by the subjects was 17.15. The mean number of blocks used by the MCS was 13.5; the mean number of blocks used by the LCS was 20.8. The judges' mean ratings were 2.82 for MCS and 3.65 for LCS (Table 5). This difference was not significant.

In this experiment both middle-and lower-class children used fewer blocks when a model was given. The middle-class subjects seemed to conform more to the model structure in terms of number of blocks used. The middle-class subjects used fewer blocks when a model was presented and removed than when there was no model. The difference in number of blocks used was significant (Table 6). The difference between the number of blocks used when there was no model and a model was presented and retained was also significant for the middle-class children. There was no significant difference in the number of blocks used in the three testing situations for lower-class children (Table 7).

Complexity-Intricacy

Intricacy was defined in the study as "many and different angles" as opposed to "an unelaborate structure that was simple with few angles."

Task 1: When a model was not presented, the judges' mean ratings for intricacy were 3.07 for the MCS and 2.74 for the LCS (Table 5). Middle-class children build more intricate structures with more angles and lower-class children built more simple, unelaborate structures; however, this difference was not statistically significant.

Task 2: The model structure was unelaborate and simple on the intricacy criteria for the complexity rating. When the model was presented and removed,

Table 6. Comparison of Scores of Middle-Class Subjects in Three Testing Situations

Variable	Comparison		Comparison		Comparison	
	Model Not Presented and Model Presented and Removed		Model Presented and Removed and Model Pre- sented and Retained		Model Not Presented and Model Presented and Retained	
	Mann Whitney U		Mann Whitney U		Mann Whitney U	
Complexity: Number of Blocks	26.5*		43		28 *	
Complexity: Intricacy	29.5		43		19 **	
Balance	36		39.5		16 ***	
Unity of Structure	41.5		42.5		31.5	
Representativeness	31.5		42		21 **	
Aesthetic Qualities: Relationship of Parts	37		47		37	
Aesthetic Qualities: Use of Color	41		46		38	
Imitative	--		36		--	

*Significant at .10 level

**Significant at .05 level

***Significant at .02 level

Table 7. Comparison of Scores of Lower-Class Subjects in Three Testing Situations

Variable	Comparison		Comparison		Comparison	
	Model Not Presented and Model Presented and Removed	Mann Whitney U	Model Presented and Removed and Model Pre- sented and Retained	Mann Whitney U	Model Not Presented and Model Presented and Retained	Mann Whitney U
Complexity: Number of Blocks	29		48		29.5	
Complexity: Intricacy	45.5		47		49.5	
Balance	38.5		46.5		38.5	
Unity of Structure	32.5		46.5		37.5	
Representativeness	25.5*		44.5		33	
Aesthetic Qualities: Relationship of Parts	47.5		41		46.5	
Aesthetic Qualities: Use of Color	30.5		37		48	
Imitative	--		41.5		--	

*Significant at .10 level

the judges' mean ratings for intricacy were 2.24 for the MCS and 2.57 for the LCS (Table 5).

Task 3: When the model structure was presented and retained, the judges' mean ratings for intricacy were 1.89 for MCS and 2.71 for the LCS (Table 5). This difference was not significant.

For the middle-class children the mean scores for intricacy of structures decreased after the model was presented. The mean scores for the structures built by lower-class subjects deviated only slightly when the model was presented and removed. Also the structures of the MCS became less intricate with fewer angles when a model structure was presented and retained. The difference between the intricacy of the structures built by MCS when no model was presented and retained was significant at the .05 level (Table 6). The intricacy of the structures built by LCS was not affected by a model being given. The intricacy of the structures of lower-class group under the three conditions did not differ significantly. Perhaps this indicates that lower-class children are not as affected by adult models as middle-class children.

Balance

Balance was defined on a five point scale from "asymmetrical, informal balance" to "a symmetrical, formal balance structure."

Task 1: When a model was not presented, the judges' mean ratings for balance were 2.59 for the MCS and 2.67 for the LCS (Table 5). This difference was not significant. Lower-class children built slightly more symmetrical and formally balanced structures than middle-class children.

