

SOCIAL INVOLVEMENT OF
PRESCHOOL CHILDREN WITHIN
VARIOUS EXTERIOR PLAY AREAS

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ABSTRACT

SOCIAL INVOLVEMENT OF PRESCHOOL CHILDREN WITHIN VARIOUS EXTERIOR PLAY AREAS

By

Beverly Allred Eubank

This study was designed to investigate differences in the social involvement of preschool children in four different play modality areas and to ascertain if sex was a determining factor in that social involvement. Social involvement was determined through two sets of variables, social interaction and affective context of interaction. The four play equipment areas included single, dual, complex, and no equipment play modality units.

A small-group observational methodology was employed. The sample consisted of twenty-eight preschool children, fourteen girls and fourteen boys, enrolled in two cooperative nursery schools located in middle income suburban areas. The ages of the children were between 3.5 and 4.5 years. No more than two girls and two boys were placed at one time in each of the various play equipment areas. No child was ever with the same group of children more than once. Each child was recorded in each area for fifteen minutes with no child recorded in more than one area in a single day. The play activity of the children in each equipment area was videotaped for subsequent ratings using a time-sampling observational procedure, the Observation of Socialization Behavior instrument (Boger and Cunningham, 1971).

A repeated measures multivariate analysis was implemented with two separate runs, including social interaction (an objective measure of social involvement), and affective context of interaction (a subjective measure of social involvement). With twelve different variables included in the two runs, a multivariate analysis was utilized. Further, a repeated measures was employed since all of the children participated in each of the four play modality equipment areas. A Scheffé post hoc paired comparisons analysis was made following the discovery of the significant F-ratio for the treatment effect.

The analyses indicated that the play equipment main effects were significant for the two sets of social involvement variables, social interaction and affective context of interaction. The variables that contributed to that significance included gregariousness, social behavior, activity level, initiation, peer interaction, physical tone, physical contact with peers, physical contact with materials, and aggression. No significant sex main effects or interaction effects, that is, sex X treatment, were evident.

The Scheffé post hoc analysis indicated that the complex play modality equipment area encouraged more positive social interaction more often between the children, and elicited more contact with the equipment than the other three areas. The contributions of the single and dual play modality equipment areas were minimal in encouraging social involvement. The no equipment play area, however, did encourage a great amount of social involvement, but with decidedly negative overtones and aggressive behavior.



Beverly Allred Eubank

The results of this study are potentially beneficial to early childhood personnel and designers of exterior play areas. A complex play modality unit is less expensive, uses less space, and encourages more positive social interaction than comparable combinations of single and dual modality play areas.

The observation methodology, used previously only in small group interior settings, displayed its versatility in assessing social involvement in small group exterior play settings. From the results of this study, it is possible to project that this instrument could also be used in larger group exterior play settings.

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A DISSERTATION

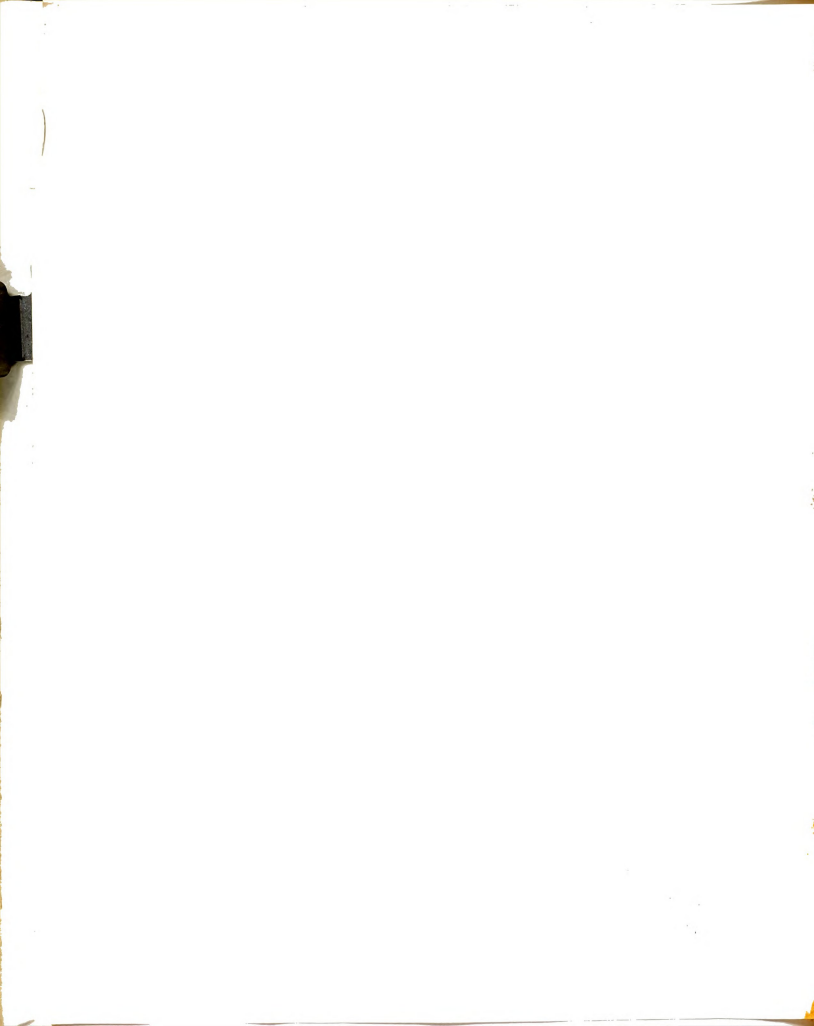
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CHAPTER I

INTRODUCTION

"The physical environment influences the social environment; the social environment often determines how we deal with the physical environment."

--Forum 19, 1970, White House Conference
on Children

An important part of a child's physical environment is the outdoor play space available to him. Unfortunately, however, little attention has been given to how the design and arrangement of equipment, as well as space usage, influence the behavior of children who use these exterior play areas. This fact was exemplified by the observation that for nearly half a century, playgrounds throughout the country have remained drab, unattractive, and virtually unchanged (Crawford, 1960). Developmentally oriented child advocates (e.g. Wohlin, 1964) have suggested that planners need to begin talking in terms of play space and play environment rather than in terms of playgrounds.

The importance of play activities in the life and development of the child has often been stressed by developmental psychologists and early childhood educators. Aaron (1965), for example, noted that "for a child, play is his life's work and the effort is directed almost single-mindedly to the career of growing up." Stensaasen (1964) also stressed that if small children are deprived of



some opportunities to play with agemates, it may have ill effects on their social and emotional development.

Opportunity for social interaction with peers can, of course, be provided either in informal, spontaneous play or in a more structured situation such as a day care facility or nursery school. Because of the changes in family life styles and the decline of the extended family system in recent years, more and more families have turned to day care as an alternative or supplemental child rearing environment. Parents and educators, thus, have become more concerned as to the impact that day care experiences have on the development of children. This greater utilization of day care facilities has brought to the forefront the need for increased attention to the design of indoor and outdoor play spaces that will provide a setting to encourage the social development of preschool children. While studies conducted with preschool children have shown how interior spaces can be designed to encourage this goal (Parten, 1933; Loomis, 1929; Cockrell, 1935; and Updegraff, 1933), there has been little done with exterior play areas to attain this same goal.

An ecological approach would indicate that limitations of the functional environment are set by available physical space and materials and persons positioned in that space. As a part of the physical and social environment, people can facilitate certain child behaviors by providing particular cues. The design of exterior, as well as interior play areas, must be concerned with the number and types of people, as well as with materials contained within that



space. Environmental intervention of the play spaces available to children should manipulate consensually valued social behaviors in the child. (Gewirtz, 1971).

Two critical elements in choosing play equipment for day care exterior play areas are what pieces of equipment can be used to encourage necessary developmental processes for children and how can this be achieved at the lowest cost possible. More information is needed to identify what area of development can be encouraged in exterior play areas. The socialization process is one of the most obvious developmental tasks of the preschool child. Thus information concerning this process and its relationship to exterior play areas would be of prime importance to day care personnel involved in designing exterior play areas.

Observation of children at play in exterior play areas indicates that stimulating conditions and the design are partially responsible for the social behavior of the young child. Various designers have noted this phenomenon, and have incorporated them in their design of exterior play areas (Aaron, 1965; Hurtwood, 1968; Friedberg, 1970). What, in an exterior play environment, can determine and/or alter behavior?

Space does not communicate in an identical way to all children. Instead, subcultural and individual differences in experiences affect perceptions of environment. Prescott and Jones (1967) stated that the arrangement and setting of space encourages, or discourages, specific behavior patterns. The principle underlying such



ecological and environmental manipulations of space has not been well understood, but cannot be ignored in designing play spaces for children (Gewirtz, 1971).

It was anticipated that this study will provide information to early childhood facility designers and early childhood program personnel in assisting in the planning of exterior play facilities in accordance with social-developmental criteria. Another expectation of this study was to provide a better understanding of behavioral consequences resulting from environmental settings.

Statement of Problem

The main purpose of this study was to investigate differences in the social involvement of preschool children in four different play equipment areas, as well as to investigate differences in the social involvement between male and female preschool children in four different play equipment areas. The two sets of social involvement variables investigated were dimensions of social interaction and affective context of interaction. The four play equipment areas utilized were "single", "dual", and "complex" play modality units, as well as an area void of play equipment.

Objectives

The primary objectives of the study were:

1. To investigate the relationship between different play equipment areas and the following social involvement dimensions:



Social interaction variables:

gregariousness
 mean level of social behavior
 activity level
 mutual goal direction
 social unawareness
 peer interaction
 initiation

Affective context of interaction variables:

physical tone
 physical non-verbal contact with peers
 physical non-verbal contact with materials
 aggression
 fantasy

2. To investigate the relationship between the social involvement of male and female preschool children and the different play equipment areas.

Assumptions

1. Children who have a similar socio-economic status and have attended one year of cooperative nursery school have similar past experiences in peer interaction and exterior play equipment use.
2. Social involvement of children in exterior play areas can be assessed using observational techniques.
3. For children randomly grouped in a play situation, the setting, equally novel for all participants, provides an equal opportunity for everyone to participate.

Conceptual Definitions

Social Involvement: A combination of the objective dimension of social interaction and the subjective dimension of affective context of interaction that assesses the involvement of a child with his peers.



Social Interaction: The objective dimension of social involvement. This dimension examined behavior by the amount of actual actions and interactions that occurred in a setting.

Gregariousness: The number of children with whom a child was playing and interacting.

Social Behavior: The relative maturity and socialability of a child.

Activity Level: The intensity of a child's initiation of himself and/or an activity, as well as his responses to the initiations of other children.

Social Unawareness: The amount of time a child is engaged more in unoccupied behavior and solitary play than in play with other children.

Mutual Goal Direction: The amount of time a child is engaged more in play with a group of children, attempting to attain the same goal or purpose.

Peer Interaction: The amount of time a child was involved and interacted with other children.

Initiation: The degree and frequency in a situation that a child purposely introduced himself and/or proposed a change of activity with the physical and/or social environment.

Affective Context of Interaction: The subjective dimension of social involvement. This dimension examined the emotional involvement of the actions and interactions that occurred.

Physical Contact with Peers and Materials: The amount of physical contact a child established with an object or another child.

Physical Tone: The amount of physical contact that is either positive, negative, or neutral in nature.

Aggression: The amount of socially unacceptable physical behavior toward other children.

Fantasy: The amount of fanciful and imaginary verbalizations in which a child was engaged.



Play Equipment Area: Enclosed exterior play space that included a single play modality unit, a dual play modality unit, a complex play modality unit, or no equipment at all.

Single Play Modality Unit: Exterior play space designed for one intended activity use.

Dual Play Modality Unit: Exterior play space designed for two intended activity uses.

Complex Play Modality Unit: Exterior play space designed for multiple activity use.

No Equipment Area: Exterior play space with no furnished play equipment, toys, or props.



CHAPTER II

REVIEW OF LITERATURE

Eco-Behavioral Theory

For years psychologists (Piaget, 1951; Erikson, 1963; White, 1974; Kagan, 1964) have theorized that a child's development was dependent upon his interaction with the environment, both human and physical. More was known concerning the influence of human interaction on human development. But little was known as to what physical environment contributed to influence the interaction between human beings.

Two types of interaction have been identified by interaction theorists: (1) organism to organism; and (2) organism to environment and environment to organism (Anderson, 1954; Kohlberg, 1963).

" . . . both organism and environment will have to be seen as systems, each with properties of its own, yet both hewn from basically the same block. Each has surface and depth, or overt and covert regions. . . the interrelationship between the two systems has the essential characteristic of a 'coming to terms' It follows that, as much as psychology must be concerned with the texture of the organism or of its nervous processes and must investigate them in depth, it also must be concerned with the texture of the environment as it extends in depth away from the common boundary." (Brunswik, 1957)

Figure 1 illustrates the interaction of organism to environment and environment to organism.



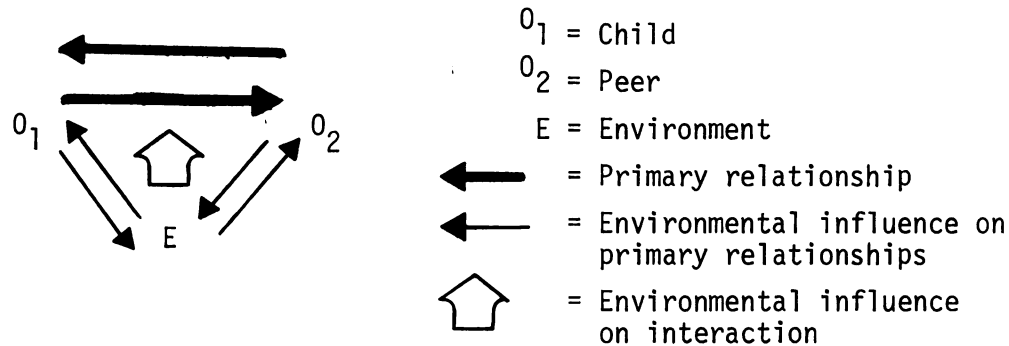


Figure 1. Interaction model of organism to environment and environment to organism.

As illustrated in Figure 1, the human being is an "actor", as well as a "reactor" upon and to his environment. (Stryker, 1959). Not only do individuals involved in an interaction contribute to that interaction, but react to the behavior of other participants in the interaction. An individual's behavior can, therefore, create a cause and effect relationship to another individual's behavior in specific situations. (Ackerman, 1954; Schvaneveldt, 1966).

It has been since the 1950's that various theorists have focused specifically on these man or organism and physical environment interactions. This approach has been designated by numerous labels as behavioral ecology (Williams, 1973); psychological ecology (Barker and Wright, 1954; Shure, 1963); and environmental psychology (Proshansky, Ittelson, Rivlin, 1970; Proshansky, 1973; Wohlwill, 1970; Heimstra and McFarling, 1974). For the purpose of this study, this approach will be termed eco-behavioral theory.



Eco-behavioral theory has been concerned with the "links between man and his everyday habitat and upon understanding the factors, natural laws, and processes that these links comprise." (Willems, 1973). In defining physical environment and behavior, this approach found them almost inseparable. It has been difficult to understand behavior independent of its intrinsic relationship to the physical environment and thus must be defined in an environmental context (Proshansky, Ittelson, and Rivlin, 1970). According to Barker (1968), the ecological environment of human behavior was defined as a "set of homeostatically governed eco-behavioral entities consisting of nonhuman components, human components, and control circuits that modify the components in predictable ways to maintain the environmental entities in their characteristic states." A physical setting was, thus, considered an open system. One characteristic of an open system was the ability to exchange information with the environment, human or physical.

Human behavior was also organized by the internal processing of stimuli input from the environment (human and physical) (Thayer, 1968). Because human systems exist in larger supra- or macro-systems, such as the child in the family, child with peers, and child within a physical setting, individual systems were linked through the exchange of information across system boundaries and provided the means for establishing human relationships (Andrews, 1975). Eco-behavioral theorists have, accordingly, concluded that human behavior, within a specific physical setting, was enduring and consistent over time, but



could be changed by changing the human and/or non-human components, and/or the control circuits within that setting (Sommer, 1959; Hall, 1966; Shure, 1963; Proshansky, Ittelson, Rivlin, 1970). In addition, specific physical settings were perceived as appropriate for specific kinds of behavior. For example, children practice certain behaviors in specific play areas (Barker and Wright, 1954; Shure, 1963). However, it is still unknown what the factors are that determine specific behaviors in various settings. Therefore, the present study attempted to identify those settings that encourage specific socio-developmental areas.

Socialization Theories

The socialization process is an important area of development for the preschool child. He is moving from an ego-centric stage to a socio-centric stage when he becomes aware of other people within his micro-environment. Part of this micro-environment is his physical environment, which can be a determinate in how a child interacts and socializes with others within that environment.

McDavid (1969) defines socialization as "the sequence of social learning experiences that result in the integration of an individual into his societal context." Through a learning-teaching process and sensorimotor stimulation, the individual has been able to transfer from the infant state of helplessness and total egocentricity to a mature state of conformity and independent creativity. (McCandless, 1967).



As a part of society, a person must behave in culturally approved ways and abide by the dominant values, ideals, and motivations of larger groups. How one becomes socialized is dependent upon the cultural, familial and physical environment.

The socialization process has several theoretical orientations. One such orientation is the psychoanalytical theory. Freud (1917) saw the period of early childhood as critical to the socialization of the individual. He theorized that identification, the process of assuming characteristics and imitating behavior of significant others, was the basis for the development of moral standards, sex roles, and social attitudes. In Freud's stages of psychosexual development, identification in early childhood evolved from the child's psychosexual conflict with and attachment to, his parents. The conflict was resolved when the child identified with the same sex parent, forming the basis for appropriate sex-role development and providing a model for developing a value system as an adult.

Another theoretical orientation is the social learning theory which regards human beings as modifiable at any age. Walter Mischel (1968) speculated that specialization was a continuous process from infancy throughout childhood. The child learned complex behaviors and consequences related to these behaviors by interacting with his environment. Parents, siblings, and peers influenced the shaping of a child's behavior through various interaction systems. Mischel also considered identification as important, but only as a part of the general learning process and as important in acquiring complex behavior.



A cognitive-developmental perspective was supported by Piaget (1951) and Kohlberg (1963). These theorists believed identification was an aspect of the preoperational stage of cognitive development and that a child's competence was enhanced by sharing and exchanging skills with others. All of these theories aid in the understanding of the socialization process. All aspects of a child's environment, social and physical, appear to have some impact on how a child's social behavior develops. Therefore, one important aspect of understanding the role of the physical environment is to look at the possible effects on the socialization process.

Sex-Role Development

One aspect of the socialization theoretical orientations is sex-role development. Various socialization studies indicated there was a sex difference between preschool children when interacting in various play settings. Sex differences have stimulated questions concerning the interaction of biological and social experiences in determining behavior. Recent research indicated that around two years of age, children included gender in their basic self-concept (Money and Ehrhardt, 1972).

Those children who deviated from the social norm when assuming particular sex roles suffered rejection from peers, siblings, and adults (Mussen, 1969). Boys and girls have been socialized, possibly from birth, to assume particular roles and demonstrate specific behavior patterns. This socialization process no doubt accounts for significant sex differences noted in play and peer interactions (Green,



1933; Jerslid, and Markey, 1935; Shure, 1963; Goldberg and Lewis, 1969; Feshbach, 1970; Price, 1971; Loo, 1972; Reuter and Yunik, 1973; and Rohe and Patterson, 1974).

Kohlberg (1966) noted that by five or six years of age, children have sex-typed virtues. Girls perceived feminine competence and status as being attractive and nice. Boys perceived masculine competence and status as being powerful, aggressive, and/or fearless. Other stereotyped social roles in contemporary American society have been summarized by Kagan (1964) as follows: "In sum, females are supposed to inhibit aggression and open display of sexual urges, to be passive with men, to be nurturant to others, to cultivate attractiveness, and to maintain an affective, socially poised, and friendly posture with others. Males are urged to be aggressive in face of attack, independent in problem situations, sexually aggressive, in control of regressive urges, and suppressive of strong emotions, especially anxiety." (p. 143).

