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# DISADVANTAGED CHILDREN'S PLAY BEHAVIOR OVER THE SCHOOL YEAR IN PUBLIC SCHOOL PRESCHOOL CLASSROOMS

by

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A Dissertation Submitted to
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APPROVAL PAGE

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The purpose of this study was to examine the developmental changes in preschool children's play behavior in public school preschool classrooms. From the original four hundred eighty economically disadvantaged children in public pre-kindergarten programs funded by Chapter 1, two hundred eighty three children were used for the final analyses of this study. Children's play behaviors during free play time were observed twice over the school year in their classroom settings using an event sampling method. A series of repeated measures multivariate analyses of variance (MANOVA) were conducted to test 12 hypotheses. In addition to examining the developmental aspects of play, the findings were also compared with those of previous research studies to determine how public preschool intervention programs contribute to children's play development. This study tested 12 hypotheses with 4 aspects of play: (1) what level of social play the children engage in; (2) where in the classroom the children play; (3) whom the children play with; and (4) whom the children talk to. The effect of children's gender was also examined. The findings revealed that in public preschool intervention programs: (1) children were involved most in parallel play and the amount of parallel play increased with age; (2) associative and cooperative play decreased over the school year and unsocial play (unoccupied, onlooker, and solitary) also decreased; (3) there was no increase in the amount of symbolic interactions while the manipulative play increased over time; (4) boys were involved more in blocks while girls played more in dramatic area; (5) the amount of peer interaction as well as verbal interaction did not increase over time, and children

played and talked with their peers most; (6) there were no gender effects in peer or verbal interactions and (7) there was one interaction effect between gender and time on whom the children talked to--the amount of girls' talk made to teacher increased over the school year whereas boys talked less to teacher over time.

This study showed that the public preschool intervention programs might not facilitate higher level of social and symbolic interactions as well as verbal interactions, which are recognized as necessary skills for the future school adjustment. Findings from this study suggest that public school preschool intervention programs may not be implementing appropriate practices for the needs of disadvantaged children to reduce the possible negative effects of poverty. These classrooms may be focusing on better immediate academic performance in school while ignoring the importance of play for long-term development, both academic and social.

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# CHAPTER I

# INTRODUCTION

## Statement of the Problem

Children born into impoverished families are more likely to exhibit intellectual underachievement and problems in physical, cognitive, social and emotional functioning than their peers from middle- and high-income families (Alexander & Entwisle, 1988; Burchinal, Lee, & Ramey, 1989; Caughy, DiPietro, & Strobino, 1994; Lee, Brooks-Gunn, Schnur, & Fong-Ruey, 1990; Patterson, Kupersmidt, & Vaden, 1990). Poverty creates direct and indirect negative influences on children's development. Bowman (1991) has argued that being poor may cause biological and emotional stresses due to an inadequate food supply, underequipped home environment, and poor and inconsistent care from family members. Poverty may also relate indirectly to negative developmental outcomes through producing feelings of hopelessness and despair, emotional/social deprivation, neglect, and abuse. Not only are children from poor families deprived of a full range of learning experiences for their optimal development (Campbell & Ramey, 1994), but they also start school less prepared compared to middle- and upper-class children (Alexander & Entwisle, 1988).

Recent reports show that the number of children living under poverty began to increase again during the 1970s, and especially during the recession of the early 1980s. In the 1992 census report, 21.9% of the nation's children under 18 years of age lived in

the 1992 census report, 21.9% of the nation's children under 18 years of age lived in families with cash incomes below the poverty threshold; for black children, however, 46.6% lived in poverty compared to 16.9% of white children (U.S. Bureau of the Census, 1993; Hashima & Amato, 1994). The detrimental effects of poverty on children's development coupled with the increased number of children affected combined with the belief that the effects could be ameliorated through intervention led to increased efforts to improve the living and educational conditions for children (Bowman, 1992; Hashima & Amato, 1994).

