THE EFFECT OF AGE AND SEX ON THE CHOICE OF PLAY ACTIVITY BY THREE AND FOUR YEAR OLD CHILDREN IN DAY CARE CENTERS

by

Lillian Larsen Hanahan

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SIGNED: Lillian Hanahan

APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

Vivian Cox
VIVIAN COX
Assistant Professor of
Elementary Education

May 27, 1975
Date

PREFACE

During the fall of 1974 while my husband was doing research at the University of Ottawa I did the observations of children at play, which are discussed in this paper, in day care centers in Ottawa, Canada. The children in these six Canadian Day Care Centers behaved no differently than children I had observed and taught in Tucson, Arizona and Seattle, Washington. They belonged to families with low, medium, and high incomes, with the same ethnic origins as do United States families, and with some of the same social problems plaguing contemporary Unites States families: frequent divorces, one-parent homes, financial struggles, and high job mobility.

The Day Care Centers I visited were assisted under the Ontario Day Nurseries Act with funds for the initial equipment and staffing of child development centers. After the centers were established support came from tuition paid by parents who could afford to pay or by the welfare department for parents who could not pay but needed the service.

The staff characteristically consisted of well-educated and trained directors, teachers with varying amounts of experience and training, plus a cook and janitor. The educational philosophy of the staff differed in each center but each provided a "free-choice" play time for children and it was during this time that I observed.

In all six centers the children were presented with planned and well-equipped environments, designed to stimulate the development of a variety of skills, and the children were allowed to choose freely the

materials and activities in which they wished to participate. These situations which presented children with a number of different options from which they might choose their own play activity were ideal environments for my purpose which was to observe the kinds of play choices made by three and four year old children. Why I chose this subject and its importance in early childhood education will be discussed in the pages that follow.

I wish to express my appreciation of the encouragement and loving support given me by my husband and my deepest gratitude for the inspiration, thoughtful criticisms, and sustaining interest provided by my teachers and advisors: Dr. Vivian Cox, Dr. Ruth Kingsley, and Dr. Sally Hamod.

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ABSTRACT

The purpose of this study was to investigate whether age and sex are factors in the play activity choices of young children. This problem is important since most educational programs and curricula for children are organized around age and occasionally around sex groupings.

Early childhood is a critical period in the development of many skills, including cognitive, linguistic, social, and physical. Whether educational programs and teaching practices are based on age or sex or on some other base can have significant effects on the way the growing child develops.

The procedures used in this study involved observation by the investigator of twenty children, aged three and four years, in six day cay centers in Ottawa, Canada. The findings revealed no significant differences in the choices of play activities due to age or sex. The conclusion of the investigator is that the individual differences among children of three and four years are great and that preschool programs should be planned to individualize opportunities for the young child to develop a variety of skills at his own pace and according to his own patterns.

CHAPTER 1

INTRODUCTION

The present investigation is an outgrowth of some concerns on the part of parents and educators of young children and of some trends in the area of early childhood education. The concerns stem from the changing child-rearing patterns in contemporary society where young children often spend many hours each day away from his parents and his family home in a variety of child care settings. Such concerns involve considering whether these child care centers are providing the young child with the guidance, encouragement, and educational opportunities necessary for the normal and balanced development of his personality, intellect, social, moral, and physical being. Many questions have yet to be answered about what kinds of educational experiences, interpersonal interactions, adult modeling behaviors, and nurturance by caregivers and peers that each child in such environments requires in order to achieve a healthy and personally satisfying level of development. We are not sure how best to manage children's early environments, but the research of Bloom (1964, p. 48) who derived this rule from his evidence: "The environment will have maximum impact on a specific trait during that trait's period of most rapid growth," and Bronfenbrenner and Maloney (1972, p. 125) who conclude that there is no argument about the "power of the environment in enabling the developing child to realize

his genetic potential," encourages us to evaluate what we are doing to children.

The trends involve the whole field of education and the responsibilities of society for the rearing of its children. Some of today's educational trends can be traced to Comenius (1956), 1592-1670, who urged individual instruction graded to match the child's development, Rousseau (cited by Fein 1962), 1712-1778, who insisted on confidence in the child's ability to choose to do things for himself according to his own needs, and Froebel (1895), 1782-1852, who recognized the importance of play as a vehicle for child learning. Dewey (quoted by Dewey and Dewey 1919, p. 10), 1859-1952, also recognized play as the key to learning by the young child: "the activities of the child...are the means by which he becomes acquainted with his world...and his own powers."

The nursery schools which evolved from these early philosophies emphasized the importance of the social and emotional development of the child through the media of play in environments planned to allow "unhurried and undictated looking, listening, and manipulation" (Davis 1932, p. 17). These early nursery school, which were characterized by open environments with an array of possible activities to be selected by the child according to his needs, became the model for the Day Care Centers which were created in response to the needs of parents for child care facilities in the 1960's.

At this time educational research revealed that large numbers of children from economically deprived families failed in elementary school and dropped out of high school. In response to these findings a variety of intervention programs were created to prevent such failure

and to optimize the cognitive development of preschool children. Some programs stressed parent training to encourage parents to become stimulators and motivators of their child's development. Some taught concepts directly to the preschool child through carefully structured lessons. Some sought through an enriched environment and through the provision of many and varied experiences to stimulate the child to develop at his own pace and in his own style to attain his maximum potential.

In the 1970's we see a concern for the child within the context of his family and the environment in which they live. Broad programs are being proposed, to be federally financed, which will provide family health services, job training and job counseling for parents as family support services in addition to child development centers to provide early education for all children. But we still do not know what is the best environment and the best program for young children. Shall children merely play as Dewey and Froebel suggested; shall they have lessons to match their developmental level as Comenius proposed; or shall children be allowed to choose their activities as Rousseau decided was natural and best? These options, proposed so long ago continue to be offered in a variety of educational systems. Some "Open Schools" in the United States and England provide the child with open spaces and freedom to choose from a variety of educational activities. Some schools encourage learning through play. Some give planned and programmed lessons.

We have yet to discover which is the most effective vehicle for the optimum and total development of the young child. If the child does choose his own learning activities how are these choices determined?

What factors contribute to his decision and his selection? The present study is an investigation of the possible effect of the age and sex of the child on his choice of activity. Many factors influence choice: surprise or novelty which has been investigated by Berlyne (1950), violations of expectancies by Charlesworth and Hartup (1967), and discrepancies from established schemas by Kagan (1970). The physical state of the child, his feelings of security, of being loved and accepted, of being a competent person influence the choice he makes from the options offered.

Who knows best what the child needs to know as he inhabits his own particular life space--the child himself, his parents, or his teacher? Teachers have traditionally organized educational activities according to age on the assumption that children of the same age have the same physical, social, and intellectual abilities. The research of Bayley (1965) in the physical area, Bruner (1964), Hunt (1966), and Piaget (1962) in the cognitive, and Isaacs (1964) in the social have revealed the enormous individual differences among children of the same age in each of these various traits. In addition, Piaget has shown that children cannot be taught basic concepts of space, time, or causality before they are developmentally ready; that while children progress through stages of intellectual development in a specific and universal sequence they do so at their own individual rate and when they have achieved the appropriate developmental level as well as the appropriate interest and motivation.

The above mentioned research also revealed that unevenness of development characterizes most growth. Some children will be

accelerated in the development of some traits and slow or retarded in others. Thus in any group of same aged children there will be many individual differences and the children will require correspondingly different learning experiences. Therefore, it follows that classrooms for children of any age should be oriented more toward the needs of the individual rather than the group, and toward allowing the individual to choose to learn what he is interested in and capable of learning.