Task 2: When a model was presented and removed, the judges' mean ratings for balance were 3.51 for the MCS and 3.10 for the LCS (Table 5). This difference

was not significant. It should be noted that the structures for both groups became more symmetrical with the presentation of a symmetrical model.

Task 3: When the model was presented and retained the judges' mean ratings for balance were 4.13 for the MCS and 3.16 for the LCS (Table 5). This difference between the two groups' scores was not significant.

When the model was given, the middle-class children's structures became much more symmetrical and formal in balance. The difference between the balance scores of the MCS when a model was not presented and a model presented and retained was significant at the .02 level (Table 6). The LCS structures became only slightly more symmetrical when the model was presented (Table 7). Significant differences were not observed in the balance of the structures of the LCS.

Unity of Structure

Unity of structure was rated on a five point scale from "a randomly placed, dispersed and scattered block structure" to "a planned, unified structure presented as a whole."

Task 1: When the model was not given, the judges' mean rating was 4.07 for the structures of the MCS and 3.58 for the structures of the LCS (Table 5). The structures of the middle-class children tended to be more unified and planned than those of the lower-class children; however, this difference was not statistically significant.

Task 2: When the model was presented and removed, the judges' mean ratings on unity of structure were 4.45 for the structures of MCS and 4.23 for the structures of the LCS (Table 5). This difference was not significant.

Task 3: When a model was presented, the judges' mean ratings on units of

structure was 4.6 for the MCS and 4.08 for the LCS (Table 5). This difference was not significant. The children's structures became more unified and planned when a model was presented; however, the difference in the structures of the two groups was not significant.

The children's structures became more unified and planned when a model was presented; however, the unity of the structures of the two groups did not change significantly during the three testing situations.

Representativeness

Representativeness was defined on a five point scale from "a non-representational object that does not represent any form or object" to a structure that had "close resemblance to a form, shape or object."

Task 1: When a model was not presented, the judges' mean ratings on representativeness of structures was 2.61 for the MCS and 2.09 for the structures of the LCS (Table 5). Four-year-old children of both classes tended to build non-representational structures; however, the two groups did not differ significantly in this respect.

Task 2: When a model was given and removed the judges' mean ratings on representativeness were 3.5 for the structures of the MCS and 3.2 for the structures of the LCS (Table 5). This difference was not significant.

Task 3: When a model was presented and retained, the judges' mean ratings on representativeness were 3.97 for the structures of the MCS and 2.86 for the structures of the LCS (Table 5). This difference was significant (Table 4).

The middle-class children built structures more representative of an object when a model was presented and retained. The difference in scores of this group with no model and a model presented and retained was significant at

the .05 level (Table 6). The lower-class children's structures were more representative when a model was given and removed (Table 7). This was significant.

Aesthetic Qualities-Relationship of Parts

In constructions where the parts are related in proportion to one another (i.e., the garage is related and perhaps connected to the house; the garage is somewhat smaller than the house which is the main structure), according to adult standards the structure is more pleasing therefore, more aesthetic. In this study, the criteria for rating this aesthetic quality, ranged on a five point scale from "parts of the structure relate to one another" to "parts of the structure are non-related."

Task 1: When a model was not given, the judges' mean ratings on the relationship of the parts of the structure were 2.18 for the structures of the MCS and 2.31 for structures of the LCS (Table 5). This difference was not significant. The four-year-old children of both classes built structures in which the parts tended to relate to one another.

Task 2: When a model was given and removed, the judges' mean ratings for the relationship of the parts were 1.84 for the structures built by MCS and 2.34 for the structures built by the LCS (Table 5). This difference was not significant.

Task 3: When a model was given and retained, the judges' mean ratings on the relationship of parts were 1.84 for the structures built by the MCS and 2.29 for the structures built by the LCS (Table 5). This difference was not significant.