Preschool compensatory education has been an attempt to modify the environments of disadvantaged children to provide them the skills required for success in public schools (Ramey & Campbell, 1984) and an equal opportunity for starting public school with the same preparation as their middle-class peers (Shonkoff & Meisels, 1990). Public preschools for economically disadvantaged children have raised important issues among scholars about whether these programs really provide appropriate environments for the individual needs of disadvantaged children, children who are at an age when many believe play should be a central component of their lives (Campbell & Ramey, 1994; Rogers & Sawyers, 1988). Play provides a context where there is no pressure on making good results or making mistakes and where the children can freely explore and experiment with their environment and construct knowledge of their world. Through play, children enjoy mastering skills and using them to control their environment (Van Hoorn, Nourot, Scales, & Alward, 1993). Play--child-initiated, child-directed, teacher-supported--is an essential component of the developmentally appropriate practices. Since developmentally

appropriate practices are defined by two dimensions of age appropriateness and individual appropriateness, the knowledge of typical development of children within the age span as well as the understanding of each child's unique developmental pattern, timing, individual personality, learning style, and family background provide the framework of the program (Bredekamp, 1987). Although, play is known to be an important part of preschool children's development, it has not received enough attention in evaluations of public preschools as an outcome measure or in intervention research as. With a history of implementing academic curriculum from the kindergarten or primary grades in younger age groups, it has been a major concern that these public preschools might have positive effects on young children's school readiness but at the expense of their development as a whole (Elkind, 1986; Farran & Culp, 1990; Farran, Son-Yarbrough, & Silveri, 1993; Marcon, 1993, 1994; Zigler, 1986).

Since the launch of Project Head Start in the 1960s as a national commitment to early intervention for economically disadvantaged children, early intervention has been one of the leading efforts in the fight against the harmful effects of poverty on young children. Including a few longitudinal studies, research studies on early intervention programs have produced a considerable number of empirical reports on the effects of early intervention. The most appropriate conclusion up to the present on the effects of intervention programs may be that there appears to be immediate short term effects (Beller, 1983; Farran, 1990; Gray, Ramsey, & Klaus, 1983; Lee, Brooks-Gunn, Schnur, & Fong-Ruey, 1990; Reynolds, 1995; Schweinhart & Weikart, 1983; Wadsworth, 1989) and dissipating lasting effects on school performance and test scores (Andersson, 1989, 1992; Farran, 1990;

Lazar, Darlington, Marray, Royce, & Snipper, 1982; Ramey, Bryant, & Suarez, 1985; Reynolds, 1995; Seitz, Apfel, Rosenbaum, & Zigler, 1983). In most of the studies of early intervention effects, cognitive skills have been the outcome measures of choice, measured either by standardized IQ tests or performance tests (Zigler, Abelson, Trickett, & Seitz, 1982).

It is essential to examine program effects with multiple indicators from broader developmental areas under various conditions, rather than a single measure such as IQ (Lee, Brooks-Gunn, Schnur, & Fong-Ruey, 1990). There are differing reports when children's gender, family income, and other variables are considered in program assessment (Caughy et al., 1994; Desai, Chase-Lansdale, & Michael, 1989). For instance, boys benefited more from nondidactic preschool programs than didactic preschools whereas girls had more benefit for their reading ability from didactic preschool program (Miller & Bizzell, 1983). When socioemotional development is the outcome of interest, the reported effects of intervention are varied. Children who had academically-directed preschool experience have shown a decline in social development as indicated by attention deficits/hyperactivity, anxiety, possible depression, and oppositional/defiant behaviors (Marcon, 1994).