Aggressiveness

All cultures have means of socializing aggressive behavior. A society that attempts to eliminate aggressiveness may also inhibit legitimate self-assertion. This has been observed in present day society among women who have been socialized not to be aggressive, and thus find it difficult to be self-assertive (Buss and Brock, 1963; Consentino and Heilbrun, 1964). Aggressive behavior was stereotyped as being appropriate only for boys (Maccoby and Jacklin, 1975), while girls were rejected by their peers and were disliked by their teachers



if they were overly aggressive (Green, 1933; Levitin and Chananie, 1972). In a longitudinal study conducted by Kagan and Moss (1962), it was found that over the years aggressive behavior for males remained stable while it declined in females. However, patterns of aggressive behavior vary across cultures (Whiting, 1963; Finley and Layne, 1971) indicating that the social environment can have a significant influence on aggressiveness.

Children can encourage and indirectly determine others' behavior. Aggressiveness was found to be affected by how a child responded to overt aggressive attacks (Patterson, Littman, and Bricker, 1967). Also, interaction within a preschool situation can be manipulated by the reinforcement of peers (Wahler, 1967; Charlesworth and Hartup, 1973).

Modeling is another means by which peers can influence a child's interaction. Bandura (1969) noted three explanations for this. First, the observing child can learn something new or something that would not have occurred to him to do so. Second, the child may observe the consequences of another child's actions. For example, aggression may get others in trouble or some form of "misbehavior" does not get punished, and then he may change his own behavior accordingly. Finally, the child being observed may give cues as to how to act in strange situations. Clark (1965) and Walters, Parke, and Cane (1965) found a child was more likely to imitate another child's behavior if it was reinforced and was less likely to imitate a model who was punished. Hartup and Coates (1967) and Hicks (1971) also found that



positive behavior can be influenced by peer models. Given the importance of aggressive behavior in our understanding of the socialization process, it would be beneficial to early childhood personnel to look at this aspect of social interaction in terms of the physical environment. The socialization process is a very complicated area with an intricate network of interaction that cannot always be identified. Why a child interacts and becomes involved with others within his social environment, could be determined, therefore, by elements within his physical environment. This study looked at some of these elements.

Play as a Factor in Social Development

Play is a "frame of mind in which possible solutions will be considered and tested in an abstract but, nonetheless, in a trial-and-error manner . . . For a child, play is his life's work and the effort is directed almost single-mindedly to the career of growing up."

(Aaron, 1965, pp. 20 and 15)

Opportunities for play activity are necessary for the life and optimal development of the child. Inability to play can be an indicator of a developmental disturbance. Too much adult interference and organization can hamper play spontaneity (Brauchlin, 1970; Stensaasen, 1964).

Adams (1967) noted that cutting the family ties and interacting with peers can be painful and difficult for a young child who has had little experience playing with other children. Such children will seek supplementary forms of stimulation. Ames and Learned (1946)

found that children, when not interacting with peers, participated in spontaneous fantasy play such as imaginary companions, impersonation of animals or humans, animation or personalization of objects, and general imaginative play. These results indicated that the need for social contact produced interaction at the fantasy level either if peer companions were unavailable or the child felt too insecure in real peer interaction.

Piaget (1951) observed that imagination and symbolism were prevalent in the play of most preschool children. Children used non-present elements, including people and things, and incorporated them into roles they wished to imitate or to fantasize. Stone and Church (1973) regarded dramatic and imaginative play as a vehicle to learn about and identify with other people, as well as a means to know oneself. Craig (1976) considered dramatic play and modeling as an imitation of whole patterns of behavior, as well as a means to fantasize and to become involved in novel ways of interaction. Through this imaginative play, the child will learn to understand various kinds of social relationships, certain aspects of his culture, as well as sequences and notions of time.

Piaget (1951) in his observations, noted that the very young child (approximately 0-3 years of age) was very egocentric in his play. Garvey and Hogan (1973), in comparing the play of toddlers and preschoolers, found that the toddlers engaged primarily in parallel play and made little effort to adapt to their playmates, while preschoolers were mutually responsive, and adapted their words and actions to their



playmates. With increasing age and more opportunities to interact with peers, the child will become less egocentric and will be able to see the effects of his actions on his peers.

The social structure of the interaction group should also be taken into consideration in viewing children's play. Various socializing influences, as well as a child's reactions to himself, depend upon this social structure of interaction (Adams, 1967). One of the socializing influences affecting play is reinforcement. Charlesworth and Hartup (1973) found that children in a nursery setting dispensed reinforcement in a higher proportion when engaged in dramatic play activity than when engaged in other activity areas. Half of the reinforcements were given in response to overtures from the recipients and half spontaneously. The consequence of the response was generally a continuation of the recipient's activity at the time of the reinforcement. Gewirtz (1971) theorized that desirable interaction patterns between children and constructive use of play equipment can be achieved by manipulating ratios of materials and people to the available physical space in the general environment. In addition, according to Kritchevsky and Prescott (1969), the relative looseness and tightness of organization, complexity, and variety of exterior and interior play areas were determinants of the number of constructive interactions likely to occur in a group of young children. These studies suggested the need for further exploration of the contributions to play interaction of exterior play environments.

Impact of Physical Environment on Children

In recent years the impact of the physical environment on the development of preschool children has generated increasing concern. The few empirical studies completed on this topic deal with the child's social interaction within various settings of the physical and social environment.

Price (1971) noted that both males and females increased their degree of participation in solitary behaviors and engaged in less social interaction in a condition that offered more play opportunities, but was within the same spatial setting. However, she found that males interacted more than females in both crowded and non-crowded conditions. Loo (1972) found that a space that offered more toys and play opportunities created more interruptions of children's activities, and that girls, who interacted with fewer children, were more likely to be interrupted than boys. Rohe and Patterson (1974) found that a low resource-high density condition elicited an increase in negative behavior and a decrease in the use of solitary play areas. They also noted more aggressive and destructive behavior among males, while females generally exhibited more unoccupied behavior.

Earlier it was noted that behavior was not only dependent upon peers' involvement, but that the physical environment can influence that interaction or involvement with the peers (Barker and Wright, 1954; Shure, 1963). Dansky and Silverman (1972), supporting Piaget's (1962) theory in reference to play and creativity, showed

that non-structured free play with objects produced an increase in associative fluency. In addition, the complexity of the play objects and environment was a determining factor as to the amount and degree of peer interaction and play object interaction. The more complex physical setting of play objects encouraged more interaction with these objects and thus, a low complexity of play objects tended to elicit more peer interaction. (Scholtz and Ellis, 1975).

Impact of Exterior Play Areas on Children

Little data was available concerning social development of preschool children and exterior play areas. Most of the studies explored preferences and space and equipment utilization, and most had elementary children as subjects.

Witt and Gramza (1970), Bliss (1952), and Bright (1962) with elementary and preschool samples, examined usage and location of play equipment to determine preferences. Witt and Gramza (1970), with a sample of preschool children, found that the center of the play area was the most popular location, with the largest piece of equipment used more often than the smaller. Bright (1962) found the spray pool received the most usage (the study was done in the summer), with swinging receiving the highest usage for elementary aged children in all four sample areas. The balance beam received the least usage. Bliss (1952) found that thrill producing apparatus received the most usage by elementary aged children.

Many researchers and designers are becoming more concerned that developmental needs be met in designing exterior play areas

(Friedberg, 1970; Aaron, 1965; Dattner, 1970; Hurtwood, 1968). High space and equipment usage by preschool children correlated not only with perceptual motor development, fine motor performance, and graphic space utilization, but was also positively correlated with more bodily exercise, fewer organized games, less desirable behavior, and fewer negative social contacts. (Johnson, 1935; Mulhauser, 1970). It has also been found that socially isolated elementary aged children in exterior play areas chose equipment that did not require two or more participants for enjoyment, but could be used to establish social relationships if so desired. The equipment most frequently chosen by isolates included sandboxes, slides, swings, and buck swings (Flaharty, 1951).

The literature, therefore, indicated that social density or number of peers, the density of space, and, primarily, the complexity of the physical play environment were relevant in planning physical settings for preschool children in order to encourage optimal social development.

Observation as Technique for Viewing Social Involvement in Play Areas

Since the 1930's the observational technique of collecting data pertaining to social behavior of preschool children had wide appeal. Loomis, (1929), Berne, (1930), Parten, (1933), Updegraff, (1933), Cockrell, (1935), Johnson, (1935), and Arrington, (1935), used such a technique to collect data concerning preschoolers in the interior play environment of a preschool setting.

Observational studies have had problems in accuracy due to observer presence and the artificiality of an experimental or laboratory setting (Cunningham, 1972). A naturalistic setting with no obvious observer would be ideal (Barker and Wright, 1954). Roadblocks found in observational studies were practically eliminated in the 1960's with the accessibility of electronic audio-visual equipment. The use of film and videotape cameras increased and improved the use of observation techniques in recording social involvement of children. This technique has been employed by many recent researchers looking at children's interaction with peers in various play environments.

Witt and Gramza (1970), in attempting to identify what specific parameters elicited and modulated preschool children's play, used a fish-eye lens camera to record the position of each subject every ten seconds. A frequency count was made of the number of times each subject was touching or playing with each piece of equipment. Bishop (1972) developed a measuring technique employing photographs and comparative judgment samplings, which was evaluated for internal consistency and behavioral validity. With this validated technique he tested and supported the hypothesis that adult designers were insensitive to children's play preferences and developmental stages. Rohe and Patterson (1974) employed a stop frame camera technique in recording preschoolers in a day care setting to determine if quantity of play material resources contributed to negative socio-behavioral effects in high density settings. Scholtz and Ellis (1975), in investigating preschool children's preferences of play objects to peers,

used a film produced by a semiautomated motor driven 35mm fish-eye camera system. Hutt (1966), in a study of exploratory behavior and play with peers, also used film to record data. To investigate differential effects of a group's density on social behavior, Hutt and Vaisey (1966) recorded observations on checklists, magnetic tape, and 8mm ciné film.

Precoded behavior categories, selective narratives, trait rating, naturalistic settings, time sampling, and event sampling are various observational techniques that can be used with young children (Wright, 1960; Kerlinger, 1967; Lytton, 1971). Some of these are more reliable and complete than others in determining the actual social involvement of children. In order to provide more structure and objectivity to observational data, the technique should provide predetermined behavioral categories, which are not found in running accounts or retrospective descriptions of behavior. Such precoded behavior categories and selective narrative records lend themselves more readily to computer and statistical analyses (Olson, 1975). The trait rating technique, although designed to describe children's general social tendencies, is not precise when viewing actual behavior or behavioral interaction (Andrews, 1975).

Naturalistic situations, in contrast to experimental settings, are closer to psychological and social reality. Such a setting is more ecologically sound since it presents a more accurate assessment of the interaction of the child when he is on familiar "ground" (Kerlinger, 1967).

Specimen descriptions are written records of short behavioral episodes. However, the actual objectivity and precision of this instrument is dependent upon the skill of the observer (Andrews, 1975).

Time sampling is best suited to studying behaviors that occur frequently. This technique involves the selection of behavioral units for observation at different points in time. An advantage of this procedure is that it assures the investigator of a representative sample of behavior if the behaviors occur frequently. Disadvantages of this technique include the possibility of a lack of continuity, lack of adequate context, and lack of naturalness. However, this is only true when small units of time and behavior are used.

Event sampling, the selection of behavioral occurrences or events for observation, is a slight modification of time sampling. An advantage of event sampling is the ability to assess natural life-like situations, thus providing an inherent validity not ordinarily possessed in time samples. It also captures events that are sometimes infrequent and rare (Kerlinger, 1967).

Time and Event Sampling Technique

According to Smith and Connelly (1972), a combined time-and-event sampling technique is the most appropriate for observing overt behavior. Therefore, the Observation of Socialization Behavior (OSB) instrument, developed by Boger and Cunningham (1971), was the instrument chosen for this study. It is a combined time-and-event sampling procedure that describes socialization behavior of children in peer interaction and provides a better standardization of behavioral descriptions without allowing children's rate of activity to influence

the result. Videotaping records the raw data, providing auditory and visual feedback. In order to provide a systematic profile of typical behavior, 20-second time sampling intervals were established. Pre-coded behavioral categories with subcategories, which are mutually exclusive and exhaustive, describe various behavioral events. Quantitative and qualitative data can be obtained through rating scales that note intensities of activity and effect.

Ten separate scales focus on the play involvement of children with the environment. Of these ten scales, two are based on situational inference, and eight on observed behavior. The scales include social behavior, involvement, verbalization, physical behavior, play context, peer interaction, group interaction, adult interaction, inferred motivation, and emotionality.

Parten (1932) developed a social behavior scale that used a dimension from a minimum to a maximum degree of children's social participation in play. The six categories on the scale include unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, and cooperative play. The involvement factor, referring to the nature and intensity of children's activity, includes initiation, response with three qualifiers--accept, reject, or ignore; and ongoing activity. The involvement categories are also rated according to intensity-passivity, moderation, and intensity. The object of one's involvement is coded as either a specific individual, a pair of individuals, the group, or an adult.

Robert Bales (1951) developed the verbalization codes used in the rating instrument to measure verbal and nonverbal communication

behavior. Of the twelve categories of verbalizations available, task-oriented, socio-emotional affectual verbalizations, and fantasy verbalizations are included. Through a physical behavior category, nonverbal communication is recognized, thus providing a means to note the social-affective nature of the physical activity.

The two inferred behavioral states are emotionality (the degree of happiness or sadness displayed) and inferred from behavioral cues. The interaction setting is coded as large or small muscle, dramatic play, cognitive activity, or routine.

The OSB rating instrument, using proportional data and average ratings, was chosen because of its ability to describe characteristics of children, contextual dimensions of interaction, directionality of behavior, play context, verbal and nonverbal communication, and inferred motivational states. Because this instrument provides a diversity of data, numerous research questions can be investigated through different analysis strategies.

CHAPTER III

METHODOLOGY

Research Design

This study employed a repeated measures 2 x 4 design. The independent variables included equipment area and sex. The four equipment play areas were defined as single play modality unit, dual play modality unit, complex play modality unit, and no equipment. The dependent variables include a set of social interaction variables, and a set of affective context of interaction variables.

Fourteen girls and fourteen boys participated in each of the four play modality areas. The children were separated into groups of four, two girls and two boys, when playing in each of the areas. None of the children interacted with the same children in any area.

The design matrix of the study is shown in Table 1.

Table 1. Design Matrix

| | Equipment Play Areas | | | |
|---------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | Single Play Modality Unit | Dual Play Modality Unit | Complex Play Modality Unit | No Equipment |
| Females | | | | |
| 1-14 | S ₁ -S ₁₄ | S ₁ -S ₁₄ | S ₁ -S ₁₄ | S ₁ -S ₁₄ |
| Males | | | | |
| 15-28 | S ₁₅ -S ₂₈ | S ₁₅ -S ₂₈ | S ₁₅ -S ₂₈ | S ₁₅ -S ₂₈ |

Hypotheses

The primary objective of this study was to determine the relationship between different play equipment areas and two sets of social involvement variables, social interaction and affective context of interaction. Another objective of this study was to determine if sex was a determining factor in the social involvement of children in the different play equipment areas.

This study asks two basic research questions with two major hypotheses for each question. A number of sub-hypotheses, specific to an individual variable, were tested in the analysis for each major hypothesis.

A. What are the relationships between the social involvement of pre-school children in the four equipment play modality areas of single, dual, complex, and no equipment?

H1: There is no difference in the social involvement of preschool children in single, dual, complex, and no equipment play modality areas.

H1₁: There is no difference in the gregariousness of pre-school children in the single, dual, complex, and no equipment play modality areas.

H1₂: There is no difference in the social behavior of pre-school children in the single, dual, complex, and no equipment play modality areas.

H1₃: There is no difference in the activity level of pre-school children in the single, dual, complex, and no equipment play modality areas.

H1₄: There is no difference in the mutual goal direction of preschool children in the single, dual, complex, and no equipment play modality areas.

H1₅: There is no difference in the social unawareness of pre-school children in the single, dual, complex, and no equipment play modality areas.

- H1₆: There is no difference in the peer interaction of preschool children in the single, dual, complex, and no equipment play modality areas.
- H1₇: There is no difference in the initiation of preschool children in the single, dual, complex, and no equipment play modality areas.
- H2: There is no difference in the affective context of interaction of preschool children in the single, dual, complex, and no equipment play modality areas.
 - H2₁: There is no difference in the physical tone of preschool children in the single, dual, complex, and no equipment play modality areas.
 - H2₂: There is no difference in the physical contact with peers of preschool children in the single, dual, complex, and no equipment play modality areas.
 - H2₃: There is no difference in the physical contact with materials of preschool children in the single, dual, complex, and no equipment play modality areas.
 - H2₄: There is no difference in aggressive behavior of preschool children in the single, dual, complex, and no equipment play modality areas.
 - H2₅: There is no difference in fantasy of preschool children in the single, dual, complex, and no equipment play modality areas.
- B. What are the relationships between the social involvement of male and female preschool children in the four equipment play modality areas of single, dual, complex, and no equipment?
 - H3: There is no difference in social interaction of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
 - H3₁: There is no difference in gregariousness of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
 - H3₂: There is no difference in social behavior of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
 - H3₃: There is no difference in activity level of male and female preschool children in the single, dual, complex, and no equipment play modality areas.

- H3₄: There is no difference in the mutual goal direction of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H3₅: There is no difference in the social unawareness of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H3₆: There is no difference in the peer interaction of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H3₇: There is no difference in initiation of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H4: There is no difference in the affective context of interaction of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H4₁: There is no difference in physical tone of male and female children in the single, dual, complex, and no equipment play modality areas.
- H4₂: There is no difference in physical contact with peers of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H4₃: There is no difference in the physical contact with materials of male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H4₄: There is no difference in aggressive behavior of male and female children in the single, dual, complex, and no equipment play modality areas.
- H4₅: There is no difference in fantasy of male and female preschool children in the single, dual, complex, and no equipment play modality areas.

Sample

The sample for this study consisted of twenty-eight preschool children, fourteen girls and fourteen boys, who attended the M.S.U. Cooperative Nursery School and the Holt Cooperative Nursery School.

The twenty-eight children were chosen randomly from a pool of eighty children between the ages of 3.5 and 4.5 years of age who had attended one year of cooperative nursery school. All of the families who participated in both nursery school programs were of the middle socio-economic class as generally defined by geographic area, but no specific analysis of class was made.

Instrumentation

The Observation of Socialization Behavior (OSB) instrument (Boger and Cunningham, 1971) was employed to measure the social involvement of the children in the four play equipment areas. This instrument is an observational technique using a combination time-and-event sampling procedure.

The OSB has two forms. Form 1, designed for use with videotaped interaction situations, and Form 2, intended for use with live classroom observations, were designed for rating free-play situations. Form 1 was used in this study.

Observers were specifically trained to rate these interaction situations. A mechanical beep was superimposed on the audio portion of the tape at 20-second intervals. The observers recorded the first play behavior at each 20-second mark, securing a time sampling of behaviors across the fifteen-minute play session for each child. The 20-second time span was considered sufficient to record a meaningful sequence of behavior in a manageable and recordable manner. Videotaping was necessary to capture the total complexity of the behavioral interactions. Several viewings of each tape were necessary in completing the OSB ratings.

In establishing interobserver reliability, two independent observers simultaneously record the behaviors of the same child in the same intervals on their respective rating forms, while intra-observer reliability is established through re-rating a previously observed tape by a single observer. Intervals between these ratings have varied between one week and six months.

Reliability was computed by two methods, total blanks and total record positions with each type of reliability computed for the entire instrument and for each separate scale. Minimum reliability rates, as shown in Table 2, must be conjointly attained for each observer on at least two observations of twelve consecutive minutes each with reliability established separately for each form.

Several approaches to instrument validity have been initiated within the OSB. Content validity has been established through theoretical contributions of social and developmental psychology, and through preliminary testing of the procedure conducted in a field setting in the early stages of its development. (Boger and Cunningham, 1971). Validity may also be indicated in the use of scales from previously validated instruments, i.e., the Social Behavior scale developed by Parten (1932) and Bales' (1951) Interaction Process Analysis, the basis for the verbalization scale. Because validity has been established for both scales over a period of years, these aspects of the OSB have an additional measure of validity. Finally, teacher rating scales and observational checklists have provided concurrent validity measures.

Table 2. Minimum Suggested OSB Rater Reliability Indices

| | Inter-Rater Reliability | Intra-Rater Reliability |
|--------------------------|----------------------------|----------------------------|
| Total Blanks | | |
| Entire Instrument | .85 | .90 |
| Individual Categories | .80 | .85 |
| Total Recorded Positions | | |
| Entire Instrument | .65 | .75 |
| Individual Categories | .60 | .70 |

(Boger and Cunningham, 1971; p. 9)

VariablesIndependent Variables

Play Equipment Area. The primary independent variable is equipment area, defined as four mutually exclusive areas. Specifications of these areas for the purpose of replication is provided in Appendix C.