In this experiment, the middle-class children tended to build more related

structures when a model was presented and removed than when no model was presented. The lower-class children built somewhat less related structures; however, the differences for the two groups was not statistically significant.

When a model was presented and retained, the parts of middle-class children's structures tended to relate to one another more than when a model was not given. However, this was not statistically significant. The scores for the structures built by lower-class children remained relatively stable, indicating that for this group the relationship of the parts of their structures was little affected by models.

Aesthetic Qualities-Use of Color

This five point scale for rating the structures on use of color went from "unplanned use of color" to "planned use of color." The colors of the blocks used were: blue, green, orange, purple, red, and yellow.

Task 1: When a model was not given, the judges' mean ratings on use of color were 1.91 for the MCS and 2.41 for the LCS (Table 5). This difference was not significant.

Lower-class children were rated slightly higher than those of the middle class on planning the use of color in their structures. However, both groups scored quite low on planning in use of color. Perhaps this indicated that four-year-old children of both classes do not build structures according to a color scheme but perhaps depend more on the shapes of blocks.

Task 2: When a model was given and removed, the judges' mean ratings on the use of color were 2.51 for the structures built by the MCS and 1.99 for those built by the LCS (Table 5). This difference was not significant.

The middle-class children tended to plan the color of their structures

more when a model was presented and removed than when they were not given a model. The lower class children tended to plan the color of their structures more when a model was not presented.

Task 3: When a model was given, the judges' mean ratings on the use of color were 2.57 for the MCS and 2.43 for the LCS (Table 5). This difference was not significant.

Regardless of a model, both classes of four-year-olds did not plan the color of their structures. The scores of both groups did not differ significantly from one testing situation to another.

Creativity

Creativity as defined on the criteria for rating block constructions ranged from "the unique use of blocks or shapes" to "an ordinary common use of blocks or shapes."

Task 1: When a model was not presented, the judges' mean ratings for the structures built by both classes was 2.61 (Table 5). This was not significant.

The structures were not rated on creativity when a model was presented and either retained or removed because it was assumed imitation would occur.

Imitative

Imitative as defined in the criteria for rating block constructions ranged from "highly imitative of (close resemblance to) model garage" to "structure independent of model garage."

Task 2: When a model was presented and removed, the judges' mean ratings on imitation were 2.73 for the MCS and 3.03 for the LCS (Table 5). This difference was not significant.

Middle-class children tended to imitate the adult model to a slightly greater degree than lower-class children. However, the two groups did not differ significantly in this respect.

Task 3: When a model was presented and retained, the judges' mean ratings on imitation were 2.24 for the structures of the MCS and 3.35 for the structures of the LCS. This difference was not significant.

Lower-class children tended to build structures that were more independent of the model garage than the middle-class children. However, the difference was not statistically significant. Neither group appeared to be affected by the retention of the model. There was not a significant difference between the MCS' scores in the two situations or between the LCS' scores in the two situations.

Discussion

In each of the three testing situations the lower-class children used more blocks. The lower-class subjects used 28, 19, and 20 blocks respectively in the three tests; the middle-class children used 22, 13, and 13 respectively. Perhaps, the lower-class children had a greater need to experiment with the blocks than the middle-class children, therefore utilized many more in their structures. It is also possible that the process of manipulating and using the blocks (the process) was more important than the product for the lower-class children. Possibly this is because the lower-class children were not as familiar with the parquetry blocks or perhaps, the lower-class group in this study could not see how the shapes related to one another as easily as children in the middle-class group, therefore, the lower-class subjects experimented and utilized a greater number of blocks.

Both the middle-and lower-class children used fewer blocks when a model,

utilizing less than one half the blocks was presented and either removed or retained. Perhaps, the subjects inferred that it was acceptable not to use all the blocks because the tester did not utilize all the blocks. The middle-class subjects were more affected by the presentation of a model, both when it was removed and when it was retained. They used significantly fewer blocks. Statistically the lower-class children were not significantly affected by the given model in either situation. Perhaps, middle-class children are more adept at understanding adult expectations or imitating adult models than the lower-class children. If this is true, it is possible that middle-class children experience more adult/child interaction than lower-class children and therefore, are more affected by an adult model. Also it was found by others that the middle-class child is more task-oriented and competent in this than the lower-class child (Kohn, 1959; Lueptow, 1965).