Most research on the outcomes of early intervention has focused on either Head Start or university-based model programs. Little research has examined whether preschool programs under auspices of the public school system, developed primarily to increase the school readiness for disadvantaged children, have differential effects on children's cognitive or social behavior (Farran & Culp, 1990; Farran et al., 1993; Minuchin

& Shapiro, 1983); fewer still have continued the study over a period of time with a naturalistic approach. Of particular concern is the possibility of negative social effects from a classroom environment not suited for younger children. Therefore, the effects of public school preschools on economically disadvantaged preschool children's social development has become a timely area for research and speculation. This study is focused on developmental changes in children's play behaviors representing children's overall development as a function of the classroom environments in the public school preschools. In addition to the developmental changes in play behaviors, the amount of each play behavior is compared with that found in previous research, drawn from a diverse literature as a comparison base. The following research questions are the foci of this study on developmental changes in children's play behaviors.

## Research Questions

Specifically, the study will focus on the following questions about disadvantaged children in preschools:

1. How does children's social play change over the school year?
2. How do children's favored play areas change over the school year?
3. How do children's play partner choices change over the school year?
4. How do children's verbal interactions change over the school year?
5. How does children's gender influence developmental changes in play behavior over the school year?

# CHAPTER II

# REVIEW OF THE LITERATURE

This chapter will present a review of literature related to preschool children's play behavior and its relation to preschool programs. The first section presents various aspects of play in early childhood development, focusing on the role of play, stages of play behaviors, and developmental changes in play behaviors including considerations of collateral factors such as gender, socioeconomic status of the family, and ethnicity. The latter issue of the effects of socioeconomic status on children's play development continues into the second section, which addresses perspectives on poverty and children's development with various research reviews on intervention and curriculum effects. In the final section, issues related to the public preschool curriculum for disadvantaged children and their development of play behavior are pulled together from the perspectives of early intervention and play-based curriculum.

## Play in Early Development

### Role of Play

The perspective on human beings as active players who interact with their environment (Piaget, 1962) communicates the importance of play, a means in and through which children act, integrate and balance all aspects of human functioning (Levy, 1978). Children develop physical, intellectual, social and emotional capabilities as they

continuously and actively explore their environments and react to them (Rubin, Fein, & Vandenberg, 1983). Play is the means by which children explore, experiment and interact with their own environments providing limitless new information to adapt and master (Rogers & Sawyers, 1988). In a comprehensive review, Rubin et al. (1983) distinguish the following characteristics of play: Play is intrinsically motivated and stresses the means rather than the results; play emphasizes what the actor can do in a stimulating environment, therefore, play will be matched to children's developmental level; children themselves choose what to play, whom to play with and what to play with; play is free from externally applied rules, and the participant is actively engaged without pressure while playing. Hence, play is where children do not worry about making mistakes and losing self confidence. These fundamental characteristics of play make it the essential and perhaps the best medium for young children's development and learning.

There are two main components of play: cognitive factors and social factors (Christie & Johnson, 1987). When children play, there are both cognitive and social components - there is both what they understand cognitively about how the physical world works as well as how to enact various roles and practice rules associated with play. There is the social component when play involves more than one person -- the individual must accommodate play states to the desires of others. The stimulation is received from the physical environment and the social one.

Participation in play facilitates healthy development in every area of children's development (Rogers & Sawyers, 1988). Athey (1984) summarized how play helps children grow in various developmental areas. During infancy, exploratory behaviors such

as looking, touching, grasping, experimenting with parts of the body, vocalizing, and so forth, contribute to the growth and control of fine or gross muscular systems. Simply repeated and imitated physical behaviors help children to perceive and master objects in the space or time relationship with one another. In the preschool years children perfect their basic movement skills through play, either alone or with others. Vigorous motor activities such as riding bicycles, climbing, playing in swings and other larger mobile objects and tools encourage gross motor development. Children run, jump, skip, and gallop, and then incorporate these skills in chasing, racing, and aiming games. Playing at sand and water tables, building with blocks, handling pieces of puzzles and looking at pictures and books can help children to develop fine muscles, motor and hand-eye coordination. As they grow into late childhood, children keep refining their muscle system through play games with rules and social interactions, which are rough and tumble at times.