Because of these individual differences we find children of widely varying abilities and interests living together in day care centers and schools, actively playing and interacting. What causes them to choose one activity rather than another? Is the child responding to a need to exercise and to release surplus energy; is he merely seeking pleasure and excitement; is he interested in finding solutions to the problems that confront him; or is he concerned to maintain his position as an accepted member of his peer group? There are numerous forces impinging upon the child at any one time, impelling him in one direction or another. Are the age and sex of the child influential factors in his choice of activity?

Motivated by such considerations and questions the present investigator began to observe preschool children in day care centers during times when they were allowed to choose their own play activity, in order to discover the preferred activities of young children and whether these were specific to particular age levels or to one sex or the other. If we are able to discover the factors that influence children to make the choices they do we may then be able to guide them into the learning situations that we believe they need in order to achieve their unique

and maximum development. If we are able to discover which activities children prefer we may be able to plan learning experiences within these kinds of activities in order to facilitate and accelerate the cognitive, social, and emotional development of young children.

We do know that when given the opportunity to do whatever they want to do young children will play. Therefore, the first step in a study of the factors which determine children's choices of play activity is a review of the literature of children's play.

CHAPTER 2

REVIEW OF THE LITERATURE

The literature that has been written on children's play is extensive. However, in order to understand what children are experiencing as they play it will be useful to review what has been written and discovered about the nature of play and the benefits the child derives from it. As the purpose of this investigator is to explore the influence of age and sex on the preschool child's choice of play, these factors will be reviewed in greater detail.

Additional questions, such as these that follow, may also be answered by this review. What are the characteristics of the play behavior of the preschool child? Are there obvious differences between the sexes in preschool play activities? Is age an important determiner of the young child's choice of play activity or are other factors more significant?

The literature and research findings relevant to these questions are discussed below under three topics: (1) Theories which explain why children play, (2) Descriptive analyses of the phenomena of play, (3) Experimental and empirical investigations of play. A summary of the findings and some conclusions which may be drawn from them follows the discussion of these topics.

Theories Which Explain Why Children Play

There have been many theories proposed to explain why children play. Those generally recognized are highlighted below under four categories suggested by Slobin (1964).

Biologically Oriented Theories

Gross (1901) considered play to be a growth mechanism useful in preparing the child for the struggle for survival and involving the practice of skills necessary for his future adult functions. The view of Hall (1906) was that the play of children recapitulates the history of the race and is the reenactment of past roles, experiences, and emotions of the race. Spencer (1873) elaborated on Schiller's (1875) suggestion to theorize that children play to use up surplus energy. Nissen, Chow and Semmes (1951) believed that the value of play lies in its development of the perceptual and motor patterns needed in life. While many have agreed with these biologically based theories it is generally agreed that this is only one aspect of play and tells us little about the choice and range of play activities.

Person-Oriented Theories

In Freud's (1938) early writings he contended that child's play was motivated solely by the pleasure principle. Later he included other motives such as mastery of conflicts and symbolic experiencing of forbidden pleasures. Wundt (1941) described play as a conscious or unconscious imitation of useful activities. Bühler (1935) conceived of play as an activity initiated by a desire for pleasure and carried on as long as it afforded pleasure.

Erickson (1950, p. 222) sees play as "the infantile form of the human ability to deal with experience by creating model situations... and master reality by experiment and planning." Through play the child is able to resolve inner conflicts and solve problems, according to Axline (1947).

Lifespace-Oriented Explanations

These theories focus on the child's interactions with objects and people in his world. As the child plays he develops a self image, learning his own identity and role as well as the roles played by other persons. He learns that it is necessary to follow certain rules as he plays games. As he accepts the necessity for rules he learns to master and to control his own behavior.

Lewin (1933) advanced the theory that play has to do with events belonging to the level of reality but determined by the child's own inner life-space, and that the behavior of the child depends upon the total situation including all inner and outer forces. White (1959) adds the importance of effectance motivation which is an inner attribute compelling the child to struggle to build up his competence in dealing with the environment.

Piaget (1962) seems to agree with this when he speaks of play as enabling the child to assimilate reality and to construct concepts of the world in which he lives. Also, according to Piaget, play forms the basis of all later intellectual functioning.

Socioculturally-Oriented Explanations

To completely understand the play of children one must consider the child's cultural milieu and the roles it requires him to perform. Slobin (1964) believes that by studying the role models children imitate most frequently one may discover the child's view of his social world and that his family and social position will be seen as determining factors in his choice of play activity.

Play activities are found by Anderson and Moore (1960) to be self rewarding and to provide the means by which children learn about and act out the workings of their society. The games children play, according to Roberts, Arth, and Bush (1959) give them models of approved social behavior and thus are one of society's teaching strategies. They classify games in this way: (1) games of physical skills in which self reliance is learned; (2) games of strategy in which social roles are learned; (3) games of chance in which responsibility and achievement are learned.

Murphy (1956, p. 16) concluded that "The play patterns of the children are a mirror of the culture which surrounds them, and this culture provided the raw material for their activity and fantasy."

Thus is child's play explained by some of the theorists. From their theories it appears that play has biological, emotional, cognitive, effectance, and cultural bases. One, several, or all of these elements may motivate the child's choice of play activity at any given moment.

Descriptive Analyses of the Phenomena of Play

The literature also yields descriptive analyses of play which add to our understandings of the activities in which children involve themselves. Some are based on the developmental stages of childhood, some on the content of the play activity, some on the drives motivating the child, and some on the goals to which the activities lead: satisfying curiosity, achieving knowledge, arriving at mastery and control.

The play of children varies according to their level of development. Erickson (1950) believes that the child moves through three stages of mastery as he grows: mastery of his body, mastery of materials and toys, mastery of other human beings. As the child achieves degrees of mastery by experiment and planning he achieves his self identity.

Piaget (1962) has found that development sets limits to what the child can do at any particular stage in his life. In the first stages the child merely assimilates, but very early he begins to experiment with objects and activities and to notice the results. Piaget organizes the play of children according to three developmental stages. At the developmental age 0-2 years, the games involve practice and the child gains in improved motor performance. At the developmental age 2-4 years his games are symbolic and he gains understanding and ability to express his feelings, creativity, and thoughts. At developmental ages 4-8 his games have rules and he gains in social participation and experience.

Millar (1968) also describes play developmentally. In infancy the child's play involves exploring and movement. In toddlerhood his

play involves sensory-motor manipulating and practicing. In childhood play involves the child in fantasy and make-believe with the use of symbols and the ability to distinguish pretense and reality. Social play occurs in all age groups and evolves from parallel play, 1-3 years, associative play, 2 years and up, cooperative play, 3 years and up, to group and gang play, 8-12.

Some descriptions of play are based on the function it serves in the child's life. Hartley and Goldenson (1952) list eight functions of play: to imitate adults, to play out real life situations, to reflect on relationships and experiences, to express pressing needs, to release impulses, to reverse roles usually taken, to mirror growth, to work out solutions to problems.

Lowenfeld (1935) believed that play reflects the child's needs for bodily activity, for repetition of experience, for demonstrations of fantasy, and preparations for life. She concluded that play is the expression of the child's relation to the whole of life.

Sutton-Smith (1971, 1974) analyzes the functions of play as being the forerunners of the knowledge which the child needs to know. Exploration play leads to causal-analytic understandings. Imitation play leads to one-to-one correspondence. Testing play leads to predicting. Construction play leads to coherence and finding out that things fit. Novelty training, the prototype of experience, and a subset of voluntary behavior are descriptions of play used by Sutton-Smith. He believes that mastery of skills precedes play which then becomes a process of selection, formulation, condensation, and organization of experience.