The middle-class children built more intricate structures than the lower-class children on the first task. However, the third task with the presentation of a simple model, the structures of middle-class children became significantly less intricate. The difference was significant at the .05 level for the middle-class children. The structures of the lower-class children were not significantly affected in intricacy. This factor could also support the findings by Kohn (1959) and Lueptow (1965) that middle-class children are more task-oriented and possess a greater personal competence in task contexts than will lower-class children. Olim's study (1967) of lower-and middle-class mothers, could also be relevant in supporting how this is effected in young children. Olim found middle-class mothers tended to use more positive instructive language and are personally subjunctive and cognitively rational-oriented while the lower-class mothers tended to use more imperative language and tended to be more status-normative. This seems to explain one reason why middle-class children are more

task-oriented than lower-class children.

With the presentation and retention of a symmetrical model, the structures of middle-class children became more symmetrical. The difference in performance on the first and third tasks was statistically significant at the .02 level. The structures of the lower-class children varied little in balance on the three tasks. In this aspect of construction the middle-class subjects were again more significantly affected by the presence of a model.

Middle-class children built structures that were more representative of an object when a model was presented and retained. The difference between the structures of lower-and middle-class children on representativeness was found to be significant. This reflects their apparent great skill in imitation and orientation to task performance. A comparison between the performance on the first task and the performance on the third task was found to be significant at the .05 level for the middle-class children. Structures of lower class children were only slightly more representative when a model was given and retained. Perhaps, this would be that middle-class children tended to infer that they were "supposed" to copy the model structure, therefore, their structure tended to resemble the properties of the model garage to a greater degree.

On both unity of structure and the relationship of the parts of the structure, the first structure of both lower-and middle-class children became more unified and related when a unified model was presented; the unity of the structures remained relatively stable in all three testing situations.

The performance of the two groups on the three testing situations appears to support the following: (1) Middle-class subjects are more affected in their block building by the presentation of a model, especially if it is retained. (2) Lower-class subjects may be more involved in experimentation with materials and more process-oriented, rather than product-oriented. (3) The middle-class

subjects seemed to understand the tasks better and were more responsive to directions; therefore, more task-oriented. (4) The lower-class children seemed to have a shorter attention span and were not as involved in producing a product as were the middle-class children.

The results of this study support others which indicate lower-class children enter school with attitudes and a performance potential which will make it more difficult for them to experience success in the task-oriented classroom. Perhaps because of lack of experiences and support for imitative behavior they are less oriented to imitation of the adult models, therefore, less able to "play the game" necessary to acquire the basic skills for school achievement.

Testing of Hypotheses

Hypothesis 1:

Hypothesis 1 stated that when a model is not provided that there was no significant difference in the block building of children of different socio-economic levels in terms of:

- a. Complexity-number of blocks
- b. Complexity-intricacy
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color
- h. Creativity

Using the Mann Whitney U, no significant differences were found on any of the eight criteria. Therefore, the hypothesis could not be rejected as stated.

Hypothesis 2:

Hypothesis 2 stated that when a model is provided and removed there was no significant difference in the block building of children of different

socio-economic levels in terms of:

- a. Complexity-number of blocks
- b. Complexity-intricacy
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color
- h. Imitation

The first difference, complexity-number of blocks was found to be significant. No significant differences were found in testing the other seven characteristics. The lower-class children utilized a larger number of blocks in their constructions than did the middle-class children. Perhaps this could indicate a tendency toward compulsiveness and control on the part of lower-class children; or perhaps the lower-class subjects were still at the experimentation level and needed to utilize all the blocks (Erikson, 1950; Piaget, 1952). The middle-class children could have been more familiar with the blocks and did not need to experiment. If this is true it could be that the middle-class children could have had a product in mind and were able to stop building when they completed their structure, while lower-class children were still in the process stage, where the process is more important than the product. Therefore, only when the process, utilizing many or all the blocks, was completed did the product or result become important.