- a. Single play modality unit - exterior play area consisting of two horizontal flat swing seats connected by two chains to an A-shape frame and a two seated glider swing connected by metal pipes to the A-shape frame. Figure 2 illustrates this area.
- b. Dual play modality unit - exterior play area, illustrated in Figure 3, that is essentially the same as the single play equipment area with a metal slide bolted to the end of the A-frame.
- c. Complex play modality unit - exterior play area consisting of a wooden portable climbing apparatus that includes two levels, with the upper level similar to an observation tower and the lower level enclosed with a small door entry, a ladder, a slide, and a balance beam. Figure 4 illustrates this play area.
- d. No equipment area - exterior play area within the fenced enclosure with no equipment or props as shown in Figure 5.

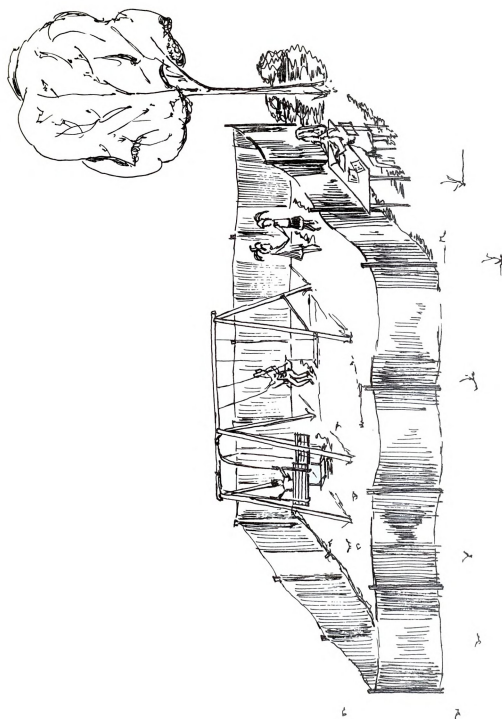


Figure 2. Illustration of single play modality unit.

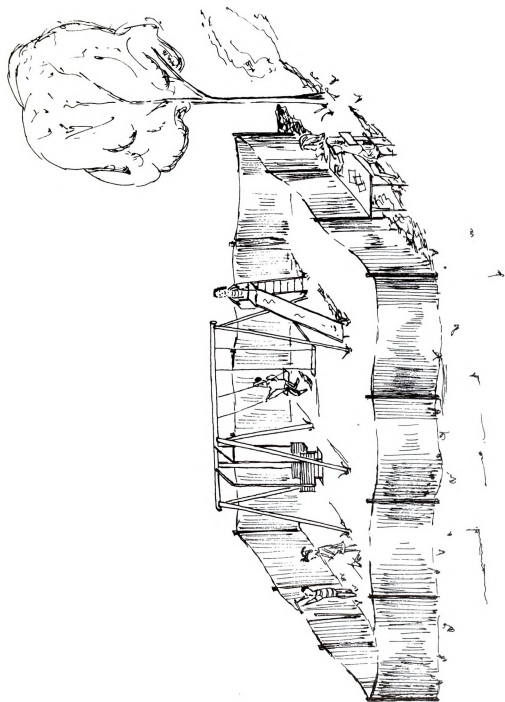


Figure 3. Illustration of dual play modality unit.

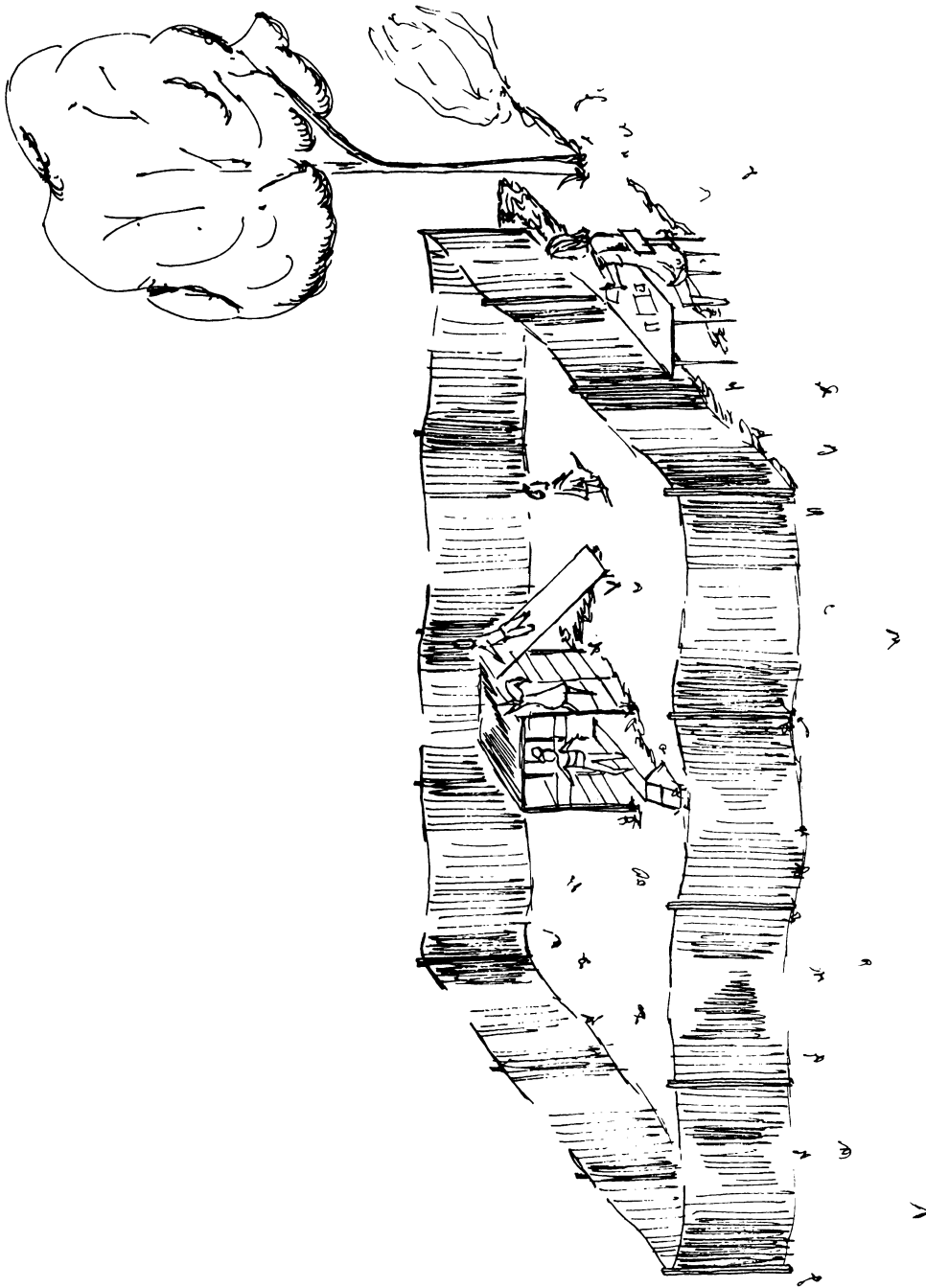


Figure 4. Illustration of complex play modality unit.

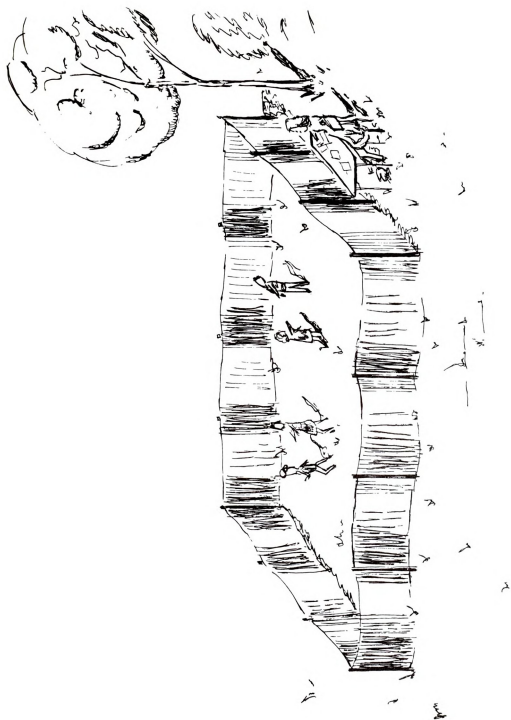


Figure 5. Illustration of no equipment play area.

Sex. The second independent variable is sex. Fourteen boys and fourteen girls were the subjects for this study.

Dependent Variables

Social Interaction Variables. The first group of dependent variables were designed to measure social involvement. There were seven variables within this set which included: gregariousness, social behavior, activity level, mutual goal direction, social unawareness, peer interaction, and initiation.

Affective Context of Interaction Variables. The second set of dependent variables involve more subjective measures of social involvement. This set includes five variables: physical tone, physical contact with peers, physical contact with materials, aggression, and fantasy.

Operational Definitions

Social Involvement: The relative amount of social interaction and affective context of interaction of a child with his peers and adult(s), as measured by the Observation of Socialization Behavior (OSB) rating instrument (Boger and Cunningham, 1971) found in Appendix B.

Social Interaction: An objective measure of interaction that indicates gregariousness, mean level of social behavior, activity level, mutual goal direction, social unawareness, peer interaction, and initiation.

Gregariousness: The mean number of peers each child is interacting with in every 20 second interval.

Social Behavior: The mean or average rating over six categories of play involvement; unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, and cooperative play. See Appendix B for a further description of each category.

Activity Level: The mean level of response and initiation, formulated by combining the average intensity of initiations and responses.

Social Unawareness: The proportion of intervals at the social behavior level of unoccupied behavior or solitary play versus the last four levels, i.e. onlooker behavior, parallel play, associative play, and cooperative play.

Mutual Goal Direction: The proportion of intervals at which a child interacted at the sixth level of social behavior, i.e. cooperative play, versus the other five levels of social behavior.

Peer Interaction: Proportion of intervals in which a child interacts and is involved with his peers compared to those intervals in which he does not interact.

Initiation: The proportion of intervals in which a child introduces self or introduces a change in an activity divided by the proportion of intervals he does not.

Affective Context of Interaction: A subjective measure of physical tone, physical non-verbal contact with peers, physical non-verbal contact with materials, aggression, and fantasy.

Physical Tone: The mean of physical behavior using three possible categories: positive, socially acceptable behavior, or positive in connotation; neutral motion, neither positive or negative; and negative, socially unacceptable behavior or negative in connotation.

Physical Contact with Peers: The proportion of intervals in which a child establishes physical contact with an object versus no physical contact with an object.

Physical Contact with Materials: The proportion of intervals in which a child establishes physical contact with an object versus no physical contact with an object.

Aggression: The proportion of frequency of intervals with negative tone with peers versus the proportion of intervals with positive or neutral physical tone with peers.

Fantasy: The proportion of intervals in which verbalizations are fanciful.

Setting and Data Collection Procedures

All data collection occurred at the Holt Cooperative Nursery School play area, located at the First Presbyterian Church in Holt, Michigan. The children were randomly chosen from the M.S.U. Cooperative Nursery School and the Holt Cooperative Nursery School. The parents of those children were called and asked if their children could attend a summer session of nursery school. They were also told that the outside play area would be videotaped for research purposes. A request letter (in Appendix A) followed the telephone conversation. The author taught the nursery school for the four-day period with the mothers of the children acting as aides, as previously practiced in their nursery schools. All of the children had participated for one year in their respective nursery schools.

No permanent outside play equipment existed in the exterior play yard prior to the study. The four equipment play areas were, therefore, new to all of the children in the sample.

A 25' by 25' play area enclosed by snow fencing was constructed prior to attendance to house the four equipment areas. The first equipment area (single play modality) consisted of a set of four swings. The second area (dual play modality) consisted of the set of four swings plus an attached slide. The third equipment area (complex play modality) consisted of a multi-use piece of equipment that included a balancing beam, a slide, an observation tower, a ladder climber,

and play house area. The fourth area (no equipment) had no equipment or props within the confined area. A random selection procedure was implemented to decide on which day each play area would be utilized. The single modality play area was chosen for the first day, the dual modality play area for the second day, the complex modality play area for the third day, and the no equipment area for the fourth day.

An unbiased observer, not known by the children and uninformed of the purpose of the study, was placed at the outside of the gate. She was instructed to tell the children: "This is where we will play outside. You need to stay inside the fence. I have some work I need to do right now and I'll call you when it's time to go in." She was also instructed not to interact or respond to the children while they were within the enclosure unless an emergency arose. During the time the observer was there she used a stop watch to keep track of the time and wrote the name and description of each child in order to aid the raters when they were observing the videotapes. This process also reinforced the idea that she was indeed doing some "work" while the children played.

The children were placed in the various equipment areas in groups of four, two girls and two boys. These groups were randomly assigned so that each child would never be with the same peers more than once in the various play equipment areas, thus controlling potentially confounding effects of peer grouping. Each child was recorded in each area for fifteen minutes with no child recorded in more than one area in a single day.

The play activity of the children in the equipment areas was videotaped for subsequent ratings by a camera situated on the roof of the church. Hidden microphones were placed in a nearby tree and just outside of the fence with a directed focus to pick up the audio input from that enclosure without interference from surrounding areas.

The data collection proceedings occurred over a period of four days from July 29 through August 1 of 1974. This period occurred during the summer session involving some of the children from the combined nursery schools.

Two observers, who had previous training and experience in rating the OSB instrument, were employed to view the videotapes and rate the interaction using the standardized rating procedure. The videotaped session and subsequent rating procedure are illustrated in Figure 6. The initial training of these observers in the use of the OSB was accomplished with the aid of videotaped interaction segments. The training program included extensive practice in using the rating schedule, clarification of variable categories and rating procedures through group discussion, and resolving discrepancies which might be noted between the observers. Inter-rater reliability was accomplished by having the observers rate the same 15-minute segment and was established at .85, which is considered minimum. Periodic checks were made to maintain the reliability.

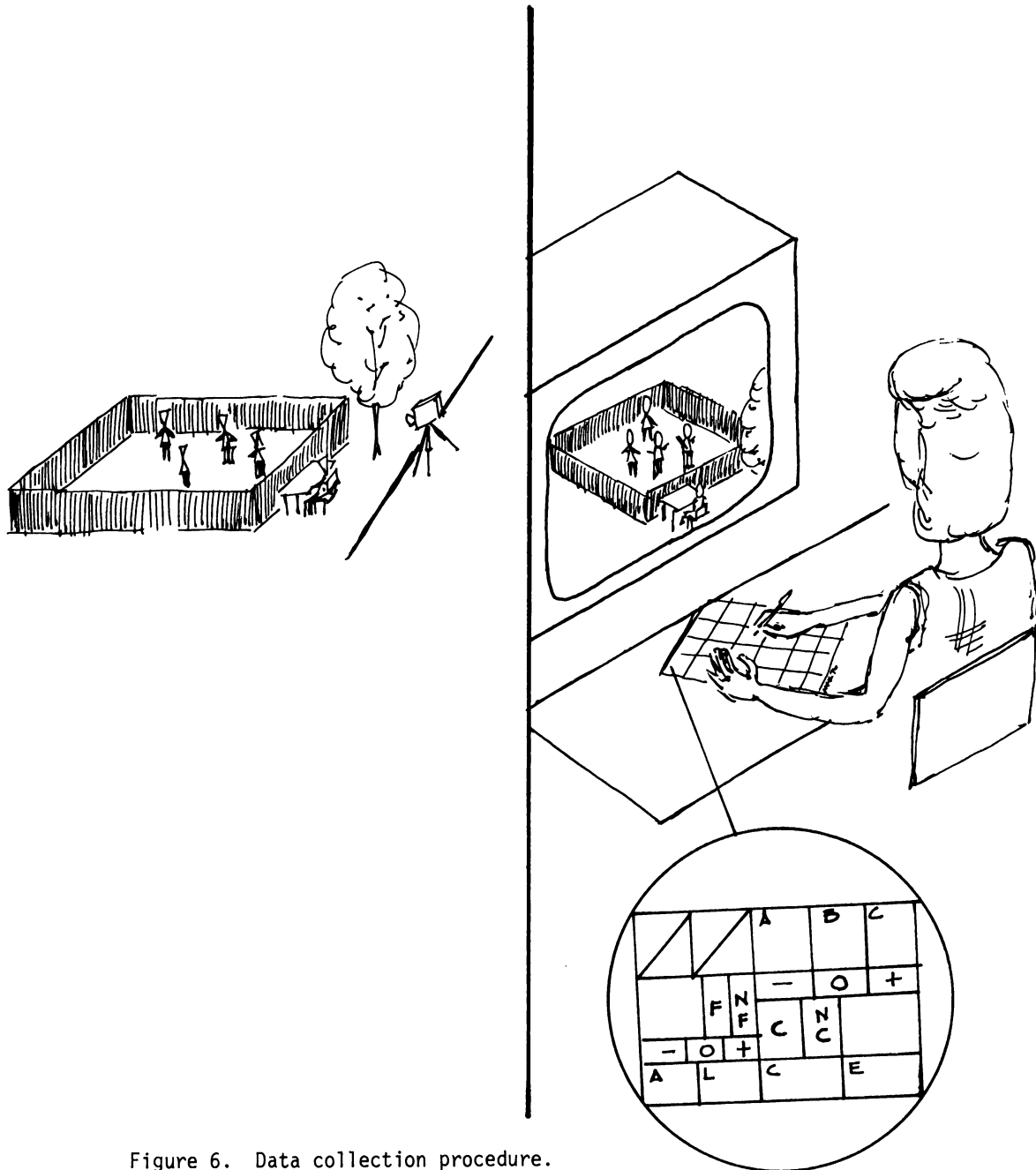


Figure 6. Data collection procedure.

Data Reduction and Analysis

All observation ratings were transformed to numerical codes and recorded on computer coding forms. This coding was then quality checked by the raters before punching the codes on computer cards.

A two step transformation process was undertaken to transform the data in order to derive proportions and logs. During the first transformation, the frequency of occurrence of behavior during each interval was summed across intervals to form the total frequency of behavioral categories. The second transformation formed total frequencies calculated into proportions and mean ratings. For those frequencies that were formed as a proportion, the log of the proportion was used as the quantification of the variable for analysis. For example, the formula for the variable Gregariousness consists of the total number of peers children interact with in a setting (Variable 25) divided by the proportion of intervals in a setting (Variable 4), that is, $\frac{(\text{Variable 25} + 1)}{\text{Variable 4}}$.

After the variables were formed, a repeated measures multivariate analysis was implemented with two separate runs, including social interaction and affective context of interaction. With twelve different variables, a multivariate analysis was done to avoid inflating the alpha level and making an erroneous assessment of the independence of the variance. Further, a repeated measures was employed since all of the children participated in each of the four play equipment areas.

The 1976 version of the Statistical Package for Social Sciences and the adapted version of Finn's Multivariate program (Schmidt & Schiefley, 1972) were the two computer programs used in the data analysis. The control Data Corporation 6500 computer at Michigan State University was used in the implementation of all analyses.

The Scheffé post hoc paired comparisons analysis was made following the discovery of the significant F-ratio for the treatment effect. Trend comparisons are usually made after the overall analysis of variance has shown significant evidence for effects of the experimental variable. The Scheffé post hoc method can apply to any post hoc comparison among means. Advantages in using this analysis include its simplicity, applicability to groups of unequal sizes, suitability for any comparison, insensitivity to departures from normality, and homogeneity of variance, sensitivity to complex comparisons, and its versatility over a wide variety of situations. However, one major disadvantage for any set of post hoc comparisons is that the probability is ordinarily less in detecting a true trend as a significant result than in a test for planned comparisons for that trend. (Hays, 1963).

CHAPTER IV

RESULTS

The results of the data analyses are reported in two sections of this chapter based on the two primary research questions concerning the relationships between social involvement of preschool children and play equipment areas and the relationships between the social involvement of male and female preschool children and play equipment areas. The results of the social interaction variables and the affective context of interaction variables will accompany each section. A summary of the results will conclude the chapter.