Some investigators describe play on the basis of its content or form. Hurlock (1934) finds these kinds of play to be universal: Free-Spontaneous, Dramatic, Day Dreaming (mental play), Constructive Play, and Games and Sports.

Omwake (1963) and Almy (1967) believe that the play of young children takes two forms: self-initiated or adult presecribed. The former develops wherever the child happens to be and the child learns and does whatever he wants and needs to do. Adult prescribed play is structured to give the child experiences considered beneficial, useful, or necessary by society.

Other descriptions are based on the drives that motivate the child to play. The research of Berlyne (1950) reveals that novelty of object or situation inspires certain play responses and that curiosity about such novel stimuli keep the child actively involved.

White (1959) stresses the effectance motive which compels the child to aim for feelings of efficacy as he encounters the variety of objects, experiences, physical and social environments. As the child gains competence through the medium we call play he accumulates knowledge and skill in dealing with his surroundings.

Instrinsic motives for learning are suggested by Bruner (1966). As the young child plays he takes in and sorts his impressions of the world and instructs himself as to its many variations. Much of children's play is practice in coping with the environment. Some of it is motivated by the child's need to attain a reciprocity in his social interactions. The play attitude, says Bruner, reduces external pressures

on an internal tensions within the child so that important learnings are easily absorbed and are fun.

From these brief summaries of theories and statements we have discovered some of the reasons that children play and some of the motivations which influence their choice of activity. Next we will review experimental investigations of children's play behavior. These will be groups for our purposes according to (1) age differences, (2) sex differences, and (3) environmental factors influencing play.

Experimental and Empirical Investigations of Play

1. Age differences in the play of young children arranged according to the date of publication of the research.

The play of children, as with other forms of development increases in complexity with increases in age. The infant begins to play in response to novel stimuli and continues as he experiences pleasurable motor and sensory sensations. At about three months the child begins to play with objects, at first predominantly with large muscles, later with smaller muscles (Hurlock 1934). The two year old's play is primarily solitary or parallel while the three and four year old begins associative and cooperative play (Parten 1933). Studies on the attention span of young children by Bott (1928), Bridges (1929), and VanAlstyne (1932) all agree that attention span increases with age as does the length of time spent with play materials.

However, Shacter (1933) found no significant differences in the sustained attention of three, four, and five year old children when studied under laboratory conditions and when removed from the stimulations of interactions with other children. Manwell and Mengert (1934)

found that three year olds exhibited greater language facility, more imaginative play, and more group play than two year olds.

Vance and McCall (1934) reported that preference for toy, stuffed animals decreases with advance in age and preference for creative materials such as clay, wood, and paper increases.

The size of the group in which children play increases with age: at three years two to three children may form a play group; at ages four or five, five or more may play together. Bühler (1935) suggests that before age two or three, children are not capable of attending to more than one person at a time, hence, they tend to play alone or along side another child or adult.

Barker, Dembo, and Lewin (1937) found that frustration causes regression in the constructiveness of play. This team also created a general scale of play development as did Gesell, Halverson and Thompson (1940).

A summary of the studies on play by Britt and Janus (1941) reveals that the amount of time spent in group play increases with age, that the play interests of preschoolers are predominantly in dramatic and physical activity and that by age four children enjoy testing their ability to perform skilled movements.

Piaget (1962) observed that during ages two to four symbolic games predominate as the child expresses his understanding of the way things and people behave and as he tries out these behaviors in a variety of roles.

In observing nursery school children at play Heathers (1955) noticed that dependence on teacher attention decreases with age, while seeking approval and attention from peers increases.

Intellectual development is revealed in play. Play projects grow in complexity and maturity with increases in age, according to a study by Lunzer (1959).

Barnes (1971) found that a group of preschoolers that he matched with those of Parten's classic study of the 1920's were less occupied in associative and cooperative play in 1970 than had been the case in the earlier study. He concluded that cultural and social changes influence children's choice of play activity and the amount of social interaction.

The amount of time a child spends in social interactions increases with age, according to Reuter and Yunik (1973) who found that four year olds spent 36.8 percent of their play time in social interactions and five year olds spent 40.3 percent. The duration of these interactions also increased with age.

The play of the four year old is highly elaborated and incorporates more elements than the play of three year olds which is most often simple and imitative, and Arnaud and Curry (1973) concluded that this indicated that tremendous cognitive growth has taken place within that year.

2. Sex differences as a factor in the play of preschool children have received much attention.

The findings in regard to preference for type of play activity are inconclusive. Bridges (1927) observed the occupational interests of three year olds in nursery schools and found that boys preferred large muscle, active play while girls preferred less activity and small muscle manipulations. Among three year olds she found that girls stayed longer with their occupations, but in a follow up study Bridges (1929) found no

such difference in a group of four year olds. Benjamin (1932) found differences in toy choices, boys choosing cars and girls, dolls. Vance and McCall (1934) noticed that boys preferred woodwork, large blocks, and materials which require large muscle activity while girls prefer housekeeping and creative materials. Hubsch and Reininger (1931) reported that while both sexes participate in considerable physical exercise, boys prefer to master the technical, inanimate world and to increase their bodily strength, and girls choose to pursue social and subjective goals. In a group of two and three year olds observed by Manwell and Mengert (1934) boys engaged in more active physical play than did girls. Britt and Janus (1941) concluded that boys engaged in more physical and organized play and that girls engaged more in social games and unorganized play. Clear sex differences in the play interests of nursery school children were noticed by Fling and Manosevitz (1972). They also observed greater parental pressure toward sex appropriate behavior in boys.

Playmates tend to be chosen on the basis of sex. A study by Challman (1932) found that young children choose their friends on the basis of same sex and like age. Parten (1933) observed social play and found that two-thirds of two-child play groups are unisexual and that the majority of favorite playmates are of the same sex. McCandless and Hoyt (1961) observed that preschool children prefer play companions of their own sex. Terman (1925) studied the relation of intelligence to play and found that gifted children show less sex preference in the choice of playmates.

The studies of the play behavior characteristic of boys and girls produced varying conclusions. VanAlstyne (1932) found that the similarities in the play of young children were greater than the differences. The study by Shacter (1933) showed that preschool girls have a longer period of sustained attention than boys, but with increasing age there is a decrease in the difference between the sexes in regard to attention span. Fales (1937) revealed a striking similarity between the vigorousness of the activities of preschool boys and girls. Their mean scores on a test of vigorousness were almost identical. Using a doll play technique Bach (1945) found profound sex differences in play behavior and in the amount of play fantasies. Boys produced more aggressive behavior and more hostile fantasies. Girls showed more productivity, greater nicety, more stereotyped fantasies.

In the use of social reinforcers Charlesworth and Hartup (1967) found that boys gave more signs of affection and personal acceptance than girls did. Goldburg and Lewis (1967) studied sex differences in the year old infant and found boys to be more independent and more exploratory, girls to be more dependent and less active, although both sexes enjoyed the same toys. Meschel (1970) noticed sex differences in aggression beginning at age three: boys show more physical aggression; girls show more dependency. In a study by Sutton-Smith (1974) involving the power manipulations in which young children engage while they play, these differences were found: boys spend more time concerned with power transactions and involved in large group activities, while girls spend less time in power struggles and tend to play in small intimate groups.