Hypothesis 2, with the exception of (a) Complexity-number of blocks, could not be rejected. Hypothesis 2a was rejected.

Hypothesis 3

Hypothesis 3 stated that when a model is provided and retained there is no significant difference in the block building of children of different socio-economic levels in terms of:

- a. Complexity-number of blocks
- b. Complexity-intricacy
- c. Balance
- d. Unity of Structure
- e. Representativeness
- f. Aesthetic Qualities-relationship of parts
- g. Aesthetic Qualities-use of color
- h. Imitation

The difference in the rankings of the two groups on each of the above characteristics except for representativeness, was found not significant. The difference in representativeness was found significant. Middle-class children built structures more representative of an object when a model was presented and retained. Lower-class children's structures were only slightly more representative when a model was given and retained. Perhaps, it could be that middle-class children tended to infer that they were "supposed" to copy the model structure, therefore, their structures tended to resemble the properties of the model garage to a greater degree. Also by the third task, perhaps the judges were more conditioned as to what a garage "should look like" according to the building capabilities of four-year-olds and tended to be more discerning in their evaluation of representativeness. Or it is possible that even in the third task, some of the lower-class children were still experimenting with the blocks and unconcerned about the product. (This would be supported by the taped conversations in which several of the lower-class children needed to be reminded that they were building a garage. Their attention deviated from the assigned task during the building process.)

Hypothesis 3 a, b, c, d, f, g, and h could not be rejected. Hypothesis 3e was rejected.

Hypothesis 4

Hypothesis 4 b, c, d, e, f, g could not be rejected. The scores of middle-class children were not significantly different when no model was

presented and when a model was presented and removed. Hypothesis 4a was rejected. The number of blocks utilized by middle-class children in block constructions was significantly different at the .10 level when a model was presented and removed in comparison when a model was not provided.

Hypothesis 5

The scores of the middle-class children were not significantly different when a model was presented and removed and when a model was presented and retained. Therefore, no parts of hypothesis 5 could be rejected.

Hypothesis 6

Hypothesis 6 d, f, g, could not be rejected. The scores of middle-class children were not significantly different when no model was presented and when a model was presented and retained. Hypothesis 6 a, b, c, e were rejected. When a model was presented and retained the middle-class children's structures employed fewer blocks, significant at .10 level; were less intricate, significant at .05 level; were more balanced, significant at .02 level; were more representative, at .05 level, than when no model was provided.

Hypothesis 7

Hypothesis 7 a, b, c, d, f, g could not be rejected. The scores of the lower-class children were not significantly different when no model was provided and when a model was provided and removed. Hypothesis 7 e was rejected. The representativeness of the lower-class children's structures was significantly different at the .10 level when no model was presented and when a model was presented and removed.

Hypothesis 8

Hypothesis 8 a, b, c, d, e, f, g, h could not be rejected. The scores of the lower-class children were not significantly different when a model was provided and removed and when a model was provided and retained.

Hypothesis 9

Hypothesis 9 a, b, c, d, e, f, g could not be rejected. The scores of the lower-class children were not significantly different when no model was provided and when a model was provided and retained.

CHAPTER V

LIMITATIONS OF THE STUDY

- (1) Perhaps the structure of the testing situation did not permit the child freedom to be as creative or involved in the elaborate dramatic play for which according to Johnson (1933) four-year-olds are maturationally ready.
- (2) The use of a simple, unified model may have limited the constructions of the more skilled and caused them to be less interested in the task.
- (3) The lower-class subjects might have responded with greater imitation if it has been made clear that they should imitate the model. The middle-class subjects may be more responsive to subtle requests.
- (4) The children in the pictures of the block constructions could have affected the judges' ratings. This is a variable that could have been eliminated.