Relationship Between Social Involvement of Preschool Children in Play Equipment Areas

Significant treatment differences were found in the social involvement of preschool children. The two sets of variables, social interaction and affective context of interaction, were analyzed separately. The first hypothesis tested was:

H1: There is no difference in the social interaction of preschool children in the single, dual, complex, and no equipment play modality areas.

Because the set of social interaction variables displayed a probability of .0038, further interpretation of the univariates was justified. H1 was, therefore, rejected. No significant interactions were present. The F ratio for the sex X equipment area analyses was .8583 with chance probability of $< .6385$. Table 3 provides results of the univariate analysis.

Table 3. Results of the Multivariate Repeated Measures Analysis of Social Interaction Variables: Play Equipment Effects

| F Ratio = 10.6674 Degrees of Freedom: 6 and 21 Probability <.0038 | | |
|---|-----------------------|-----------------------------|
| Variable | Univariate F Ratio | Multivariate Probability |
| Gregariousness | | |
| Single vs. No Equipment | 136.1165 | .0001* |
| Dual vs. No Equipment | 55.7174 | .0001* |
| Complex vs. No Equipment | 41.3223 | .0001* |
| Social Behavior | | |
| Single vs. No Equipment | 8.4848 | .0073* |
| Dual vs. No Equipment | 2.5898 | .1197 |
| Complex vs. No Equipment | .0938 | .7619 |
| Activity Level | | |
| Single vs. No Equipment | 2.5457 | .1227 |
| Dual vs. No Equipment | 6.8048 | .0149* |
| Complex vs. No Equipment | 99.8475 | .0001* |
| Mutual Goal Directedness | | |
| Single vs. No Equipment | .7362 | .3988 |
| Dual vs. No Equipment | 1.1962 | .2842 |
| Complex vs. No Equipment | .9317 | .3434 |
| Social Unawareness | | |
| Single vs. No Equipment | 1.2612 | .2717 |
| Dual vs. No Equipment | 2.0522 | .1640 |
| Complex vs. No Equipment | 1.3996 | .2475 |
| Peer Interaction | | |
| Single vs. No Equipment | 1.4997 | .2318 |
| Dual vs. No Equipment | .0305 | .8627 |
| Complex vs. No Equipment | 8.3904 | .0076* |
| Initiation | | |
| Single vs. No Equipment | 8.5023 | .0073* |
| Dual vs. No Equipment | 10.4966 | .0033* |
| Complex vs. No Equipment | 2.4516 | .1295 |

Note. * Implies chance probability of <.05.

Seven dependent variables were investigated in this analysis. These variables included gregariousness, social behavior, mutual goal direction, social unawareness, activity level, peer interaction, and initiation. The following hypotheses were examined:

- H1₁: There is no difference in the gregariousness of preschool children in the single, dual, complex, and no equipment play modality areas.
- H1₂: There is no difference in the social behavior of preschool children in the single, dual, complex, and no equipment play modality areas.
- H1₃: There is no difference in activity level of preschool children in the single, dual, complex, and no equipment play modality areas.
- H1₄: There is no difference in the mutual goal direction of preschool children in the single, dual, complex, and no equipment play modality areas.
- H1₅: There is no difference in the social unawareness of preschool children in the single, dual, complex, and no equipment play modality areas.
- H1₆: There is no difference in peer interaction of preschool children in the single, dual, complex, and no equipment play modality areas.
- H1₇: There is no difference in the initiation of preschool children in the single, dual, complex, and no equipment play modality areas.

Examination of the univariate chance probabilities disclosed that gregariousness contributed to the significance of the set of social interaction variables. H1₁ was, consequently, rejected. Table 4 illustrates the means and standard deviations of the variable gregariousness for each of the four equipment areas.

Table 4. Means and Standard Deviations of Gregariousness for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|-------|---------|-----------------|
| Males | | | | |
| Means | .2727 | .3999 | 1.028 | .3425 |
| Standard Deviations | .3480 | .6259 | 1.3430 | .2503 |
| Females | | | | |
| Means | .1514 | .2755 | .9781 | .2078 |
| Standard Deviations | .1564 | .3672 | 1.1513 | .1303 |
| Total | | | | |
| Means | .2120 | .3377 | 1.0030 | .2751 |
| Standard Deviations | .2718 | .5075 | 1.2277 | .2075 |

Social behavior also contributed to the significance of the set of social interaction variables. Means and standard deviations are given in Table 5 for social behavior. $H1_2$ was also rejected.

Table 5. Means and Standard Deviations of Social Behavior for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|--------|---------|-----------------|
| Males | | | | |
| Means | 4.1585 | 4.0463 | 4.3570 | 4.4272 |
| Standard Deviations | .9723 | .6656 | .7856 | .6289 |
| Females | | | | |
| Means | 3.9978 | 4.0379 | 4.1820 | 4.1353 |
| Standard Deviations | .6837 | .6426 | .8346 | .6883 |
| Total | | | | |
| Means | 4.0781 | 4.0421 | 4.2695 | 4.2813 |
| Standard Deviations | .8288 | .6420 | .8003 | .6638 |

The analysis indicated that activity level was also significant; therefore, $H1_3$ was rejected. Table 6 shows the results of the analysis for activity level.

Table 6. Means and Standard Deviations of Activity Level for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|--------|---------|--------------|
| Males | | | | |
| Means | 2.0856 | 2.0955 | 2.2496 | 1.5902 |
| Standard Deviations | .2847 | .2154 | .2028 | .2941 |
| Females | | | | |
| Means | 2.1652 | 2.2394 | 2.4231 | 1.6096 |
| Standard Deviations | .3332 | .3886 | .2766 | .2851 |
| Total | | | | |
| Means | 2.1244 | 2.1674 | 2.3363 | 1.5999 |
| Standard Deviations | .3067 | .3169 | .2538 | .2844 |

Mutual goal direction was found not to be significant and $H1_4$ was not rejected. Means and standard deviations for this variable in each of the four equipment areas are illustrated in Table 7.

Table 7. Means and Standard Deviations of Mutual Goal Directedness for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|-------|---------|--------------|
| Males | | | | |
| Means | .1079 | .0892 | .5074 | .3798 |
| Standard Deviations | .1424 | .0886 | .9006 | .7477 |
| Females | | | | |
| Means | .1466 | .1118 | .3700 | .1255 |
| Standard Deviations | .1631 | .0989 | .6320 | .2122 |
| Total | | | | |
| Means | .1272 | .1005 | .4387 | .2527 |
| Standard Deviations | .1515 | .0928 | .7666 | .5547 |

Table 8 gives the results for the variable social unawareness. This variable was also non-significant and $H1_5$ was not rejected.

Table 8. Means and Standard Deviations of Social Unawareness for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|-------|---------|--------------|
| Males | | | | |
| Means | .5039 | .4333 | .1905 | .1865 |
| Standard Deviations | .9150 | .5552 | .2005 | .1290 |
| Females | | | | |
| Means | .3386 | .2068 | .1635 | .1809 |
| Standard Deviations | .3066 | .2029 | .1843 | .1389 |
| Total | | | | |
| Means | .4213 | .3200 | .1770 | .1837 |
| Standard Deviations | .6749 | .4261 | .1895 | .1316 |

$H1_6$ was rejected. Peer interaction, illustrated in Table 9, was also significant.

Table 9. Means and Standard Deviations of Peer Interaction for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|----------|----------|----------|--------------|
| Males | | | | |
| Means | *-.4144 | *-1.3043 | *-1.9446 | *-1.9266 |
| Standard Deviations | 3.3527 | 9.7573 | 8.4844 | 1.3993 |
| Females | | | | |
| Means | *-5.5605 | *-1.1581 | *-.6918 | *-1.8825 |
| Standard Deviations | 7.6484 | 8.3279 | 6.0138 | 1.5683 |
| Total | | | | |
| Means | *-2.9875 | *-1.2312 | *-1.3182 | *-1.9045 |
| Standard Deviations | 6.3596 | 8.9016 | 7.2443 | 1.4586 |

Note. * The negative notation denotes a below zero mean and was due to the transformation of the data to logarithms.

Initiation also contributed to the significant variance of the set of social interaction variables; therefore, $H1_7$ was rejected. Table 10 indicates the means and standard deviations for this variable.

Table 10. Means and Standard Deviations of Initiation for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|-------|---------|-----------------|
| Males | | | | |
| Means | .3939 | .4999 | .7891 | 1.2758 |
| Standard Deviations | .3622 | .5169 | .8528 | 1.0362 |
| Females | | | | |
| Means | .3223 | .2772 | .8869 | 1.0279 |
| Standard Deviations | .2580 | .2239 | 1.0248 | 1.2076 |
| Total | | | | |
| Means | .3581 | .3885 | .8380 | 1.1518 |
| Standard Deviations | .3107 | .4070 | .9265 | 1.1114 |

As in the social interaction variable, the significant multivariate (chance probability .0001) analysis of the affective context of interaction variable justified further interpretation of the univariate test. Again, no significant interactions were observed. Probability for these chance interactions was .9362. Results of the univariate analysis for affective context of interaction is found in Table 11. The primary null hypothesis for this set of variables was:

H2: There was no difference in the affective context of interaction of preschool children in the single, dual, complex, and no equipment play modality areas.

Table 11. Results of the Multivariate Repeated Measures Analysis of Affective Context of Interaction Variables: Play Equipment Effects

| F Ratio = 77.6091 Degrees of Freedom: 12 and 15 Probability <.0001 | | |
|--|-----------------------|-----------------------------|
| Variable | Univariate F Ratio | Multivariate Probability |
| <hr/> | | |
| Physical Tone | | |
| Single vs. No Equipment | .4870 | .4915 |
| Dual vs. No Equipment | 13.9071 | .0010* |
| Complex vs. No Equipment | 15.3113 | .0006* |
| Contact with Peers | | |
| Single vs. No Equipment | 32.6778 | .0001* |
| Dual vs. No Equipment | 57.9149 | .0001* |
| Complex vs. No Equipment | 34.7985 | .0001* |
| Contact with Materials | | |
| Single vs. No Equipment | 125.6756 | .0001* |
| Dual vs. No Equipment | 137.7932 | .0001* |
| Complex vs. No Equipment | 416.4349 | .0001* |
| Aggression | | |
| Single vs. No Equipment | 3.6787 | .0662 |
| Dual vs. No Equipment | 1.0097 | .3243 |
| Complex vs. No Equipment | 7.4208 | .0114* |
| Fantasy | | |
| Single vs. No Equipment | .2185 | .6441 |
| Dual vs. No Equipment | .0388 | .8454 |
| Complex vs. No Equipment | 3.6484 | .0673 |

Note. * Implies chance probability of <.05.

Since this set of variables was significant, H2 was rejected. The following hypotheses were, therefore, tested:

- H2₁: There is no difference in the physical tone of preschool children in the single, dual, complex, and no equipment play modality areas.
- H2₂: There is no difference in the physical contact with peers of preschool children in single, dual, complex, and no equipment play modality areas.
- H2₃: There is no difference in the physical contact with materials of preschool children in the single, dual, complex, and no equipment areas.
- H2₄: There is no difference in aggressive behavior of preschool children in the single, dual, complex, and no equipment play modality areas.
- H2₅: There is no difference in fantasy of preschool children in the single, dual, complex, and no equipment play modality areas.

Physical tone contributed to the significance of the set of affective context of interaction variables, with results shown on Table 12. H2₁ was, therefore, rejected.

Table 12. Means and Standard Deviations of Physical Tone for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|--------|---------|-----------------|
| Males | | | | |
| Means | 1.9881 | 1.9810 | 1.9794 | 1.8991 |
| Standard Deviations | .0320 | .0312 | .0456 | .1010 |
| Females | | | | |
| Means | 1.9589 | 1.9888 | 1.9842 | 1.9184 |
| Standard Deviations | .1392 | .0210 | .0294 | .1027 |
| Total | | | | |
| Means | 1.9735 | 1.9849 | 1.9818 | 1.9088 |
| Standard Deviations | .1002 | .0264 | .0377 | .1004 |

The analysis also found that physical contact with peers also contributed to the significance. Means and standard deviations are shown on Table 13 for this variable. H_{2_2} was also rejected.

Table 13. Means and Standard Deviations of Physical Contact with Peers for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|--------|---------|-----------------|
| Males | | | | |
| Means | 1.2143 | 1.0000 | 1.7143 | 5.4286 |
| Standard Deviations | .5789 | 0 | 1.8576 | 3.6314 |
| Female | | | | |
| Means | 1.1429 | 1.0714 | 1.5000 | 5.0000 |
| Standard Deviations | .3631 | .2673 | 1.0919 | 3.2344 |
| Total | | | | |
| Means | 1.1786 | 1.0357 | 1.6071 | 5.2143 |
| Standard Deviations | .4756 | .1890 | 1.4991 | 3.3814 |

Physical contact with materials, with results shown in Table 14 was also significant. H_{2_3} was, consequently, rejected. Although the no equipment area had no equipment, the children created their own materials using name tags, broken fence pieces, grass, etc. These objects were rated as materials, thus reason for the presence of a mean in that area.

Table 14. Means and Standard Deviations of Physical Contact with Materials for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|---------|---------|---------|--------------|
| Males | | | | |
| Means | 34.1429 | 38.7857 | 34.9643 | 1.3571 |
| Standard Deviations | 9.8438 | 8.4869 | 10.0239 | .7449 |
| Females | | | | |
| Means | 27.7857 | 31.1429 | 32.5714 | 1.0000 |
| Standard Deviations | 14.5981 | 14.3519 | 13.8159 | 0 |
| Total | | | | |
| Means | 30.9643 | 34.9643 | 33.7679 | 1.1786 |
| Standard Deviations | 12.6388 | 12.2065 | 11.9066 | .5480 |

The null hypothesis, H_{24} for aggressive behavior, was rejected. It was found to be significant within the set of affective context of interaction variables. The results are illustrated in Table 15.

Table 15. Means and Standard Deviations of Aggression for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|-------|---------|--------------|
| Males | | | | |
| Means | .0562 | .1352 | .0859 | .1683 |
| Standard Deviations | .0420 | .2525 | .1075 | .1829 |
| Females | | | | |
| Means | .1050 | .0601 | .0605 | .1317 |
| Standard Deviations | .2155 | .0441 | .0432 | .1331 |
| Total | | | | |
| Means | .0806 | .0977 | .0132 | .1500 |
| Standard Deviations | .1544 | .1819 | .0814 | .1581 |

Fantasy did not contribute to the significance of affective context of interaction variables. Table 16 shows the means and standard deviations of this variable, within four equipment areas. H_{2_3} was, therefore, not rejected.

Table 16. Means and Standard Deviations of Fantasy for Each Play Equipment Area

| | Single | Dual | Complex | No Equipment |
|---------------------|--------|-------|---------|-----------------|
| Males | | | | |
| Means | .5265 | .6676 | 1.0147 | .5927 |
| Standard Deviations | .4290 | .6405 | 1.4093 | .7059 |
| Females | | | | |
| Means | .5829 | .6684 | 1.1063 | .4111 |
| Standard Deviations | .4188 | .7140 | 1.1721 | .3728 |
| Total | | | | |
| Means | .5547 | .6680 | 1.0605 | .5019 |
| Standard Deviations | .4170 | .6655 | 1.2727 | .5616 |

The variables that contributed to the significance of the set of social interaction variables included gregariousness, social behavior, activity level, initiation, and peer interaction, while physical tone, physical contact with peers, physical contact with materials, and aggression contributed to the significance of the set of affective context of interaction variables. Graphs of the means for each variable illustrate more clearly how each varies according to equipment area. Figures 7 through 15 show these results. They are included in the following discussion section to aid in communication of these findings.

Since the multivariate repeated measures analysis indicated differences across play equipment areas, but not the specific nature or direction of these differences, except in relation to the no equipment area, a Scheffé post hoc paired comparisons analysis was employed to further delineate the significant variance.

No significant variation was found when the single and dual play modality areas were compared. In the comparison between the single and no equipment play modality areas, a more positive physical tone and less intense activity level in response to and initiations with other children were elicited in the single play modality area. On the other hand, the no equipment area encouraged more actual physical contact with peers, more initiations of self or change of activity, and higher level of social behavior. Table 17 illustrates the results of this comparison.

Table 17. Results of Scheffé Post Hoc Paired Comparisons Analysis: Single and No Equipment Play Modality Areas

| | Means | |
|--|--------|--------------|
| | Single | No Equipment |
| Social Interaction Variables | | |
| Social Behavior | 4.0781 | 4.2813 |
| Activity Level | 2.1244 | 1.5999 |
| Initiation | .3581 | 1.1518 |
| Affective Context of Interaction Variables | | |
| Physical Tone | 1.9735 | 1.9088 |
| Physical Contact with Peers | 1.1786 | 5.2143 |

In comparing the dual and no equipment play modality areas, shown in Table 18, the dual area encouraged a more positive physical tone and more physical contact with materials. In contrast, the no equipment area elicited more physical contact with peers, a higher level of social behavior, and more initiation of self and/or change of activity.

Table 18. Results of Scheffé Post Hoc Paired Comparison Analysis:
Dual and No Equipment Play Modality Areas

| | Means | |
|--|---------|--------------|
| | Dual | No Equipment |
| Social Interaction Variables | | |
| Social Behavior | 4.0421 | 4.2813 |
| Activity Level | 2.1674 | 1.5999 |
| Initiation | .3885 | 1.1518 |
| Affective Context of Interaction Variables | | |
| Physical Tone | 1.9849 | 1.9088 |
| Physical Contact with Peers | 1.0357 | 5.2143 |
| Physical Contact with Materials | 34.9643 | 1.1786 |

The dual and complex play modality areas had only two variables with any differences as shown on Table 19. The complex area elicited more gregarious behavior, but a more passive activity level in initiating activities with and responding to other children.



Table 19. Results of Scheffé Post Hoc Paired Comparisons Analysis: Dual and Complex Play Modality Areas

| | Means | |
|------------------------------|--------|---------|
| | Dual | Complex |
| Social Interaction Variables | | |
| Gregariousness | .3377 | 1.0030 |
| Activity Level | 2.1674 | 2.3363 |

The single play equipment area encouraged a more intense activity level and less peer interaction. The complex area, on the other hand, elicited more gregarious behavior, more initiation of self and/or change of activity, and more contact with materials, i.e. the play equipment. The results of this comparison are shown in Table 20.

Table 20. Results of Scheffé Post Hoc Paired Comparison Analysis: Single and Complex Play Modality Areas

| | Means | |
|--|---------|---------|
| | Single | Complex |
| Social Interaction Variables | | |
| Gregariousness | .2120 | 1.0030 |
| Activity Level | 2.1244 | 2.8363 |
| Initiation | .3581 | .8380 |
| Peer Interaction | -2.9875 | -1.3182 |
| Affective Context of Interaction Variables | | |
| Physical Contact with Materials | 30.9643 | 33.7679 |



The comparison of the complex and no equipment play modality areas indicated many more differences than any of the other comparisons. The complex area encouraged more positive physical tone, more physical contact with materials, and interaction with more peers, more often (gregariousness and peer interaction variables). The no equipment area elicited more physical contact with peers, more physically aggressive behavior, more intense activity level, higher level of social behavior, and more initiations of self and/or activity. Table 21 illustrates these results.

Table 21. Results of Scheffé Post Hoc Paired Comparisons Analysis: Complex and No Equipment Play Modality Areas

| | Means | |
|--|---------|--------------|
| | Complex | No Equipment |
| Social Interaction Variables | | |
| Gregariousness | 1.0030 | .2751 |
| Social Behavior | 4.2695 | 4.2813 |
| Activity Level | 2.3363 | 1.5999 |
| Initiation | .8380 | 1.1518 |
| Peer Interaction | -1.3182 | -1.9045 |
| Affective Context of Interaction Variables | | |
| Physical Tone | 1.9818 | 1.9038 |
| Physical Contact with Peers | 1.6071 | 5.2143 |
| Physical Contact with Materials | 33.7679 | 1.1786 |
| Aggression | .0732 | .1500 |

Relationship Between the Social Involvement
of Male and Female Preschool Children and
Play Equipment Areas

The two sets of social involvement variables, social interaction and affective context of interaction, were examined by sex in the four play modality areas. Again, these sets of variables were analyzed separately. The following hypotheses were, therefore, tested:

- H3: There is no difference in social interaction between male and female preschool children in the single, dual, complex, and no equipment play modality areas.
- H4: There is no difference in the affective context of interaction between male and female preschool children in the single, dual, complex, and no equipment play modality areas.