Sex-role development has been studied extensively in recent years. Rabban (1950) found that in children three to eight years boys showed a clear-cut masculine role at an earlier age than girls showed a feminine one. Brown (1957) also studied sex role preferences and found that girls in all age groups were more variable than boys. Boys showed a stronger preference for the masculine role than girls showed for the feminine role. Hartup and Zook (1960) found definite sex differences in their study of three and four year old nursery school children. They concluded that early childhood is an important period in sex role development, and that sex role preference by the male is a less complicated development than for females. The Toy-Preference Test created by Delucia (1963) was found to be an unreliable method for testing sex role identification. The research of Money (1970) revealed that the development of normal sexual behavior requires that the individual be labeled and raised in accord with one sex before he reaches the ages of three or four. Terman and Miles (1936) also concluded that play may assume an important role in establishing masculinity and femininity as distinct cores around which personality can be shaped.

3. Investigators have studied the environmental factors which influence the play of young children and their selection of materials for use in play activities.

Hall (1906) studied children's preference for dolls and found that they chose on the basis of feel and flexibility rather than on facial features. His observations led him to conclude that doll play reveals the child's mind.

Bott (1928) grouped toys according to their intrinsic qualities and found that raw materials such as sand and blocks were most favored

play materials. Two to three year olds tended merely to manipulate and explore, while three and four year olds made constructions and designs.

The work of Bühler (1935) led her to conclude that after four the child uses play materials as well as raw materials to make things, while before four he merely manipulates.

The most popular materials for the four year olds studied by Bridges (1929) were colored crayons for tracing and drawing and colored cubes and cylinders for constructions. Farwell (1930) also found that children were interested in drawing and in paper constructions for individual play and in blocks when involved in group play. Blocks, clay, and the doll corner were the most favored toys among children in the two to six age group according to VanAlstyne (1932).

Her research on attention span also revealed to Shacter (1933) that preschool children will spend more time with complex materials than with simple.

Updegraff and Herbst (1933) noted differences in children's reactions to two kinds of materials and concluded that clay encouraged imitation and social interactions while blocks encouraged mutual projects and cooperation. Children's preferences for play materials were also studied by Vance and McCall (1934). They found that children of four, five, and six prefer creative materials, housekeeping centers and playground apparatus.

Does changing the play environment change the play behavior of children? Cockrell (1935) found that it did. She found that children spend more time in a play environment which offers a variety of materials which allow for a variety of activities. Markey (1935) also noticed

that a spacious setting encouraged creativity in play activities. Johnson (1935) discovered that when the amount of play equipment is reduced the amount of undesirable behavior increases. When the amount is increased more active physical exercise and more interactions with play materials occur, as well as a decrease in undesirable behavior.

The study by Markey (1935) revealed that two to four year old children use materials symbolically and in personifications. After three and a half unstructured materials were given functional meanings and were used in make-believe play, Murphy (1957) observed that there were no significant differences in the choice of play materials before age three.

The frequency of choice of play materials was studied by McDowell (1937) who found that two and three year olds chose construction materials first, small muscle manipulation materials second, and those requiring considerable physical activity third. The holding power of a toy is a function of whether it is the right toy for the right age according to the investigations of Moyer and Gilmer (1956).

Novel stimuli will produce more responses and longer attention from nursery school children than will familiar, according to Cantor (1963) and Gilmore (1966). Changes in objects or environments attract the attention of young children whose bias toward novelty may be the basis for exploratory play, suggests Rheingold, Stanky, and Doyle (1964). Objects which present some sort of puzzle and tasks that involve rules are better at sustaining the attention of young children than novel objects that have few uses, according to Millar (1968).

Pulaski (1974) compared children's uses of simple unstructured materials such as paints and clay with structured materials such as Barbie and G.I. Joe dolls. She found that the structure built into the toys had little effect on the creativity of the resulting play. Some children with a high fantasy level play imaginatively with both kinds of materials; some with low fantasy simply manipulate both kinds of playthings.

Conclusions From This Appraisal of the Literature

The play of children is an important vehicle for the physical, emotional, social, cognitive, and moral growth of the child.

The form play takes increases in complexity with increments in age. The length of time a child plays at particular activities or games depends more on the interest value of the activity than on his attention span which is variable during the preschool years.

At first the children play alone or with a single person. As they get older they are able to and enjoy playing in larger and larger groups. The length of time spent in social rather than in solitary play also increases with age.

Symbolic games, make-believe, and dramatic play are important in the play life of the child as he builds conceptual, language, and social understandings. He continues to be primarily egocentric and exploratory.

The evidence on sex differences in the play behavior of preschool boys and girls is contradictory. Both enjoy similar creative materials, though the research indicates that boys are more physically

active and aggressive. Children tend to prefer playmates of their own age and sex, but many of these observed sex differences may be more the product of parental approval, adult modeling, and societal pressure than of biological differences.

Environmental factors influencing play include the materials, equipment, and space provided the young child. As the preschool child loses interest in stuffed animals and realistic toys, he begins to construct and create from the raw materials available in his environment. Ample space and materials encourage creativity and social cooperation. The quality of the space provided and the variety and complexity of materials influences child participation and satisfactions. Therefore, materials should be chosen carefully to meet the needs of young children as well as to suit the purposes which the parents or teachers have in mind. The goals of such persons will influence what is provided and what activities follow. If the intent is to encourage cooperative, group projects and social interacts, blocks, clay, and housekeeping materials should be available. For quiet, individual play puzzles, paper and crayons, novel objects to explore, and raw materials from which things can be made should be included.

The amount and variety of materials and equipment should be more than adequate for the ages and numbers of children involved. Some objects should be traditional and familiar, some should be novel and complex, but all should approximately match the competency levels of the children.

The above studies of play behavior have concentrated on the child of three years and up. Below this age child's play is mainly

solitary and exploratory. Below this age children are more dependent on adult guidance and stimulation and are less likely to make independent choices of play activity. For these reasons the present investigator decided to study the play choices of three and four year old children as they can be observed in the naturalistic setting of the Day Care Centers they attend.

CHAPTER 3

STATEMENT OF THE PROBLEM

Play is the word commonly used to describe what the young child does when he is given freedom to choose his activity. Much research and thought has been devoted to the subject of play by philosophers and psychologists. They have debated whether it is a meaningless activity or an educational experience for the developing child. Little agreement has been reached concerning the meaning of the term, play, except it is obvious to most who observe children playing that children enjoy play and, if given the opportunity, they will play all the time.

The purpose of the present investigation is to try to discover if there is any difference in the choices of play activity by three and four year old children and if such choices may be a function of the sex or age of the child.

The information derived from such an investigation may be useful in guiding teachers as they plan curricula and environments for young children. Whether there are sex differences in the play choices of young children and whether these are apparent at ages three and four will influence the way adults guide and teach them. It may be important for the responsible adults to know at what age play choices are determined by the child's conception of his role as a member of his sex group.

Since the literature reveals that there is no significant difference by age or sex prior to age three (Goldburg and Lewis 1967; Murphy 1956) this study focuses on the three and four year old child. The child at ages three and four is in a period of rapid physical and mental growth and if we can acquire a greater understanding of the child's play interests and preferences parents and teachers will be better able to organize experiences and teaching strategies to stimulate optimum development at each age level.

Another aspect of this problem relates to a major concern of early childhood educators, which is whether the young child learns more from direct instruction by teachers or from his own self-initiated, spontaneous play activities. If it is found that the child learns more through spontaneous play activities with resulting incidental learning than through direct instruction it may be more advantageous to change certain teaching methods and procedures now used in the education of the preschool child. If play is revealed to be a major vehicle for learning by the child, educators may be encouraged to plan curricula and environments to stimulate the most valuable kinds of play. Knowing more about the play preferences of children may enable the educator to place learning experiences within those preferred areas of activity and to stimulate increased development of skills and understanding on the part of the young child. Much will depend on the child's response to these options. Do his choices keep him involved in learning, motivated to explore in depth and curious about new objects and events, or do his choices lead him up blind alleys and away from significant developmental experiences? Our careful and detailed observations of children's

choices of activities in their natural play environments may give us answers to these questions and concerns.