CHAPTER VI

SUMMARY

Block building is one of the activities in which the young child has the opportunity to relate to materials and through manipulation create a product based on ideas or concepts. Children's block building involves many aspects of their growth and development. It is an activity which fosters expression of intellectual concepts and perceptions as well as promotes development of physical-motor skills. The placement of blocks depends on motor skills and/or an understanding of the possible relationships among the forms.

The objective of this study was to determine the differences between children of different socio-economic classes in their creativeness in block building and the degree to which they imitated an adult model. This objective was achieved by testing each child in three specifically designed tasks.

Twenty children, ten lower-class and ten middle-class, were tested in a specially arranged room. The room was equipped with a small table, two small chairs, two sets of parquetry blocks, a bookcase, a tape recorder and a stand and a camera. The entire session was taped.

The three tasks were:

Task 1: No model was presented and the child could build whatever he desired.

Task 2: An adult model garage was presented to the child and removed. The child was then asked to build a garage.

Task 3: An adult model garage was presented and retained. The child was given another set of identical blocks and asked to build a garage.

Pictures were taken of the child and his construction after he completed each building to be used by the judges to score the constructions on creativity, imitation, complexity, balance, unity of structure, representativeness, and aesthetic qualities-the relationship of parts and use of color.

(1) Both middle-and lower-class children used fewer blocks when a model was given. The middle-class children seemed to conform more to the model structure in terms of the number of blocks used.

(2) The mean scores on intricacy decreased significantly for the middle-class subjects after the model was presented and retained. The structures of the middle-class children became less intricate and had fewer angles. The intricacy of the structures of the lower-class group under the three conditions did not differ significantly.

(3) The structures of the middle-class subjects became more symmetrical and formal in balance with the presentation of a model. The structures of the lower-class subjects became only slightly more symmetrical when the model was presented.

(4) The children's structures became more unified and planned when a model was presented; however, this change was not significant in the three testing situations.

(5) The middle-class children built structures more representative of an object when a model was presented and retained. The difference in scores for the middle-class group with no model and a model presented and retained was significant at the .05 level. The structures of the lower-class children were only slightly more representative when a model was given and either removed or retained.

(6) The middle-class children built more related structures when a model was presented. The lower-class children built somewhat less related structures;

however, the differences for the two groups was not statistically significant.

(7) Regardless of a model, both classes of four-year-olds did not plan the color of their structures. The scores of either group did not differ significantly from one testing situation to another.

(8) When a model was not presented, the judges' mean ratings on creativity for both groups was 2.61. This meant that both groups used the blocks in a similar yet unique manner and therefore ranked the same.

(9) Lower-class children built structures that were more independent of the model garage than middle-class children. However, this difference was not statistically significant.

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CREATIVE CONSTRUCTION OF LOWER-
AND MIDDLE-CLASS CHILDREN

by

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Block building is one of the activities in which the young child has the opportunity to relate to materials and through manipulation create a product based on ideas or concepts. Children's block building involves many aspects of their growth and development. It is an activity which fosters expression of intellectual concepts and perceptions as well as promotes development of physical-motor skills. The placement of blocks depends on motor skills and/or an understanding of the possible relationships among the forms.

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Pictures were taken of the child and his construction after he completed each building and used by the judges to score the constructions on creativity, imitation, complexity, balance, unity of structure, representativeness, and

aesthetic qualities.

Tendencies for certain behaviors of lower-and middle-class four-year-old children were observed in this study. The following differences were found to be significant at the .10 level: (1) when a model was presented and removed, the middle-class children used fewer blocks than the lower-class children; (2) when a model was presented and retained, the middle-class children built structures that were more representative than the lower-class children; (3) in performance on the three tasks the structures of the middle-class children changed significantly in the number of blocks used, intricacy, balance and representativeness; (4) the presentation of an adult model affected the structures of the lower-class children only on representativeness.

In this study the lower-class children were less affected by the presentations of an adult model structure than the middle-class children in building block constructions.