As shown in Table 22, the set of social interaction variables and affective context of interaction variables in relation to sex differences, were not significant. The variables within each set, gregariousness, social behavior, activity level, mutual goal direction, social unawareness, peer interaction, initiation, physical contact with peers, physical contact with materials, physical tone, aggression, and fantasy, did not contribute to a significant variance. Consequently, H3 and H4, as well as H3₁, H3₂, H3₃, H3₄, H3₅, H3₆, H3₇, H4₁, H4₂, H4₃, H4₄, and H4₅, described in Chapter III, on pp. 28-29, were not rejected. Also, as illustrated in Table 21, no interaction between the sex main effects and treatment main effects were evident.

Table 22. Results of Multivariate Repeated Measures Analysis:
Interaction and Sex Main Effects

| | F Ratio | df | Multivariate Probability |
|---------------------------------------|---------|----------------|-----------------------------|
| Interaction - Sex X Equipment Area | | | |
| Social Interaction | .8583 | 21. & 6.000 | .6385 |
| Affective Context of Interaction | .4328 | 15. & 12. | .9362 |
| Sex Main Effects | | | |
| Social Interaction | 1.2238 | 7. & 20. | .3357 |
| Affective Context of Interaction | 1.2412 | 5. & 22. | .3239 |

Summary of Results

The results of the data analyses is summarized as follows:

1. Treatment main effects were found to be significant for the set of variables social interaction and affective context of interaction (.0038 and .0001, respectively).

2. The variables that contributed to the significant social involvement differences include gregariousness, social behavior, activity level, initiation, peer interaction, physical tone, physical contact with peers, physical contact with materials, and aggression.

3. A Scheffé post hoc paired comparisons analysis contributed to a further understanding of the treatment areas in which these variables had a probability of a chance occurrence at .05 or less.

4. The post hoc analysis indicated which variables had a probability of occurring in the following treatment areas:

- a. Single Play Modality - activity level and physical tone were greater than in the no equipment area.
- b. Dual Play Modality - activity level, physical tone, and physical contact with materials was greater than in the no equipment area.
- c. Complex Play Modality - gregariousness and activity level were higher than in the single, dual, and no equipment areas; initiation was greater in the single area; peer interaction, and physical contact with materials were greater than in the single and no equipment areas; and physical tone was higher than in the no equipment area.
- d. No Equipment - social behavior, initiation, and physical contact with peers was higher than in the single, dual, and complex areas; and aggression was higher than in the complex area.

CHAPTER V

DISCUSSION

This study was designed to investigate the relationships between the social involvement of preschool children in four play equipment areas; and to investigate the social involvement of male and female preschool children in the four play equipment areas. Two sets of variables, social interaction and affective context of interaction, measured social involvement through a time-event sampling observational procedure.

Relationships Between the Social Involvement of Preschool Children and Play Areas

The analyses of the data indicated that the various play equipment areas did elicit specific behaviors in children. There were, however, no significant differences between the single and dual play modality areas indicating essentially no differences in the social involvement between the two play areas. The actual physical make-up of both areas differed little. The dual play modality area, with the exception of an added slide, was the same as the single play modality area.

The variables that contributed to the significance of the two sets of social involvement dimensions included gregariousness, social behavior, activity level, initiation, peer interaction, physical



tone, physical contact with peers, physical contact with materials, and aggression. Figures 7 through 15 illustrate graphs of the means of these variables demonstrating more succinctly the differences between the four play equipment areas.

The variable gregariousness, illustrated in Figure 7, was measured by the mean number of peers with whom each child was interacting in every 20-second interval. The children interacted with more peers in the complex play modality play areas than in the other three play areas. A study by Prescott and Jones (1967) reported by Kritchevsky and Prescott (1969) also found that a complex or multi-use play area stimulated more interaction with more children. The multiuse play area offered more play opportunities, thus encouraging more interaction.

The no equipment area fostered a higher level of social behavior than the other three areas as shown in Figure 8. The children were engaged in a more mature level of parallel and associative play as defined by Parten (1933). They played closer together in proximity as well as similarity, and somewhat coordinated their efforts.

The high activity level, indicated by a lower mean, in the no equipment area, compared to the other three areas, denoted a highly intense, overt response and initiation pattern with peers. Figure 9 illustrates these results. In the no equipment area, the children were vigorous, ardent, and sharp in their responses to the other

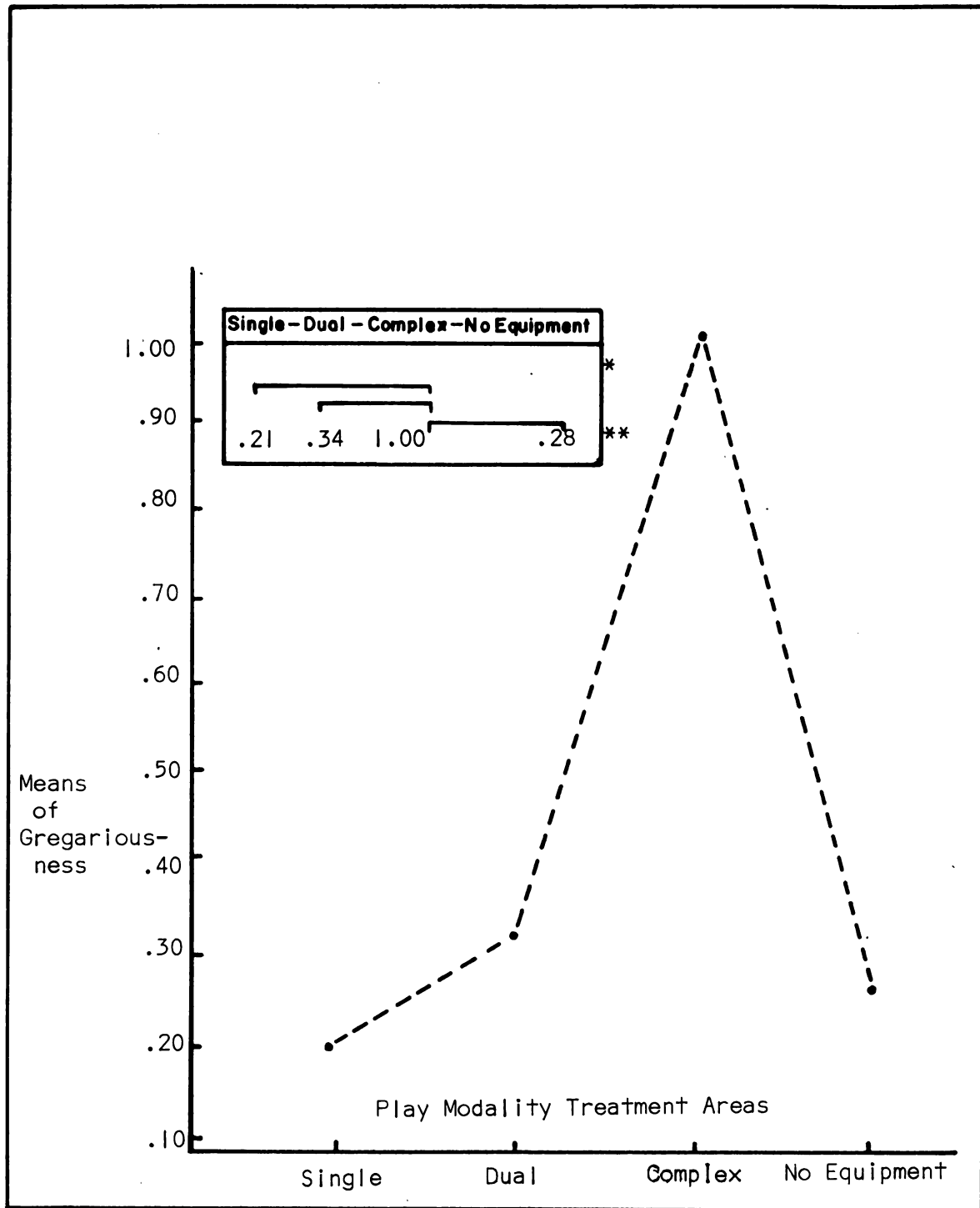


Figure 7. A graph of the means of gregariousness in the four play equipment areas.

Note. *Significant differences.
 **Means of gregariousness.

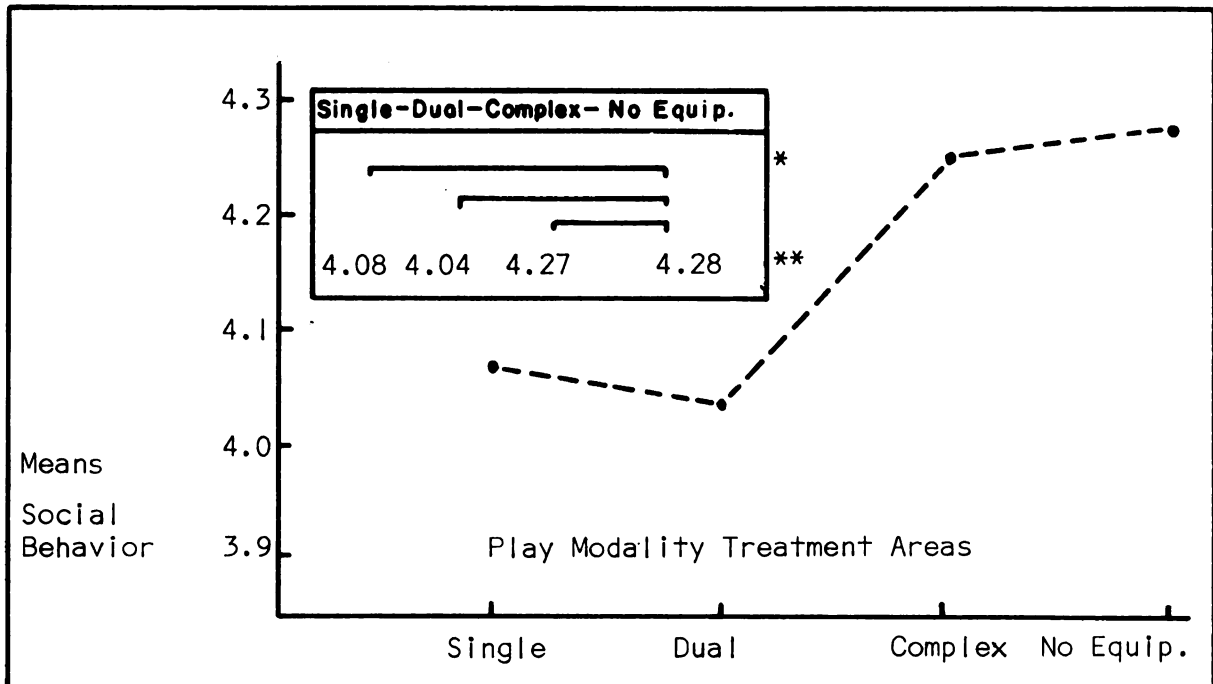


Figure 8. A graph of the means of social behavior in the four play equipment areas.

Note. *Significant differences.
 **Means of social behavior.

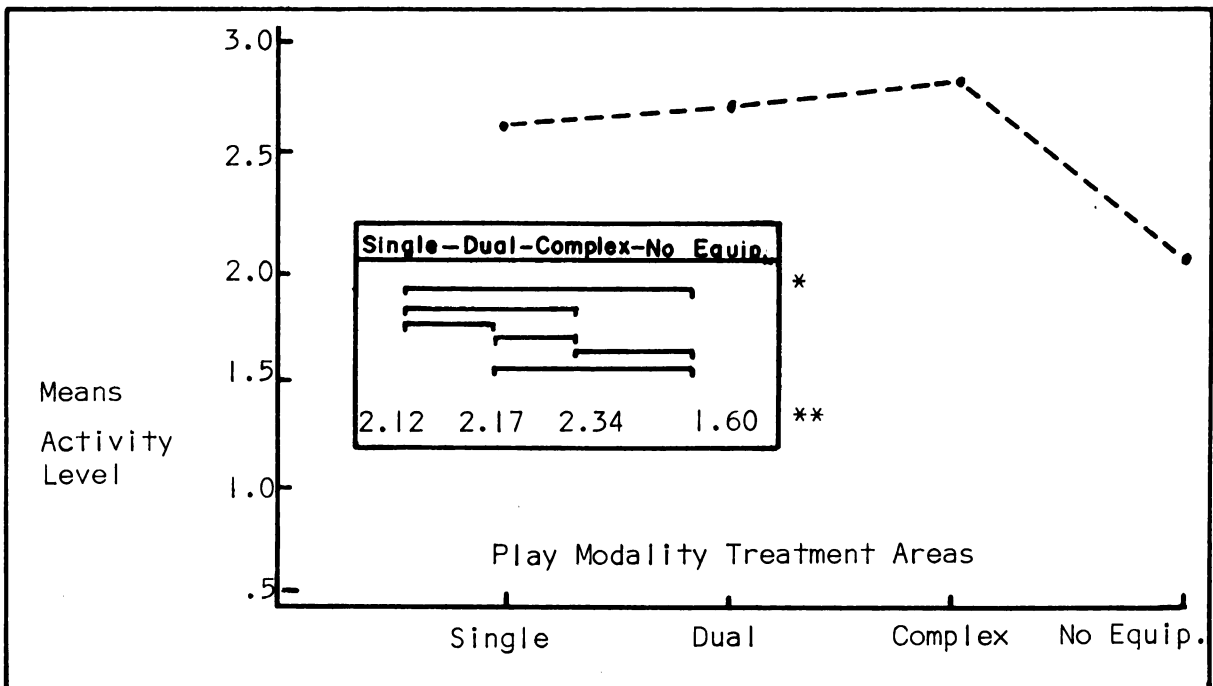


Figure 9. A graph of the means of activity level in the four play equipment areas.

Note. *Significant differences.
 **Means of activity level.



children. They followed the same pattern in suggesting and initiating new activities. Whereas, the complex play modality area elicited a more positive, less intense activity level than the other three areas.

The complex equipment area had a higher number of intervals in which there was peer interaction, shown in Figure 10, than the single and no equipment play modality areas. The difference between the dual and complex areas was not significant.

Initiation indicates the degree to which a child purposely initiates an interaction through either an introduction of himself or a change of activity prompted by himself. The no equipment area elicited more initiations of self and change of activity than the other three areas, as illustrated in Figure 11, with the complex area having more than the other two. With the more overtly intense activity level and the negative physical tone, shown in Figure 12, in the same play area, it can be ascertained that these initiations were more negative than positive. The complex play modality area had a higher number of initiations than the dual and single play modality areas. It is probable the initiations were positive in nature due to the higher level of physical tone and less aggressive behavior also found in this play area.

The non-verbal physical contact with peers was dramatically more prevalent in the no equipment areas than in the other three areas as noted in Figure 13. The complex area elicited more non-verbal physical contact with materials and equipment than the single and no equipment areas. These results are illustrated in Figure 14. Another



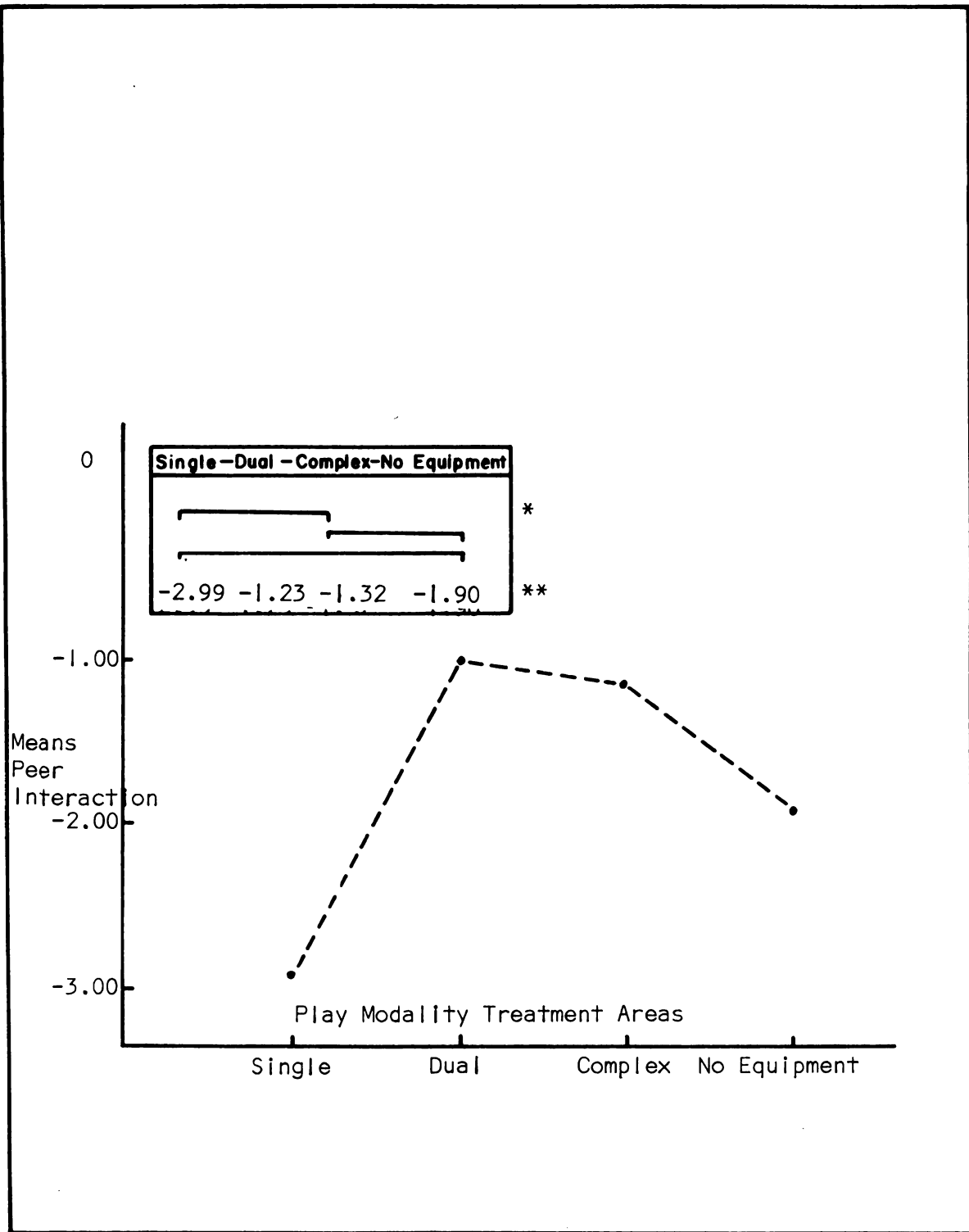


Figure 10. A graph of the means of peer interaction in the four play equipment areas.

Note. *Significant differences.
 **Means of peer interaction.