Statement of the Hypotheses

The hypotheses which underly the study herein described are the following:

1. That age is not a factor which determines the play activity chosen by three and four year old children.
2. That sex is not a factor which determines the play activity chosen by three and four year old boys and girls.

If these hypotheses are found to be false then the alternate hypotheses will be accepted: That age and/or sex are factors which determine the choice of play activity by three and four year old children.

Definitions

1. A three year old child is a child between three years, zero months and three years, eleven months.
2. A four year old child is a child between four years, zero months and four years eleven months of chronological age.
3. Play: since there is no generally accepted definition of play, the definitions given by a number of authorities on the subject will be cited.

In 1900 Dewey, cited by Dewey and Dewey (1919) wrote that play consists of activities that are not consciously performed for the sake of any result beyond themselves.

Froebel (1895) believed play to be the highest level of child development and the spontaneous expression of his thoughts and feelings.

Isaacs (1964) defined play as the active dramatization of the inner world of fantasy as a means of maintaining psychic equilibrium and the safety valve for their hidden wishes and fears.

Lowenfeld (1935) suggests that play is the essential means by which the child passes from immaturity to emotional maturity.

Erickson (1950) defined play as an attempt to synchronize the bodily and social processes within the self and as the analogue of adult planning.

Piaget (1962) concluded that play permits the child to substitute an intellectual response by means of fantasy when he is not permitted to make it in reality and to organize and retain information that he has acquired in other situations.

Berlyne (1950) describes play as any behavior that does not have a biological function that we can clearly recognize.

Hartley and Goldenson (1952) considers that play is the way a child learns what no one else can teach him.

Caplan (1974) writes that play is a self discovery activity that teaches as it builds ego and creativity.

Sutton-Smith (1971) considers that play is the symbolization of the child's own experience and is the means by which the child comes to understand and to master his environment.

A summarizing definition useful in the present investigation is the following: play is an activity in which a child voluntarily engages for a variety of motives--some are internally felt and are derived from emotional, physical, mental, self-building tension releasing, and competency-developing causes, and some are externally stimulated by novel or familiar objects or social situations.

CHAPTER 4

RESEARCH METHODS

The subjects were:

1. Ten three year old boys and girls (five of each sex)
2. Ten four year old boys and girls (five of each sex).

Each child attended a neighborhood day care center in a multi-age group, ranging from fifteen to twenty-five in a group. The teacher-child ratio was one to ten or less. Some children were from working class or professional families; some were from families receiving financial assistance from government agencies.

Research Design

The observation of one three year old boy and girl for sixty minutes each and of one four year old boy and girl for sixty minutes each in each of six day care centers done by one observer was the investigatory technique used in this study.

The centers were randomly selected from the yellow pages of the telephone book using the method of random numbers. Each child was selected at random from the age group under study.

The controlled variables were age and sex of the child being observed. The observer was the same for all twenty subjects. The observer remained in the background or sidelines of the play environment. The

observer avoided interacting with the subjects, though some of the children were aware of the observer and were curious about her.

The observer wrote longhand notes as she watched each child for periods of sixty minutes each. These notes recorded what the child said and did and how he interacted with other children, adults, and equipment in the environment.

Each child was observed in his usual and familiar play area in the day care center he attended so that strangeness of the environment was not a factor influencing his choice of play activity.

This kind of observation was a frequent method of studying the behavior of the young child in the 1930's. Regarding this method Goodenough (1937, p. 478 and 479) wrote:

> different conditions of observations result in different conclusions by different workers on the same problem, and...generalizations must be made with extreme caution. However, if the trait to be studied would be destroyed by a formal laboratory set-up (as is the case with play) then recourse to observations made under informal conditions may be the only procedure that is feasible.

Despite this conclusion most of the research done in ensuing years tended to concentrate on the use of the experimental method in which child behavior was studied under strictly controlled laboratory conditions. But children do not react normally under laboratory conditions and their play behavior is difficult to measure. Piaget's revealing research on child's play relies on the method of careful observation of one child and his reactions by one observer. Because of the enormous contribution Piaget's findings have made to our understanding of child growth and development the observational method has gained acceptance again as a valid method for the study of the child.

Also it has become apparent to investigators of child development that the child's behavior is significantly influenced by the social systems in which he lives and that much research which studies the child under artificial experimental conditions is ecologically invalid, a term coined by Bronfenbrenner and Maloney (1972). The emphasis, they say, is now on studying the child in his natural environment where he is under the influence of many visible and invisible factors: physical space and materials, people in differing roles and relationships, and including the social meaning of these places, persons, and things. Such studies must combine the rigorous method of science with the study of the developing child in the contexts in which he lives.

Day Care Centers are the natural environments in which some preschool children live and grow. So are homes, nursery schools, and playgrounds. Why were Day Care Centers chosen to be the site for these observations instead of such other settings? Early childhood educators, in the face of a pressing public concern for a large number of children, economically deprived or culturally different, who are failing to achieve their full potential in public shcool, are currently creating curricula for the nursery school child which are designed to stimulate his cognitive development. This means that there is more teacher direction and teacher imposed structure influencing the activities of the nursery school child and less free choice of play activity on the part of such children.

Day Care Centers, which have adopted traditional nursery school environments and equipment have also tended to adopt the patterns and schedules used in the earlier nursery schools, which provided planned

areas for learning and play, but allowed the child to choose his activity according to his own particular needs with little teacher pressure or interference. Since the present investigator sought to determine the play preferences of three and four year old children rather than children's responses to teacher directed lessons and structured learning activities the Day Care environments offered a more unbiased view of choice of play activity on the part of the preschool child.

Data-Collection Procedures

The investigator went into six different Day Care Centers in the city of Ottawa, Canada, and observed randomly selected three and four year old children for an hour of the morning during which they were allowed free choice of activity. Some of these observations were recorded as children interacted within their playgroup in indoor playrooms of varying sizes and containing a variety of materials, and some were recorded in outdoor playgrounds with differing facilities and arrangements of equipment. While these environments differed in detail all were well planned to provide for the basic needs of young children to develop and exercise large and small muscles, to encourage social and emotional development, and to stimulate language and intellectual growth.

Data-Analysis Procedures

In order to relate the observed play behavior of these twenty children to their age and sex groups the investigator tallied their choices of play activity at every one minute interval, with a total of sixty per child. Each minute of the hour of observation was given one

tally and this was placed in the category representing the main activity in which the child was involved. These categories were created in order to enable the investigator to compare what children chose to do in one environment with what they chose to do in a differently equipped environment. These categories of activities are based on the intrinsic and universal quality of what the children were doing. The categories are defined as follows:

1. Large muscle activities included: running, jumping, climbing, sliding, riding tricycles, loading and pulling wagons, swinging, building with big blocks.
2. Small muscle manipulative activities included: using fingers and hands to manipulate objects, to arrange, to place, to pick up, to dig in sand with small objects, to pour and to fill water, etc.
3. Communications category refers to activities such as: talking, arguing, listening, laughing.
4. Movements through space involve transitional actions which take the child from one activity to another.
5. Pretend or make-believe activities are those in which the child shows by his behavior or speech that the activity is symbolic of some other kind of happening; i.e., a child pretends that a doll is a real baby, or that a tricycle is a fire engine, etc.
6. Observing or watching others: the child may be idle while observing or he may be doing something such as coloring or swinging and also noticing what other persons are doing.