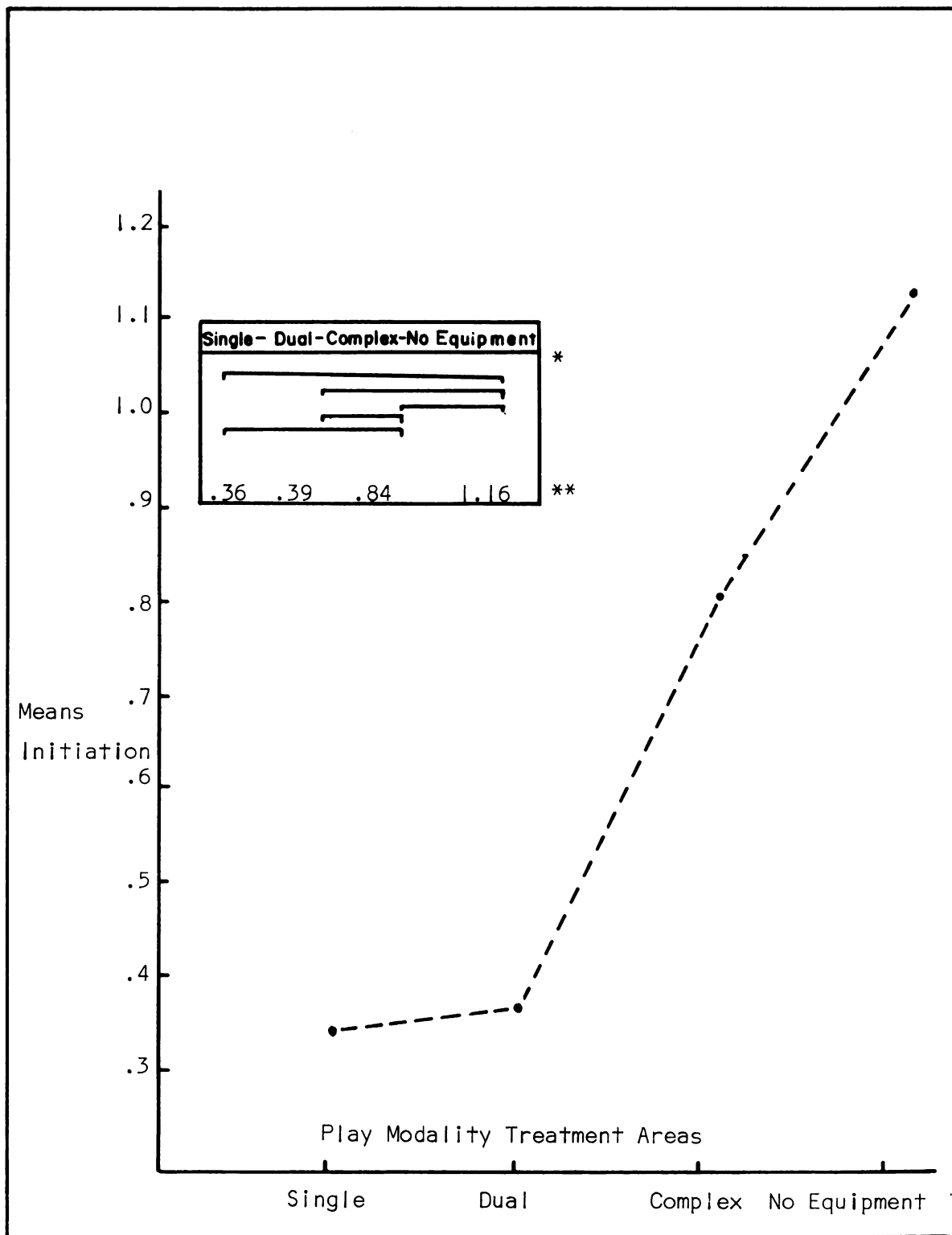


Figure 11. A graph of the means of initiation in the four play equipment areas.

Note. *Significant differences.
 **Means of initiation.



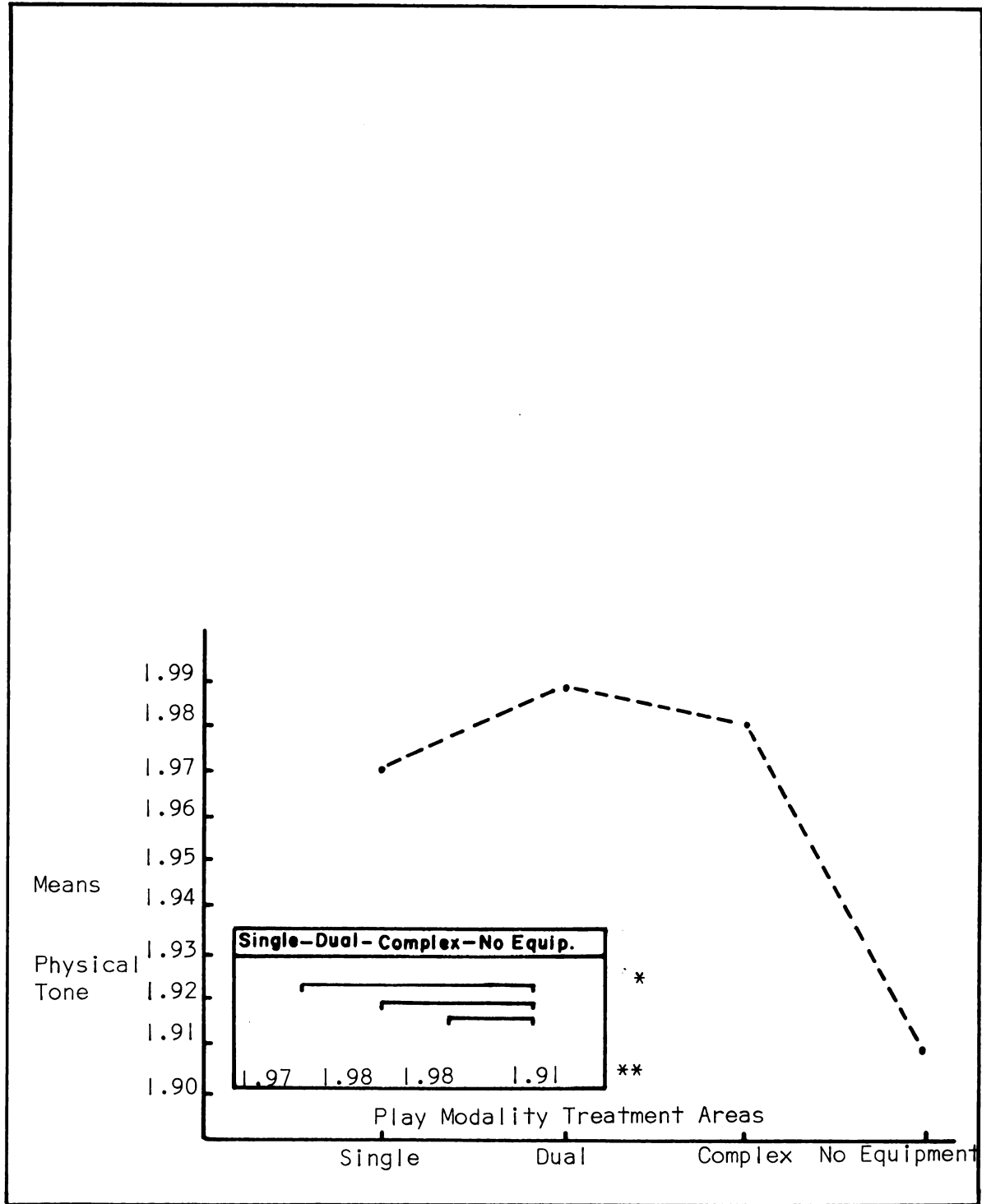


Figure 12. A graph of the means of physical tone in the four play equipment areas.

Note. *Significant differences.
 **Means of physical tone.



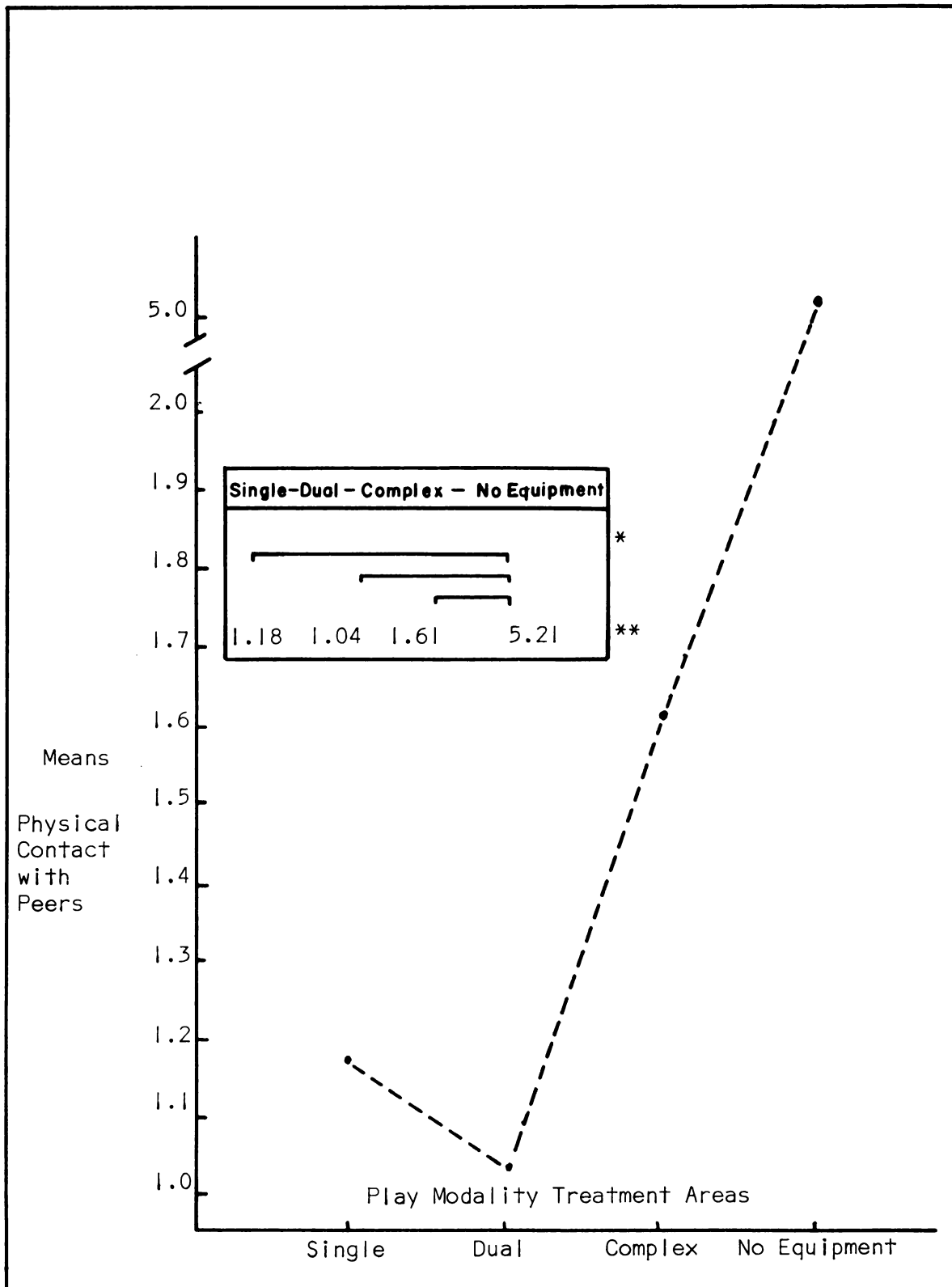


Figure 13. A graph of the means of physical contact with peers in the four play equipment areas.

Note. *Significant differences.

**Means of physical contact with peers.



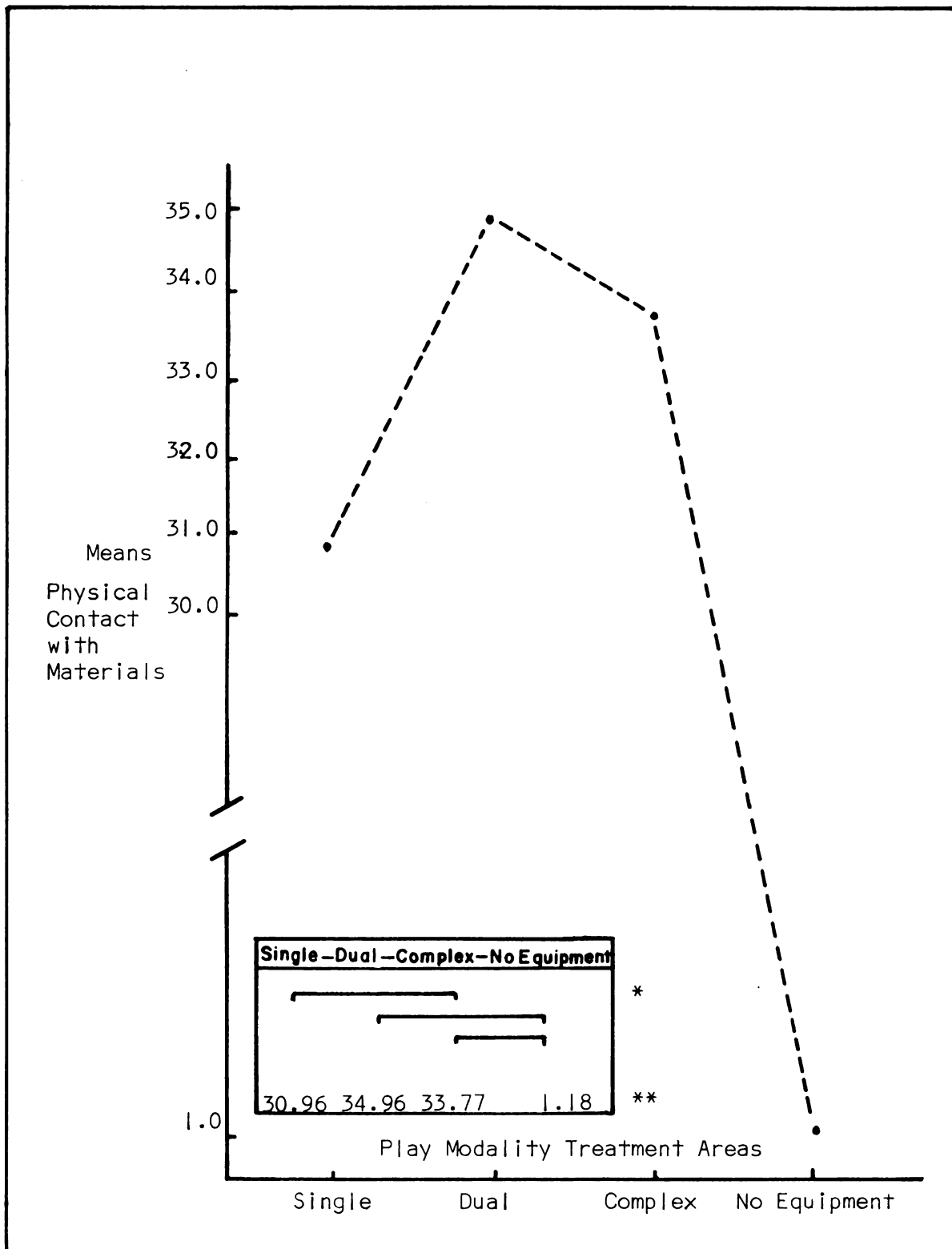


Figure 14. A graph of the means of physical contact with materials in the four play equipment areas.

Note. *Significant differences.

**Means of physical contact with materials.



outcome of this analysis showed the dual play modality area to be higher in physical contact than in the no equipment area. These results indicated that the dual and complex play modality areas are similar. Both areas elicited more non-verbal physical contact with materials and equipment than in the other areas. With literally no materials provided in the no equipment area, these results came as no surprise. However, some of the children did make use of what was available in the enclosure to make their own "materials", by using name tags, grass, and pieces of the snow fencing they were able to break off. It is, therefore, feasible to see why there was no discernable difference in the single and no equipment area for this variable.

The aggressive behavior was noticeably more prevalent in the no equipment area, as noted in Figure 15, than in the complex area. This outcome reflected and supported the negative physical tone and intense overt activity level also found in this area. This finding lends support to the Frustration-Aggression hypothesis, reported by Feshback (1970). The hypothesis contends that the "aggressive drive is not innate but its strength is directly linked to the frequency and intensity of frustrating experiences." With the obvious differences between the complex and no equipment play modality areas, it is probable that the frustration caused by no equipment or materials to play with instigated negative, aggressive behavior. Another possible explanation for the frustration could be the sudden elimination of play equipment after three days of having equipment in the same play area.



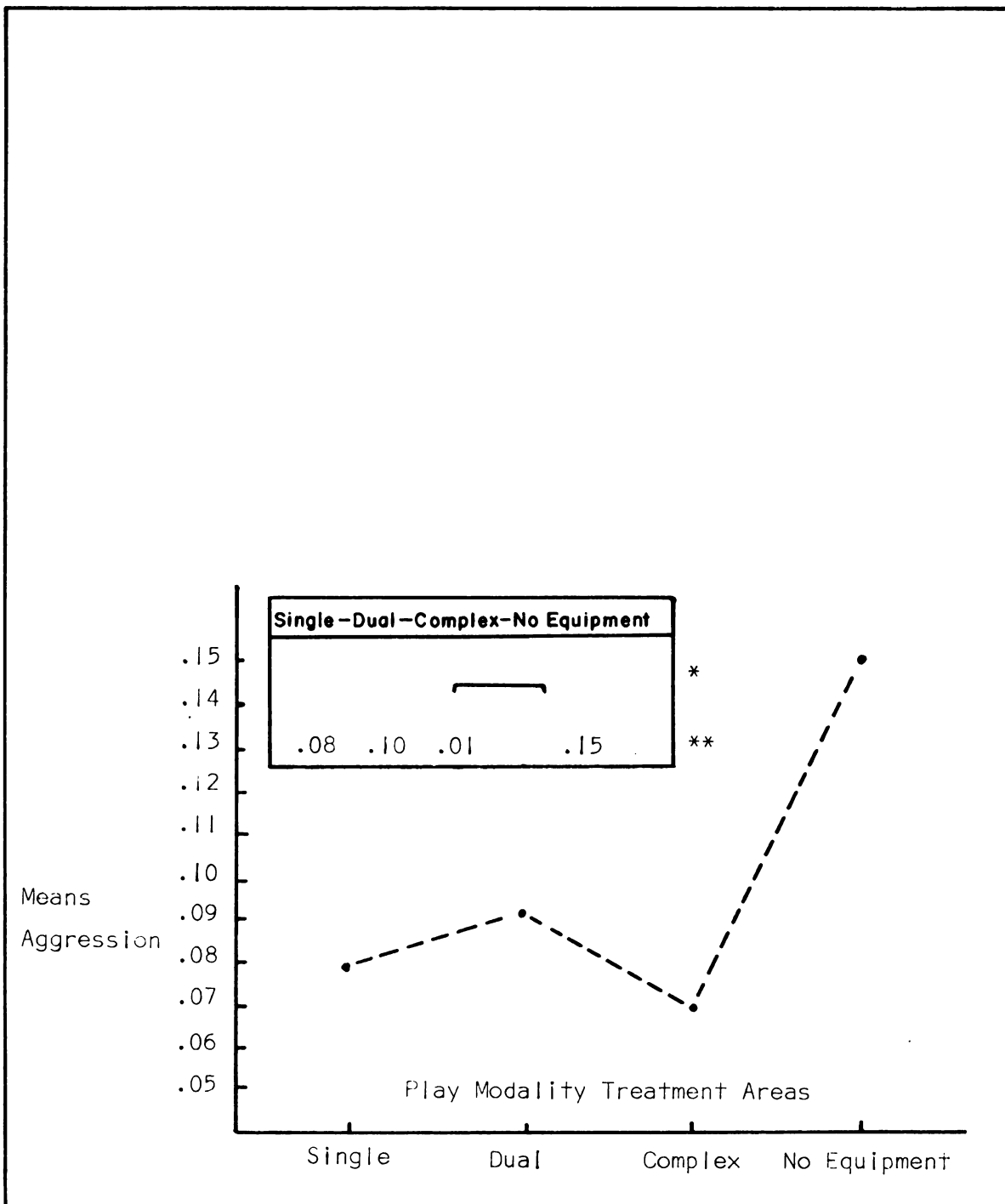


Figure 15. A graph of the means of aggression in the four play equipment areas.

Note. *Significant differences.
 **Means of aggression.



From the analyses, it was apparent that the complex play modality area and the no equipment area had some notable results that would be pertinent to the design of exterior play areas for pre-school children. The complex play area, which was the most intricate equipment area, encouraged the children to interact with more of their peers, more often than in the other play areas. The children displayed a moderate positive response pattern to their peers' initiation of activities and, in turn, initiated activities in the same manner. Negative and aggressive behavior occurred less often in this play area than in the no equipment area. The analysis also indicated that the children played more with the equipment, as well as with their peers in this play area.

The no equipment area encouraged a higher, more mature level of social behavior, more initiations of self and change of activity, and more non-verbal contact with peers. But this same equipment area also elicited interactions and contacts that were more negative in tone, overtly intense, as well as aggressive in nature. Such results indicate a much more negative interaction when no equipment is available, compared to that found in the more intricate complex play modality area.

The results of this study support Johnson's (1935) research which found that sparsely equipped play areas elicited a greater number of social contacts, as well as more social conflicts and negative behavior.



Research completed by Scholtz and Ellis (1975) found that the more complex intricate equipment elicited more interaction with the equipment and less interaction with the peers than did the more simplified equipment. The children eventually began interacting more with their peers than the equipment, but at a slower rate than with the less complex equipment. Similarly, Dansky and Silverman (1973) found that the intricate complex play object setting also encouraged more interaction with the play objects and the low complexity setting of play objects elicited more peer interaction. The present study, too, indicated a high degree of positive interaction with peers. With high positive interaction in both dimensions, the complex play modality area can not only encourage social involvement, but can also encourage the development of perceptual and gross motor skills (Mulhauser, 1970), as well as other areas of development that would be fostered by interaction with play equipment.

Since the children interacted positively with more peers more often in the complex play area, it could be concluded that this area inspired a more involved interest which would encourage a longer period of play. Kritchevsky and Prescott (1969), also noted that the intricate, more complex play area provided more play opportunities for a larger number of children, held their interest longer, and encouraged constructive interactions. They concluded that if children were expected to play in an area for any length of time, more complex play areas seemed virtually essential.

The Relationship Between the Social Involvement
of Male and Female Preschool Children and
Play Equipment Areas

The analyses indicated there were no sex differences in social involvement in the four play equipment areas. This result contrasts with a large amount of literature indicating sex differences in the social involvement of preschool children (Green, 1933; Jerslid, 1935; Hutt and Vaisey, 1966; McGrew, 1970; Boger and Cunningham, 1970; Rohe and Patterson, 1974; and Andrews, 1975). The setting in time, as well as place, could account for the nonsignificant sex differences. The studies that indicated sex differences were either conducted in interior play areas (Hutt and Vaisey, 1966; McGrew, 1970; Boger and Cunningham, 1970; Price, 1971; Rohe and Patterson, 1974; and Andrews, 1975), or thirty to forty years ago when social values regarding behavior expectations of the different sexes were somewhat different than they are today (Green, 1933; Jerslid, 1935).

The literature does not specifically state why an interior play area, more so than an exterior play area, would encourage differences in social involvement in play between sexes. As Barker (1968), Hall (1966), Sommer (1959), Kritchevsky and Prescott (1969), and Proshansky (1973) note, different spaces or settings give cues and clues as to what behavior will occur or should occur. It is possible this is true concerning preschoolers' play and social involvement in interior and exterior play areas. Also, whereas interior play equipment areas are more conducive to sex typing, such as housekeeping areas, wooden trucks and blocks, etc., exterior play areas are more neutral. The



exterior play equipment used in this study was, therefore, difficult to "sex-type". No matter what the sex of a child, specific environments may, consequently, encourage specific behaviors.

Studies conducted thirty and forty years ago indicate many similarities between children of that era and children of today. However, sex role expectations have changed drastically within the middle socio-economic class, from which this sample was drawn, in the last ten years. With the new awareness of equality of sex roles, it is possible that future research will show fewer sex differences in social involvement and play patterns among preschool children.

Finley and Lane (1971) also found no sex differences in play activity in their cross cultural study. Such results indicate that differences in the social involvement and play activities between sexes could be due to the socialization process rather than to innate behavior patterns. Some of the literature on exterior play equipment areas, involving preschool through elementary samples, also indicated no sex differences, as well as no race and socio-economic class differences, in play patterns of children in exterior play areas (Wang, 1941; Flaharty, 1951; Wade, 1968). These studies, therefore, lend support to the hypothesis that behavior expectations in exterior play areas are not determined by sex, but by clues communicated by the play area.

Summary

A relationship was found between the social involvement of preschool children and the four play equipment areas, single, dual,



complex, and no equipment play modality areas. The analyses indicated that the complex play modality area encouraged more positive social interaction more often between the children, and elicited more contact with the equipment. The single and dual play modality units did not offer much to encourage social involvement. The no equipment play area, conversely, did encourage a great amount of social involvement, but with decidedly negative overtones and aggressive behavior.

This study also found no sex differences in the social involvement of preschool children in the four play modality areas. Other studies examining social involvement of preschool children noted distinct differences between the two sexes. A possible explanation for the differing outcome of this study is that the exterior play areas encouraged the same behavioral expectation clues for both girls and boys, thus showing no differences. Another explanation is that at this time in history, when unisex behavioral systems are prevalent in child rearing practices in the middle socio-economic class in this country, sex differences are minimized in socializing young children.



CHAPTER VI

SUMMARY AND IMPLICATIONS

This study was designed to investigate differences in the social involvement of preschool children in four different play equipment areas and to ascertain if sex was a determining factor in that social involvement. Social involvement was determined through two sets of variables, social interaction and affective context of interaction. The four play equipment areas included single, dual, complex, and no equipment play modality units.

A small-group observational methodology was employed. The sample consisted of twenty-eight preschool children, fourteen girls and fourteen boys, enrolled in two cooperative nursery schools located in middle income suburban areas. The ages of the children were between 3.5 and 4.5 years. The children were placed in the various equipment areas in groups of four, two girls and two boys. These groups were randomly assigned so that each child would never be with the same peers more than once in the various play equipment areas. Each child was recorded in each area for fifteen minutes with no child recorded in more than one area in a single day. The play activity of the children in the equipment area was videotaped for subsequent ratings using a time-sampling observational procedure, the Observation of Socialization Behavior Instrument (Boger and Cunningham, 1971).



A repeated measures multivariate analysis was implemented with two separate runs, including social interaction, an objective measure of social involvement, and affective context of interaction, a subjective measure of social involvement. With twelve different variables included in the two runs, a multivariate analysis of variance was utilized. Further, a repeated measures was employed since all of the children participated in each of the four play modality equipment areas. A Scheffé post hoc paired comparisons analysis was made following the discovery of the significant F-ratio for the play modality treatment effect.

The data from this study showed that children interacted with peers in different ways in different types of exterior play areas. No discernable differences were noted in the way children were socially involved with each other in the single and dual play modality areas. The complex play modality area, however, encouraged a more positive social involvement with peers, as well as encouraged interaction with more peers more often. The no equipment area, conversely, elicited a more negative and aggressive social involvement, but a higher level of social behavior than the other areas. Thus, similar to Johnson's study (1935), there was a high level of social contacts, but also more social conflicts.

The results of this study have meaning for designers of exterior play areas for preschool children. If little outdoor space were available for play in a preschool facility, the results indicated that a complex multiuse play equipment area would be the most practical,



both developmentally and financially. Various designers (Aaron, 1965; Hurtwood, 1968; Dattner, 1970; Friedberg, 1970) have theorized for several years that play areas should provide multiuse abstract equipment and materials to encourage social, perceptual motor, gross motor, and cognitive development for children of all ages. This study supports such a theory for the social development of preschool children.

Another benefit is the financial aspect. One complex or multiuse play area can be less expensive than a combination of two or three single and/or dual play modality units of equipment. A complex play modality unit would also utilize less space than comparable single and dual play modality equipment.

Sex was found not to be a determining factor in social involvement of preschool children in the four play equipment areas. Although sex was found to be relevant in other social involvement studies, exterior play areas apparently communicated the same social involvement behavioral clues for both sexes. Based on the results, concern for separate sex usage or the providing of play opportunities for each sex equally does not appear to be relevant when designing exterior play space.

The observation instrumentation and methodology, used previously only in small group interior settings, has shown diversity in its ability to assess social involvement in small group exterior play settings. From the results of this study, it is possible to project that this instrument could also be used in larger group exterior play settings.



Limitations and Suggestions for Future Research

1. One of the problems in implementing this methodology for exterior settings which was not encountered in research with interior play spaces, was poor audio quality. This was due to outdoor noises that could not be controlled, such as the wind blowing into the microphone, a garbage truck pick-up nearby, ambulances going by, etc. Because the audio portions were sometimes indistinguishable, many fantasy and imaginative verbalizations were not properly recorded. Louder, more aggressive verbalizations were heard more often because of the accompanying volume. For future research, an unobtrusive, non-corded microphone could be attached to each child in the play equipment area to obtain a more realistic assessment of the verbalization.

2. Great care must be taken in generalizing results of this study since the data were collected in a novel, controlled setting. The setting was novel in that the children had not played in that area before and the space was changed daily. It was controlled so that a specified group of children interacted within that space at specified times. However, efforts were made to give the impression that this was a normal proceeding for outdoor play comparable to their nursery school outdoor play schedules.

Projecting whether these same results would be observed in a larger natural play area setting or in other small group exterior play settings would be difficult because of the small sample used in this study.



3. The results of this study can only be generalized to the population from which the sample was drawn. The population was primarily white, suburban, middle class preschoolers, who had attended one year of a cooperative nursery school. Children from more diverse racial, socio-economic backgrounds with less or more nursery school experience could possibly produce different results using the same methodology.

A long term study with a naturalistic setting and larger sample, similar to the Barker and Wright study (1954), might present a more rigorous assessment of the social involvement of preschool children. With a larger sample from a larger, more diverse population, results could be more accurately generalized for the total population of preschool children.

4. Human and material resources were excessively costly in implementing the methodology for this study. It took approximately one and one-half hours to observe, rate, and encode each subject for a 15-minute sequence. A great deal of human time was involved in setting up and taping the play sessions, as well as processing the data. Expensive videotape supplies and equipment were necessary in gathering the raw data. In order to analyze the observational data, costly computer programming services were utilized. But, this methodology was also beneficial. The observational methodology used for this study permits an appraisal of children's behavior in a natural and unobtrusive manner, lending validity to the data. Such data, consequently, is more creditable than interview data or retrospective reports or ratings that permit observer or instrumentation biases.



Another positive factor for this form of methodology is that the actual behavior is permanently recorded. The ability to rerun the processes can be beneficial in systematically evaluating errors of measurement connected with the ratings. This procedure is versatile in observing different types of behavior for numerous reasons, as well as investigating diverse substantive and methodological questions. Determining the utility of this methodology when assessing the cost benefit aspects may be difficult, but should, nonetheless, be taken into consideration.

5. A much larger sample, with the elimination of the requirement that all of the children participate in all of the play areas, could increase control of sex effects.

6. Another consideration for future research would involve changing the time factor. Shorter or longer time periods could make a difference in the child's interest level and, consequently, could be a factor in how he interacts with his peers.

7. Because of the similarities displayed between the single and dual play modality units, the dual modality area should be eliminated in future research.

8. The fact that all of the children played in the areas in the same order might have confounded the results. If the order of play situations differed, then the results might have been different. For example, in the present study, the aggression shown in the no equipment area might have been due to frustration caused by suddenly eliminating play equipment after expectations had reached a "high"



when using the complex play modality area the previous day. If the order had varied, then this possibility would have been controlled.

In conclusion, the two findings of particular note in this study were that different exterior play areas encourage different aspects of social involvement among preschool children, and that sex was not a determining factor in the social involvement. Secondary contributions of this study included concrete information which is applicable to the design of exterior play space for preschool children. This has potential benefit for exterior play area designers. Also, the methodology for this study was previously employed only in interior play settings. The results have indicated its versatility in determining social involvement in exterior play settings as well.

APPENDIX A
REQUEST LETTER TO PARENTS



APPENDIX A
REQUEST LETTER TO PARENTS

July 21, 1974

Dear

I am conducting a study for my Ph.D. dissertation from M.S.U. that will be concerned with social interaction and outdoor play equipment of preschool children. I would like to have your child, _____ participate in this study. The data collection involves four fifteen minute videotaping sessions at the Holt Cooperative Nursery School located at the First Presbyterian Church in Holt. Each session will simply involve the videotaping of your child freely playing on a given piece of outdoor play equipment.

In order to facilitate a smooth procedure, four mornings of nursery school will be provided for your child at the Holt Cooperative Nursery. We will meet from 9 a.m. to 12 a.m., Monday through Thursday, July 29-August 1.

The tapes will be used to analyze various aspects of social interaction at the four play equipment areas. Some of the tapes will also be used as instructional tools illustrating social interaction between preschool children.

I will contact you by phone in the near future to confirm your child's participation. Please call me if you have any questions. My phone number is _____.

Thank you for your consideration.

Sincerely yours,

Beverly A. Eubank



APPENDIX B
OSB INSTRUMENT



APPENDIX B
OBSERVATION OF SOCIALIZATION BEHAVIOR

FORM

The form developed for use with the videotaped interaction situations contains two rating frames per 20-second interval. The first frame must be completed as a time sampling of behavior at the signal tone each 20 seconds. The second frame is only completed if no peer interaction occurs in the first frame but subsequently occurs during the 20-second interval. This second frame is therefore reserved for the first observed peer interaction each 20 seconds. If a level 5 or 6 of social behavior occurred during the first frame--no further observational rating is required during the 20 second interval (frame 2 will be crossed out). Likewise if no peer interaction occurs during the interval, the second frame will remain blank (crossed out).

The information included in each frame consists of:

1. Interaction
 - Responses
 - Initiations
2. Object of interaction
3. Level of involvement
4. Peer impact
5. Verbalization
6. Verbal fantasy
7. Voice tone
8. Physical behavior
9. Physical tone
10. Social behavior
11. Autonomy



12. Leadership

13. Social competency

14. Emotionality

The format for recording an observational segment is shown in Figure B-1.

Interaction/Involvement

| | | | | | | |
|----------|------------|----------------------|--------------|---|-------------|--------------------|
| Response | | Initiation | | A | B Impact | C |
| Verbal | | F | NF | - | 0 | + |
| | | | | C | NC | Social Behavior |
| - | 0 | + | | | | |
| Autonomy | Leadership | Social Competency | Emotionality | | | |

Physical Behavior

Inferred Motivation

Figure B-1. An example of one observational frame.



CODES

The categories and descriptions for each code follow:

Interaction and Involvement

Response

A - acceptance: covert or overt awareness and acceptance of another's initiation.

- 1 - intense overt acceptance
- 2 - moderate acceptance
- 3 - covert or weak acceptance

R - rejection: covert or overt awareness and rejection of another's initiation.

- 1 - intense overt rejection
- 2 - moderate rejection--withdrawal submission
- 3 - covert or weak rejection

N - no awareness of another's initiation, no acknowledgement.

O - ongoing behavior (no apparent initiation or responses to initiations).

- 1
- 2
- 3

X - behavioral transition--initiation imminent.

Initiation - introduction of self or change in activity prompted by self.

- 1 - intense overt initiation
- 2 - moderate (normal level) initiation
- 3 - passive initiation, covert or tentative attempt to initiate.

Object of Interaction

A-M - letter code of each peer with whom S is involved (two peers).

G - group involvement with all three other peers: initiation or response not directed to any special individuals.

A - adult.

M - materials. The objects provided specifically for play purposes (including personal articles of apparel on self).

E - environment. Objects not intended for play but present in the setting (walls, light switches, gate, door, etc.).

Impact codes: the consequence of S's behavior as reflected in the behavior of other peers.

Impact recorded separately for each peer.

A - acceptance of S's behavior.

- 1 - intense overt acceptance
- 2 - moderate (normal level) of acceptance
- 3 - covert or hesitant acceptance

N - no impact, no acknowledgement or awareness of S's behavior.

R - rejection of S's behavior.

- 1 - intense, overt rejection
- 2 - moderate (normal level) of rejection
- 3 - covert, mild, or hesitant rejection

Verbalizations

SL - Shows solidarity: raises another's status; gives help or reward.

TR - Tension release: jokes, laughs, squeals, shows satisfaction.

AG - Agrees: shows passive acceptance: understands, concurs; complies.

SU - Gives suggestions or directions, implies autonomy for others.

OP - Gives opinion, evaluation, or analyses: expresses feeling or wish.

OR - Gives orientation or information: repeats, clarifies, confirms.

AR - Asks for orientation: information, repetition, confirmation.

AP - Asks for opinion, evaluation, analyses, expressions of feelings.

AS - Asks for suggestions, direction, possible ways of action.

DS - Disagrees: shows passive rejection or formality: withholds help.

ST - Shows tension: asks for help: withdraws "out of field" (swearing).

AN - Antagonism: deflates other's status: defends or asserts self: name calling: (swearing at someone).

MM - Mumbling (unintelligible).

X - No verbalization

Fantasy

F - Fantasy verbalization

NF - Nonfantasy verbalization

Voice Tone

+ - positive affect conveyed by voice tone.

0 - neutral voice tone: no affect conveyed.

- - negative affect conveyed by voice tone.

Social Behavior

- | | |
|--------------------------|---|
| 1 - Unoccupied behavior: | The child apparently is not playing at all, at least not in the usual sense, but occupies himself with watching anything which happens to be of momentary interest. When there is nothing exciting taking place, he plays with his own body, gets on and off chairs, just stands around, follows the teacher, or sits in one spot glancing around the room. |
| 2 - Solitary play: | The child plays alone and independently with toys that are different from those used by the children within speaking distance and makes no effort to get close or speak to the other children. His interest is centered upon his own activity, and he pursues it without reference to what others are doing. |
| 3 - Onlooker behavior: | The child spends most of his time watching the others play. He often talks to the playing children, asks questions, or |

gives suggestions, but does not enter into the play himself. He stands or sits within speaking distance of the group so he can see and hear all that is taking place. Thus, he differs from the unoccupied child, who notices anything that happens to be exciting and is not especially interested in groups of children.

4 - Parallel play:

The child plays independently, but the activity he chooses naturally brings him among other children. He plays with toys which are like those which the children around him are using, but he plays with toys as he sees fit, without trying to influence the activity of the children near him. Thus, he plays beside, rather than with, other children. This activity is characterized by physical proximity and similarity of activity with reference to other children.

5 - Associative play:

The child plays with other children. They may be borrowing and lending play materials or following one another with trains and wagons. There are mild attempts to control which children may or may not play in the group. All are engaged in similar, if not identical, activity. There is no division of labor and no organization of activity. Each child acts as he wishes and does not subordinate his interest to the group. There is interaction between children, but no common goal.

6 - Cooperative play:

The child plays within a group that is organized for the purpose of making some material product, of striving to attain some competitive goal, of dramatizing situations of adult or group life, or of playing formal games. There is a marked sense of belonging or not belonging to the group. The control of the group situation is in the hands of one or two members who direct the activity of others. The goal and the method of attaining it necessitates a division of labor, the taking of different roles by various group members and the organization of activity so that the efforts of one child are supplemented by those of another. The critical distinction is the goal-directedness of the group.

Physical BehaviorContact

C - Contact: physical contact between subject and object or another peer.

NC - No physical contact with other peers or objects.

Behavioral tone

+ - behavior which is socially acceptable or positive in connotation.

0 - neutral motion: physical behavior which does not convey either positive or negative connotations.

- - behavior which is not socially acceptable or is negative in connotation.

Inferred Motivation: The following four codes are rated on a 5 point scale.

| 5 | 4 | 3 | 2 | 1 |
|------------------------|-------------|---------|-------------|------------------------|
| positive overt/intense | covert/mild | neutral | covert/mild | negative overt/intense |

Autonomy (psychological)

| | | | | | |
|---------------|---|---|---|---|---|
| self directed | 5 | 4 | 3 | 2 | 1 |
| independent | | | | | |
| patient | | | | | |
| persistent | | | | | |
| tolerant | | | | | |
| integrated | | | | | |

dependent
impatient
non-persistent
vulnerable to frustration
submissive

Social Leadership

| | | | | | |
|---------------------|---|---|---|---|---|
| original activity | 5 | 4 | 3 | 2 | 1 |
| initiates to others | | | | | |
| dominant | | | | | |

imitation
follows
compliant

Social Competency

| | | | | | |
|----------------|---|---|---|---|---|
| other directed | 5 | 4 | 3 | 2 | 1 |
| friendly, open | | | | | |
| empathetic | | | | | |
| helpful | | | | | |
| affectionate | | | | | |
| constructive | | | | | |

self centered
withdrawn
rejecting
aggressive
disregards others
boasting
attention-seeking
jealous
destructive

Emotionality

| | | | | | |
|------------------|---|---|---|---|---|
| happy, confident | 5 | 4 | 3 | 2 | 1 |
| unconcerned | | | | | |
| eager | | | | | |

anxious
fearful
angry
hesitant (rejection)



Recording Observations

For each frame a code must be applied to each available space. If no verbalization or initiation is observable, an "X" is coded in that position. All other spaces require an observational interpretation of the behavior occurring. The only exception to this rule is the rare case in which the person being observed leaves the scene (is cut out of camera range). In such cases, "X" for the entire frame or any part thereof is permissible.

Coding of each category is done by writing in the appropriate code (for responses, level of involvement, object of interaction, impact, autonomy, leadership, social competence, emotionality, verbalization, social behavior) or by circling the appropriate code symbols (for fantasy, voice tone, physical behavior, and behavioral tone).

Frame 1 (required)

When the signal tone is heard marking a 20 second interval, the behavior occurring immediately after the tone is observed. All observations within a single frame refer to this one behavioral interaction. Frame 1 must be completed each 20 seconds for the entire play session.

Frame 2 (optional depending on interaction)

If Frame 1 does not contain a 5 or 4 level of social behavior, then prepare to record the first peer interaction that occurs in the 20 second interval.