7. Observing what happens as a result of his own or another's actions on objects. This may involve changes wrought in materials, toys, or arrangements of things.

The behavior of the child was tallied under each of these categories. The child may have been doing more than one activity at a time. Only one tally was used for each minute, but within a five minute interval all the activities would have been included in the count: for example, if talking while digging in the sand was the observed behavior, and if more talking than digging was happening three tallies would be placed under communication, and two under small muscle activity for digging in the sand.

The sixty tallies per child arranged under categories representing the fundamental or intrinsic quality of the activity were totaled per child, per age group, and per sex group and the resulting totals were compared for the purpose of drawing conclusions regarding the original hypotheses. The tables, figures, and discussions of them are found in the following pages.

Statistical Analysis of the Data

There are several problems associated with the use of statistical tests on data derived from observations of the behavior of three and four year old children. There is so much natural variability in the development of each child in all areas: physical, social, cognitive, self-confidence, curiosity, independence. Because of so many individual differences in any group of ten three year olds and ten four year olds it is questionable whether one can say anything as a result of

statistical analysis until one has a very large sample or extremely good control of the variables and assessment techniques.

Nevertheless, it was thought that some significance might be revealed if the data were subjected to a statistical test. The Mann-Whitney U test, which is said by Siegel (1956) to be a powerful test and an excellent substitute for the "t" test was used since it can be used with small independent samples of nine or more. The results of the computation are summarized in Table 1 (p. 38). It can be seen that no significant differences were found between the choices of activity by three year olds when compared to choices by four year olds except the category, observing other people ($p < .10$). Looking back to the original data (Appendix A) it is apparent that one three year old child with an unusually high score may have skewed the data.

In conclusion, while this is not as powerful a test as the "t" because of small N it is the only appropriate in this case. Considering the extremes of development at the ages three and four it seems that one must have a very large N before any significant differences in the choice of play activity will be observed.

CHAPTER 5

DISCUSSION OF THE FINDINGS

Table 1 shows the number of times each three or four year old child participated in the seven activities during the one hour of observed play. From these numbers one gets a picture of very active small children moving from one activity to another, manipulating things and muscles, talking and observing persons and things. The differences between the ten three year old children and the ten four year old children are not great and are found to have no statistical significance when subjected to the Mann-Whitney U test. The one activity revealing a significant difference, observing people, may have been statistically skewed because of one child's unusually large number of choices or may in fact be an activity preference of the three year old child. Because of the small number of children observed further investigation of this trait would be necessary in order to make a conclusive statement about it.

In Table 2 can be found the number of times each boy or girl participated in the seven activities and these can be seen to be very similar except in the case of the large and small muscle activities, where boys more often choose large muscle activities and girls more often the small. It can also be seen that girls talk more than boys at these ages. However none of these differences are statistically significant when subjected to the Mann-Whitney U test.

Table 1. Choice of Play Activity by Age.

Activity	Children		p
	Three Year	Four Year	
Large Muscle	186	228	...
Small Muscle	146	113	...
Communication	111	127	...
Transitional Movements	32	42	...
Observing People	81	41	.10
Observing Things	8	18	...
Pretend and Make-Believe	36	31	...

Table 2. Choice of Play Activity by Sex.

Activity	Boys	Girls	p
Large Muscle	234	180	...
Small Muscle	111	148	...
Communication	102	136	...
Transitional Movements	38	36	...
Observing People	68	54	...
Observing Things	16	10	...
Pretend and Make-Believe	31	36	...

Figure 1 illustrates the age factor. A comparison of the play choices of ten three year olds with those of ten four year olds shows that three year olds are less active in large muscle and more active in small muscle activities, change their activities less frequently, and pay less attention to changes wrought by their own interactions with materials and things. Three year olds spend more time watching other children and adults and noticing how they behave and the kinds of things they say and do.

Four year old children are more active and change their activities more frequently. Four year olds tend to observe the changes in objects and materials which result from their own actions such as the result caused by mixing two colors, or how blowing air through a tube causes bubbles in a tub of water.

Figure 2 illustrates the sex factor and shows that boys more often choose large muscle activities while girls choose small muscle and communicate more.

Figure 3 reveals that three year old boys use their large muscles in more vigorous play than do three year old girls. They talk less than girls at age three.

Figure 4 illustrates that at age four boys continue to be more physically active than girls of the same age. Girls of four years more often choose activities requiring skillful use of small muscles and continue to talk more. Boys appear to be slightly more observant of cause and effect and of changes in materials resulting from their actions on such things.