Frame 2 is only completed if a peer interaction occurs during the interval, otherwise an "X" is placed through the entire frame.

If a peer interaction occurs, record the behavior as a single interaction with all codes applying to that "bit" of interaction. (The verbalization, physical behavior, social behavior, inferred motivation and impact are all contingent on the interaction sequence).

Whether the interaction begins as a response or an initiation, it is the total sequence of interaction that is observed and rated.

| | | | | |
|---|-------|---|-------|--------|
| R | ----- | I | ----- | Impact |
| O | ----- | I | ----- | Impact |
| X | ----- | I | ----- | Impact |

Peer A _____ Peer B _____ Peer C _____
 Name _____ ID # _____ Date _____ Rater _____

| - 20 | | - 20 | |
|---|---|---|---|
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Figure B-2. Observation of socialization behavior rating protocol.

APPENDIX C
SPECIFICATIONS OF PLAY MODALITY AREAS



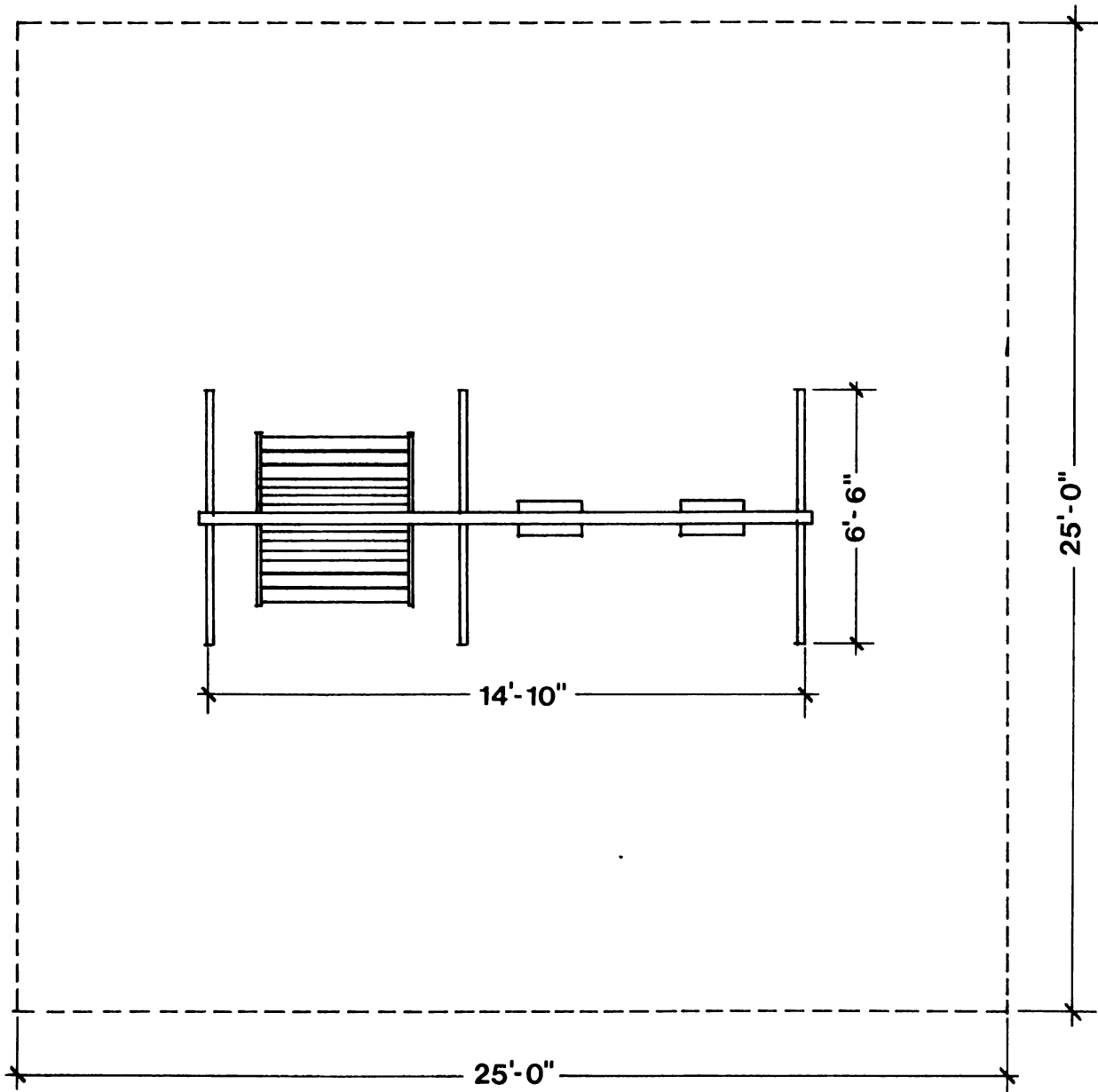


Figure C-1. Specifications of single play modality area.

SCALE: $\frac{1}{4}" = 1'-0"$

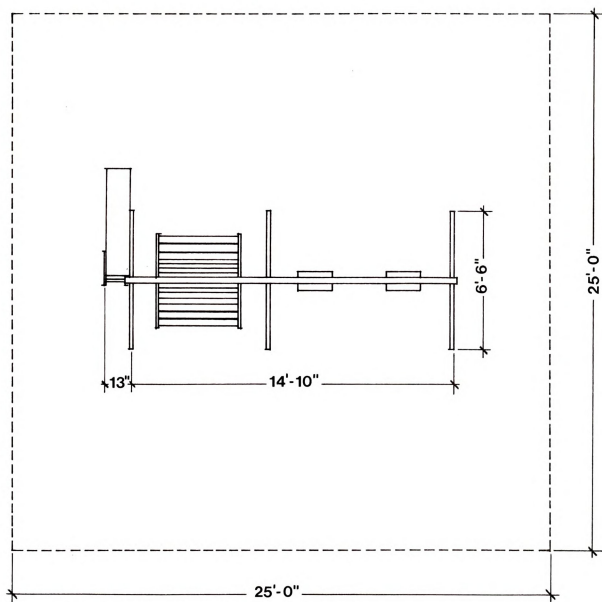


Figure C-2. Specifications of dual play modality area.

SCALE: $\frac{1}{4}" = 1'-0"$



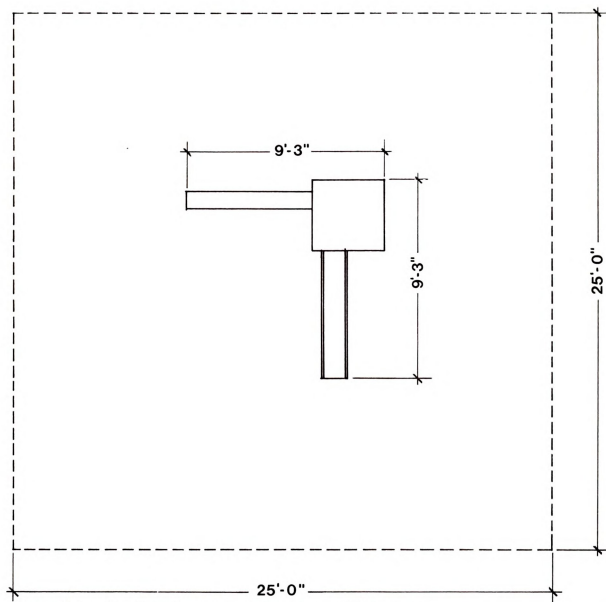


Figure C-3. Specifications of complex play modality area.

SCALE: $\frac{1}{4}" = 1'-0"$

BIBLIOGRAPHY

BIBLIOGRAPHY

- Aaron, D. Child's play. New York: Harper & Row, 1965.
- Ackerman, N. W. The diagnosis of neurotic marital interaction. Social Casework, 1954, 35, 139-147.
- Adams, Darrell K. The development of social behavior. In Y. Brackbill (Ed.), Infancy and early childhood. New York: The Free Press, 1967.
- Ames, L. B. and Learned, J.L. Imaginary companions and related phenomena. J. Genetic Psy., 1946, 69, 147-169.
- Anderson, H. H. and Anderson, J. L. Social development. In L. Carmichael (Ed.) Manual of Child Psychology. New York: John Wiley and Sons, 1954, 1162-1215.
- Andrews, M. L. Dimensions of communication in three- and four-year-old children's peer interactions. Unpublished doctoral dissertation, Michigan State University, 1975.
- Arrington, R. Time sampling in studies of social behavior: A critical review of techniques and results with research suggestions. Psychol. Bulletin, 1943, 40, 81-124.
- Bales, R. F. Interaction process analysis: A method for the study of small groups. Cambridge, Mass.: Addison Wesley Press, 1951.
- Bandura, A. Social-learning theory of identificatory processes. In D. A. Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969.
- Barker, R. G. Ecological psychology. Stanford, California: Stanford University Press, 1968.
- Barker, R. G. and Wright, H. F. Midwest and its children. New York: Harper and Row, 1955.
- Berne, E. Social behavior patterns in young children. University of Iowa studies in Child Welfare, 1930, 4.
- Bishop, R. L. et al. Measurement of children's preferences for the play environment. In William J. Mitchell (Ed.) Environmental Design: Research and Practice. Proceedings of the EDRA 3/ar 8 Conference, UCLA, Jan. 1972.

- Bliss, P. M. The uses of playground apparatus in selected California elementary schools. Unpublished doctoral dissertation, University of California, 1952.
- Boger, R. and Cunningham, J. L. Differential socialization patterns of preschool children. Unpublished report, Institute for Family and Child Studies. Michigan State University, December 1970.
- _____. Observation of socialization behavior. Unpublished report Institute for Family and Child Studies. Michigan State University, 1971.
- Brauchlin, E. Play activities as a therapeutic adjunct to special education pedagogy. Heilpädagogische Werkblätter, 1970 (September), Vol. 39 (5), 232-240.
- Brunswik, E. Scope and aspects of the cognitive problem. In H. Gruber, R. Hammond and R. Jessor (Eds.) Cognition: The Colorado symposium. Cambridge: Harvard University Press, 1957.
- Buss, A. H. and Brock, T. C. Repression and guilt in relation to aggression. Journal of Abnormal and Social Psychology, 66, 1963, 345-350.
- Charlesworth, R. and Hartrup, W. W. Positive social reinforcement in the nursery school peer group. In M. S. Smart and R. C. Smart (Eds.), Preschool child: Development and relationships. New York: Macmillan Publishing Co., 1973.
- Clark, B. S. The acquisition of extinction of peer imitation in children. Psychometric science, 2, 1965, 147-148.
- Cockrell, D. L. A study of the play of children of preschool age by an unobserved observer. Genetic Psychology Monograph, 1935.
- Consentino, F. and Heilbrun, A. B., Jr. Anxiety correlates of sex-role identity in college students. Psychological Reports, 14, 1964, 729-730.
- Craig, G. J. Human development. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1976.
- Crawford, Robert. Playground equipment: A new era? American recreation annual. New York: Hoffman Publication, 1960.
- Cunningham, J. L. A comparison of didactic interactions of mothers and fathers with their preschool children. Unpublished doctoral dissertation, Michigan State University, 1972.

- Dansky, J. L. and Silverman, I. W. Effects of play on associative fluency in preschool-aged children. Developmental Psychology, 9, 1973, 38-43.
- Dattner, R. Design for play. New Jersey: Van Nostrand, 1970.
- Erikson, E. H. Childhood and society. (2nd rev. ed.), New York: Norton, 1963.
- Feshback, S. Aggression. In P. H. Mussen (Ed.) Carmichael's manual of child psychology. Vol. 2 (3rd ed.). New York: Wiley, 1970.
- Finley, G. E. and Layne, O., Jr. Play behavior in young children: A cross-cultural study. The Journal of Genetic Psychology, 1971, 119, 203-210.
- Friedberg, P. M. Play and interplay. New York: Macmillan Publishing Co., 1970.
- Freud, S. Psychopathology of everyday life. New York: Macmillan, 1917.
- Garvey, C. and Hogan, R. Social speech and social interaction: Egocentrism revisited, Child Development, 44, 1973, 562-568.
- Gerwartz, H. L. Stimulation, learning, and motivation principles for day care settings. In Edith Grotberg (Ed.) Day Care: Resources for decisions. Washington, D. C.: Office of Economic Opportunity, 1971.
- Goldberg, S. and Lewis, H. Play behavior in the year-old infant: early sex differences. Child Development, 1969, 40, 21-31.
- Green, E. H. Friendships and quarrels among preschool children. Child Development, 4, 1933, 237-252.
- Hall, E. The hidden dimension. New York: Doubleday, 1966.
- Hartrup, W. W. and Coates, B. Imitation of a peer as a function of reinforcement from the peer group and rewardingness of the model. Child Development, 38, 1967, 1003-1016.
- Hays, William L. Statistics. New York: Holt, Rinehart and Winston, 1963.
- Heimstra, N. W. and McFarling, L. H. Environmental psychology. Monterey, Calif.: Brooks/Cole Publishing Co., 1974.

- Hicks, D. J. Girls' attitudes toward modeled behaviors and the content of initiative private play. Child Development, 42, 1971, 139-147.
- Hurtwood, Lady Allen. Planning for play. Cambridge, Massachusetts: The MIT Press, 1968.
- Hutt, C. Exploration and play in children. Symp. Zool. Lond. (1966) No. 18, 61-81.
- Hutt, C. and Vaizey, M. J. Differential effects of group density on social behavior. Nature, Vol. 209, No. 5030, March 26, 1966, 1371-72.
- Jerslid, A. T. and Markey, F. V. Conflicts between preschool children. Child Development Monographs, 1935, No. 21.
- Johnson, M. W. The effect on behavior of variation in the amount of play equipment, Child Development, VI, 1935, 56-68.
- Kagan, J. Acquisition and significance of sex typing and sex role identity. In M. Hoffman and L. Hoffman (Eds.) Review of child development research (Vol. 1). New York: Russell Sage Foundation, 1964.
- _____. Do infants think? Scientific American, 226, March 1972, 74-83.
- Kagan, J. and H. A. Moss. Birth to Maturity. A study in psychological development. New York: Wiley, 1962.
- Kerlinger, F. M. Foundations of behavioral research. New York: Holt, Rinehart and Winston, Inc., 1967.
- Kohlberg, L. A cognitive-developmental analysis of children's sex-role concepts and attitudes. In E. E. Maccoby (Ed.). The development of sex differences. Stanford, California: Stanford University Press, 1966, 82-173.
- _____. Early education: A cognitive-developmental view. Child Development, 1968, 39, 1013-1062.
- _____. The development of children's orientations toward a moral order: I. Sequence in the development of moral thought. Vita Humana, 6, 1973, 11-33.
- Kritchevsky, S. and Prescott, E. Planning environments for young children-Physical space. Washington, D.C.: National Association for the Education of Young Children, 1969.

- Levitin, T. E. and Chananie, J. D. Responses of female primary school teachers to sex-typed behaviors in male and female children. Child Development, 43, 1972, 1300-1316.
- Loo, C. M. The effects of spatial density on the social behavior of children. Journal of Applied Social Psychology, 1972, 2, 4, 372-381.
- Loomis, A. M. A preliminary study of the physical contacts of nursery school children. In D. S. Thomas (Ed.) Some new techniques for studying social behavior. New York: Teachers College, 1929, 55-75.
- Lytton, H. Observation studies of parent-child interaction: A methodological review. Child Development, 1971, 42, 651-684.
- McCandless, B. R. Children behavior and development. New York: Holt, Rinehart and Winston, Inc., 1967.
- Maccoby, E. and Jacklin, C. The psychology of sex differences. Stanford, Calif.: Stanford University Press, 1975.
- McDavid, J. W. The teacher as an agent of socialization. In Grotberg, E. (Ed.), Critical issues in research related to disadvantaged children. Princeton: Educational Testing Service, 1969.
- Mischel, W. Personality and assessment. New York: Wiley, 1968.
- Money, J. and Ehrhardt, A. A. Man and Woman, boy and girl: the differentiations of dimorphism of gender identity from conception to maturity. Baltimore: Johns Hopkins University Press, 1972.
- Mulhauser, F. A. An exploratory study of relationships of space utilization with selected dimensions of behavior in children age 5. Unpublished doctoral dissertation, University of Michigan, 1970.
- Mussen, P. H. Early sex role development. In D. A. Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969, 707-731.
- Olson, M. A. A comparison of the orientation behaviors of mothers and their preschool children. Unpublished doctoral dissertation, Michigan State University, 1975.
- Parten, M. B. Social play among preschool children. Journal of Abnormal Social Psychology, 1933, 28, 136-147.

- Patterson, G. R., Littman, R. A., and Bricker, W. Assertive behavior in children: A step toward a theory of aggression. Mono-graphs of the Society for Research in Child Development, 32, 1967.
- Piaget, Jean. Play, dreams and imitation in childhood. C. Gattegno and F. M. Hodgson (Trs.). New York: Merton, 1951.
- _____. The Psychology of intelligence. New York: Harcourt, Brace, and World, Inc., 1950.
- Prescott, E. and Jones, E. Group day care as a child-rearing environment. Children's Bureau, Social Security Administration, Dept. of Health, Education, and Welfare, 1967.
- Price, J. M. The effects of crowding on social behavior of children. Unpublished doctoral dissertation, Columbia University, 1971.
- Proshansky, H.M., Ittelson, W. H., and Rivlin, L. G. (Eds.). Environmental psychology. New York: Holt, Rinehart, and Winston, 1970.
- Proshansky, H.M. Theoretical issues in environmental psychology. Representative Research in Social Psychology, 4, 93-107, 1973.
- Reuter, J. and Yunick, G. Social interaction in nursery schools. Developmental Psychology, 1973, Vol. 9, No. 3, 310-325.
- Rohe, W. and Patterson, A. H. The effects of varied levels of resources and density on behavior in a day care center. In D. H. Carson, Man Environment Interactions: Evaluations and Applications. Proceedings from edra 5, 1974, Environmental Design Research Associations, Inc.
- Scholtz, G. J. L. and Ellis, M. J. Reported exposure to objects and peers in a play setting. Journal of Experimental Child Psychology, 19, 448-455, 1975.
- Schvaneveldt, J. D. The interactional framework in the study of the family. In F. I. Nye and F. M. Berardo (Eds.), Emerging conceptual framework in family analysis. New York: Macmillan Company, 1966.
- Shure, M. B. Psychological ecology of a nursery school. Child Development, 1963, 34, 979-992.
- Smith, P. and Connolly, K. Patterns of play and social interaction in preschool children. In N. Blurton Jones (Ed.) Ethological studies of child behavior. London: Cambridge University Press, 1972.

- Sommer, Robert. Studies in personal space. Sociometry, 1959, 22, 247-260.
- Stensaasen, Svien. Children in high houses and crowded streets and the need for early planning. Symposium Xth World Assembly of OMEP, Stockholm, Sweden, August 12-18, 1964.
- Stone, L. J. and Church, J. Childhood and Adolescence. New York: Random House, 1973.
- Stryker, S. Symbolic interaction as an approach to family research. Marriage and Family Living, 1959, 21, 11-119.
- Thayer, L. Communication and communication systems. Homewood, Ill.: Irwin, 1968.
- Updegraff, R. and Herbst, E. K., An experimental study of the social behavior stimulated in young children by certain play materials. Journal of Genetic Psychology, 1933, 42, 372-391.
- Wahler, R. G. Child-child interactions in free field settings: Some experimental analysis. Journal of Experimental Child Psychology, 5, 1967, 278-293.
- Walters, R. H., Parke, R. D. and Cane, V. A. Timing of punishment and the observation of consequences to others as determinants of response inhibition. Journal of Experimental Child Psychology, 2, 1965, 10-30.
- White, B. Human infants: Experience and psychological development. Englewood Cliffs, N.J.: Prentice-Hall, 1971.
- White House Conference on Children. Washington, D.C.: U. S. Government Printing Office, 1970.
- Whiting, B. B. Six cultures: Studies of child rearing. New York: Wiley, 1963.
- Willems, Edwin P. Behavior-environment systems: An ecological approach. Man-Environment Systems, Vol. 3, No. 2, 79-110.
- Wohlin, H. Physical planning for play and security. Symposium Xth World Assembly of OMEP, Stockholm, Sweden, August 12-18, 1964.
- Wohwill, J. F. The emerging discipline of environmental psychology. American Psychologist, 1970, 25, 303-312.
- Wright, H. F. Observational child study. In P. Mussen (Ed.) Handbook of research methods in child development. New York: John Wiley and Sons, 1960.



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