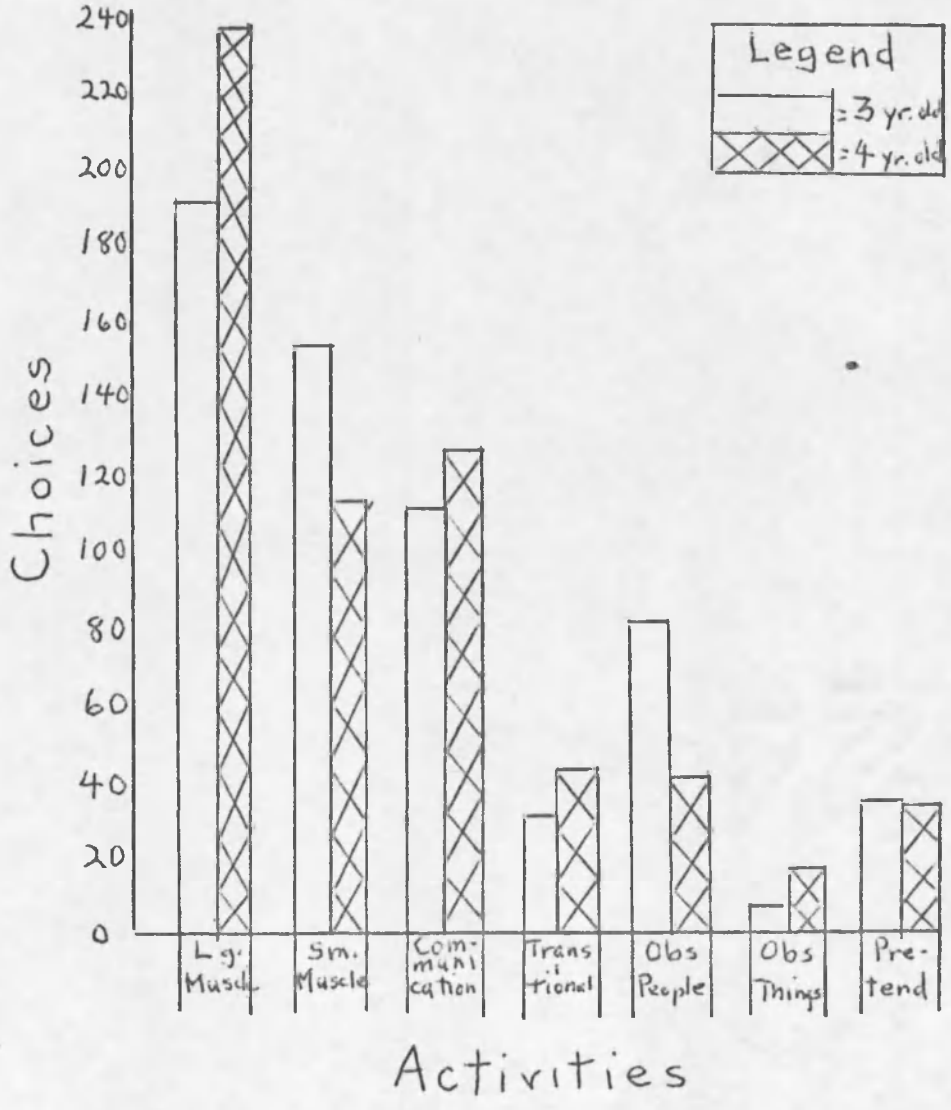

Figure 1. Choice of Play Activity by Age

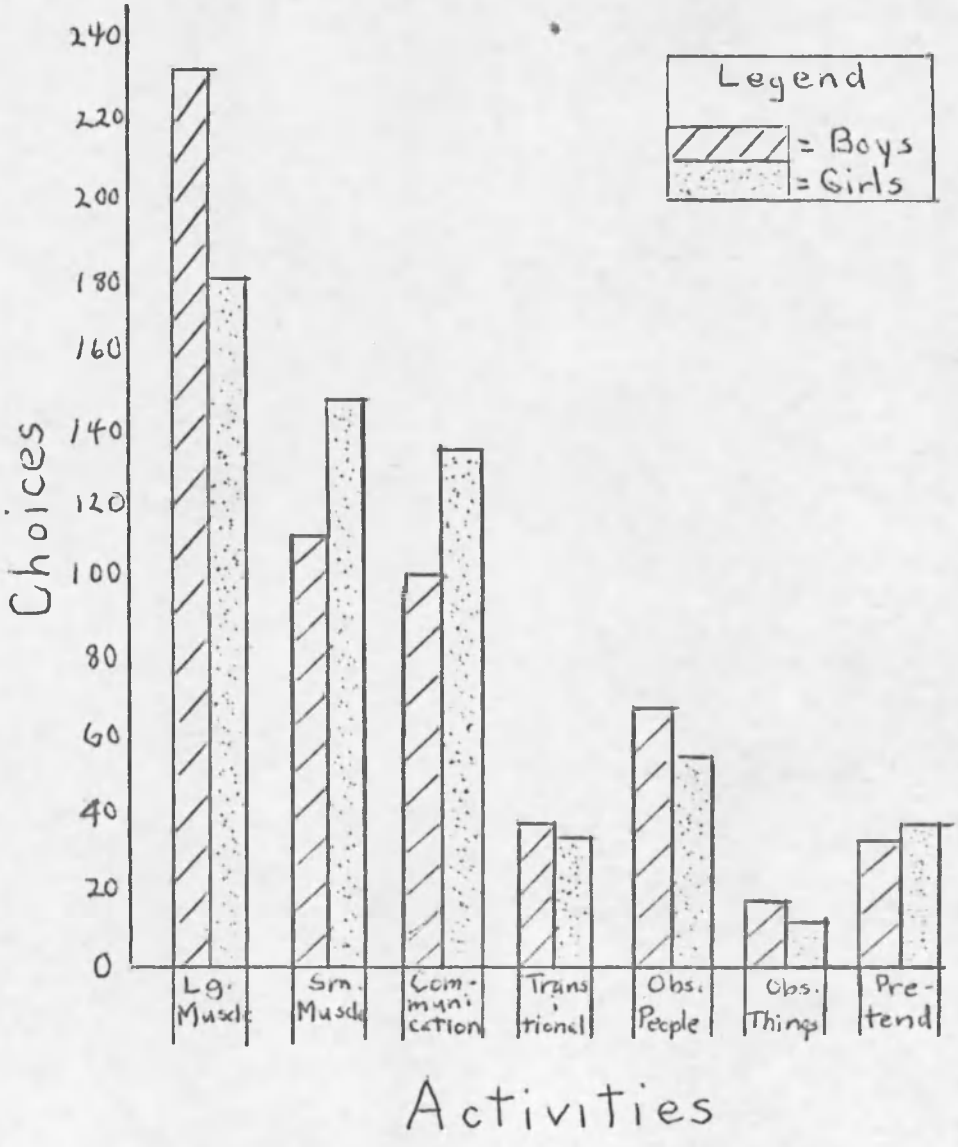

Figure 2. Choice of Play Activity by Sex

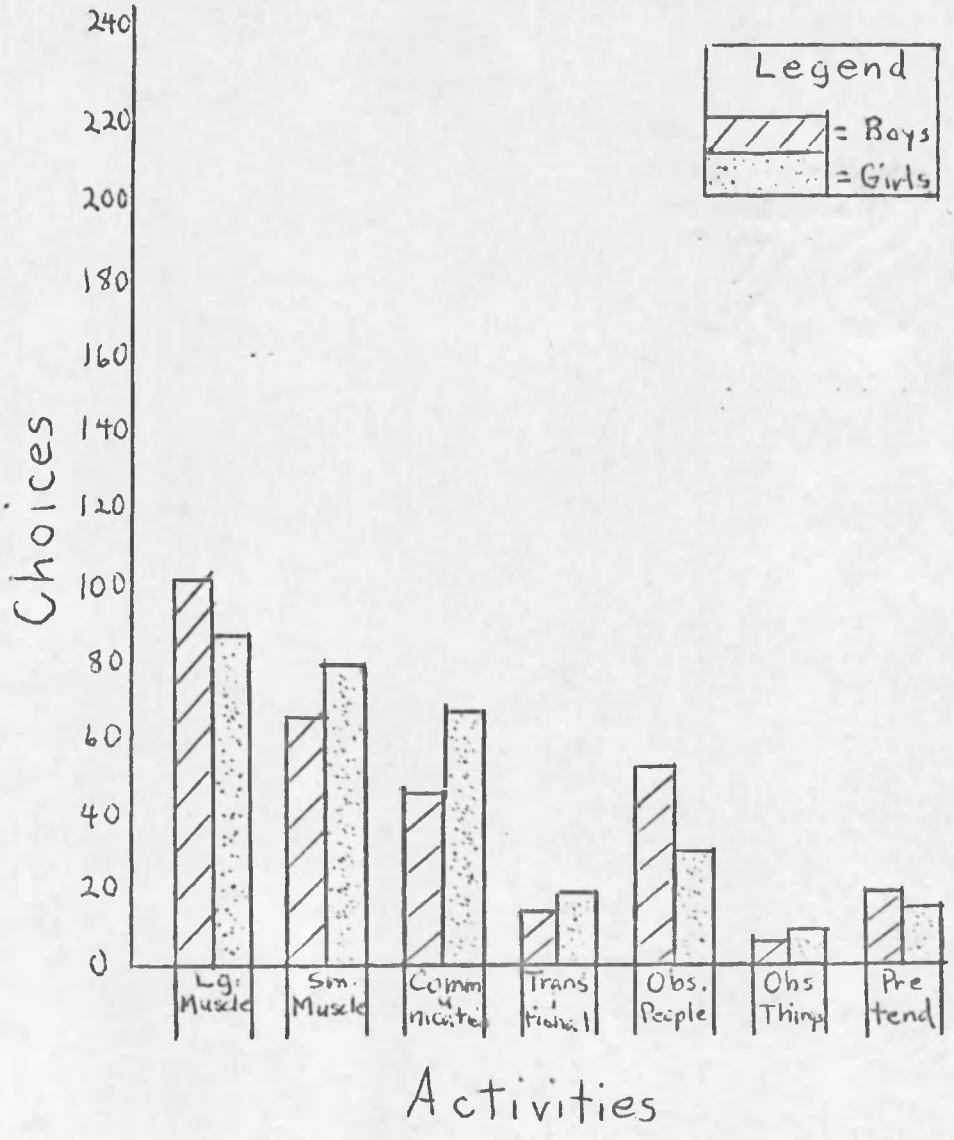

Figure 3. Choice of Play Activity by Three Year Old Girls and Three Year Old Boys

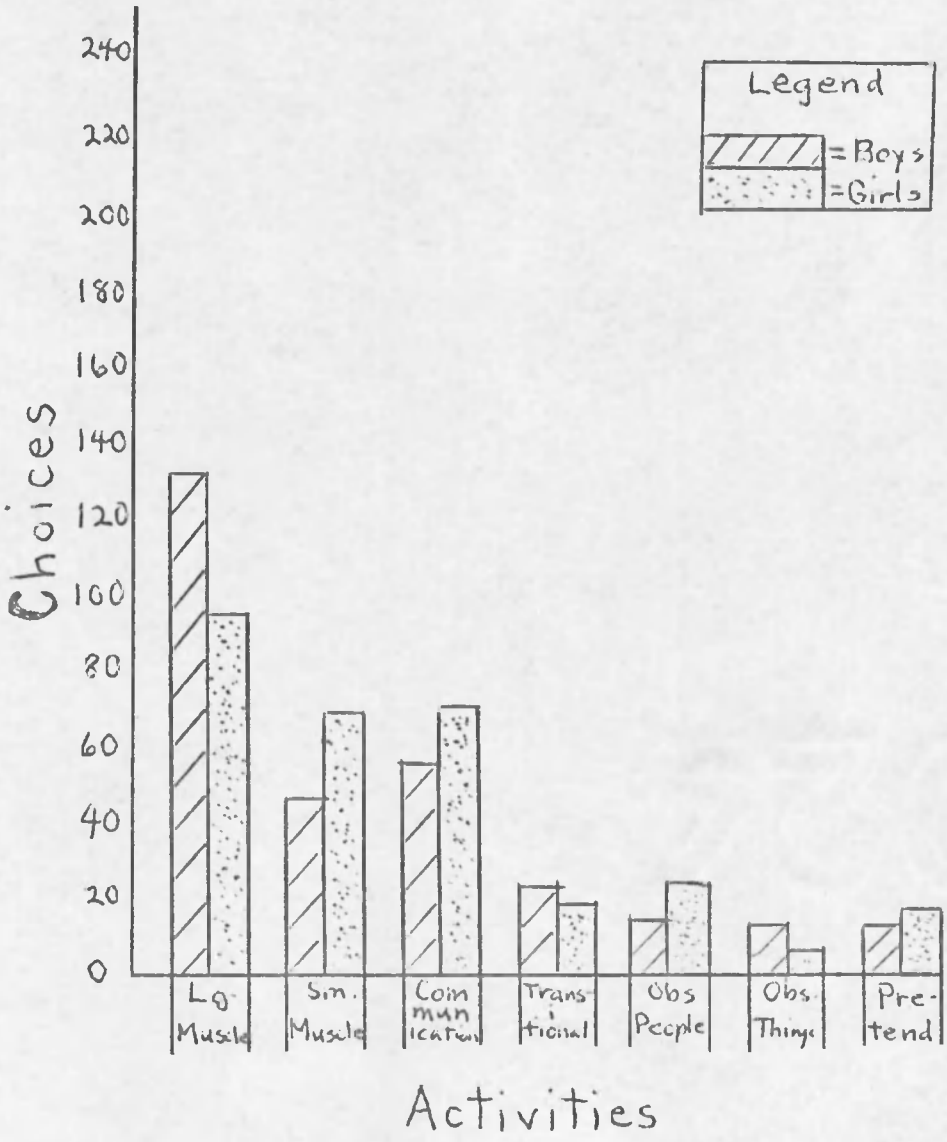

Figure 4. Choice of Play Activity by Four Year Old Girls and Four Year Old Boys

When comparing Figures 3 and 4 one notices that the differences between the choices of three year old boys and girls for large and small muscle activities are less than the differences between four year old boys and girls. It may be that the fourth year is the beginning of actual differences in the level of physical activity engaged in by boys and girls in our culture. However, because of the small number of children observed further investigation of this possible difference should be undertaken.

CHAPTER 6

CONCLUSIONS

While there are countable and observable differences in the play choices of three and four year old children, these differences are not many or great. Children in both age groups choose to engage in active large muscle activities such as climbing, building with large blocks, riding tricycles, pulling wagons, running, jumping, and sliding. Small muscle activities such as puzzles and pegs, playdough, water and sand play, and construction with and manipulation of small objects are the second choice.

That four year olds change their activities more frequently than three year olds may be due to their higher level of skill and easier completion of tasks, or to the preference of three year olds for more sedentary activities and for opportunities derived thereby to observe what other persons are saying and doing.

Girls use communication and small muscle skills more than boys at both ages and are slightly less active physically. Boys and girls of both ages make very similar choices in regard to pretend and make-believe play.

We conclude from these findings that there is no evidence that either age or sex are the factors which determine the child's choice of play activity during these preschool years. Also from these findings it seems to follow that boys and girls of three and four years will enjoy

sharing the same equipment and environments as they strive to master the developmental tasks imposed by their internal systems and by the requirements of external reality. The other purposes served by the play choices of these preschool children were observed to be many: pleasure in movement, mastery of skills, reliving recent experiences, solving problems and testing ideas, creating models of the world, imitating adult behaviors, manipulating materials, discovering relationships, and experimenting with a variety of roles and interpersonal relationships.

Moreover, the main finding of this study is that each child, regardless of his age or sex, is a unique individual with differing needs, competencies, and interests. Only a study of the individual child's personality, play patterns and play choices will give meaningful results. Only the observation of the individual child will reveal the development which occurs as the child plays, and the successes and failures he experiences as he strives to attain increasing mastery over his body, his material and his social environment. Only observation of the individual child will reveal the motivations which direct him to one activity or another.

Therefore, it is necessary to accept the null hypotheses with which we began this study: that age and sex are not the primary factors which determine the preschool child's choice of play activity. Since these are not the determining factors other studies might be undertaken to investigate the effect of other factors on play preferences, such as, level of cognitive and physical development, degree of emotional security, novelty and familiarity of object and environment, adult models

and suggestions, past failures and successes and the needs of the child to master, to achieve, to know.

It may also follow that curricula and preschool programs should be created to meet the needs of the individual child rather than on the basis of the age or sex group to which he may belong.

APPENDIX A

TABULAR PRESENTATION OF PLAY ACTIVITIES BY INDIVIDUAL CHILDREN

Table A-1. Choice of Play Activities by Individual Children.

Children	Large Muscle	Small Muscle	Communication	Transitions	Observing People	Observing Things	Pretend
Three Year Olds							
1. Kristin	16	15	11	6	9		3
2. Michele	18	7	17	4	9		5
3. Elizabeth	7	28	15	2	4	2	2
4. Wanda	33	3	13	2	3	1	5
5. Melanie	12	26	10	3	5	2	2
6. Charles	29	7	6	2	5	1	10
7. Paul	15	3	5	4	33		
8. Sean	23	16	11	4	6		
9. Kevin	15	26	10	1	4	1	3
10. Mark	18	15	13	4	3	1	6
Four Year Olds							
1. Nicole	9	27	4	5	12	1	2
2. Stephanie	5	11	25	7	5	1	6
3. Vanessa	30	3	17	2	3	1	4
4. Tonja	30	16	6	3	4	1	
5. Marianne	30	12	18	2		1	7
6. Steve	38	3	8	2	3	2	4
7. Andrew	29	5	10	7	4	4	1
8. Nicholas	13	15	15	6	4	3	4
9. Aaron	28	10	12	4	3	2	1
10. Steven	26	11	12	4	3	2	2

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