Over the last three decades, as Piagetian perspectives have been introduced and flourished among psychologists and educators, the relationship between play and cognitive development has dominated research on play (Nicolopoulou, 1991). Piaget (1962) was interested in the cognitive growth and development of the individual as he or she interacted with the environment. According to Piaget (1962), play is not merely contributing to cognitive development but also is a manifestation of that development as a form of thought and symbolic representation. Nicolopoulou (1991) summarized Piaget's cognitive developmental theory: Children develop cognitive constructs through the interactions of two mechanisms, assimilation and accommodation of their thinking

structures. In assimilation, children incorporate their new experiences into existing ways of thinking, which constitute organized mental structures; in accommodation, the existing mental structures reorganize to incorporate new aspects of the external environment. Play helps both these processes. Through play, children achieve equilibrium in their conflicted thinking structures, which, in turn, brings cognitive growth.

Athey (1984) argued that play contributes to cognitive development by providing access to more avenues of information, helping children discriminate between relevant and irrelevant information and consolidate the mastery of skills and concepts as they acquire them. In infancy, the discrimination of stimuli such as various sounds and movement at different speeds, familiar faces and prediction or expectations of appearance of certain objects are achieved by sensorimotor and functional play (Athey, 1984). One important marker of the move from the sensorimotor intelligence of infancy to the more logical operational intelligence of middle childhood is the ability to decenter from one's own perspective and reason with others' viewpoints (Monighan Nourot, & Van Hoorn, 1991). As children grow out of the sensorimotor stage to the stage of cognitive operations, with the help of increased language ability, play promotes generalization of information and symbolic representation of cognitive operations (Athey, 1984). During early childhood, classification, generalization and abstraction appear through testing, problem-solving, and creativity using constructive and symbolic play during extensive social interaction (Athey, 1984). In particular, through sociodramatic play, children develop creativity and social skills related to negotiating social conflicts (Rogers & Sawyers, 1988; Schwartzman, 1984).

Among the many changes in preschool children, the growth of language is one of the most rapid and apparent. Play is an important instrument for language and literacy development since play is in itself a form of language embodying a form of symbolic representation (Piaget, 1962). From the earliest forms of language, play leads to a continuous refinement of language (Athey, 1984). Through play, children imitate others' utterances and match them to their own utterances. After imitation and repetition, children start to modify and master their own language as they engage in social situations (Ervin-Tripp, 1991) which require the use of language in order to communicate intent or desire (Smith, 1986). Fantasy play incorporates aspects of adult speech without the pressure that comes from worry about making mistakes or being corrected (Athey, 1984). Recent research on the development of symbolic thought showed that there was a link between pretend play and language development (Ervin-Tripp, 1991; Fenson, 1984; Wolfgang & Sanders, 1981). Recently more studies (Christie, 1991) have been done on the provision of alternative sociodramatic play themes in the classroom (e.g., bank, office, post office, restaurant, veterinary office, hospital, pet shop and etc.) that include literary materials such as play props. These studies document a strong relationship between play and literacy development in the thematic learning centers of the classrooms (Williamson & Silvern, 1984).

Another primary task of childhood is socialization of themselves as active and productive members of the society where they belong (Athey, 1984). Children need to learn the basic knowledge and language that undergirds the society, and the roles and social rules that govern interaction among its members (Garvey, 1977). Play has been

widely recognized as beneficial in social development. Social development takes place as young children interact with others (Fromberg, 1992). Through social interaction, children learn to manage the conflicts between peers competently (Rogers & Sawyers, 1988). Interactions between adults, children and their peers are the most important foundation of healthy development (Caldwell, 1985). Children also acquire knowledge of people's roles, and relationships as well as how people carry out roles and maintain relationships (Garvey, 1977). Through play, children begin to apply their own behaviors to others or to apply others' behavior to themselves, which explains the development of decentration, decontextualization and integration (Fenson, 1985). However, empirical support for these positions is lacking. Some research on the relationship between later school adjustment and experience with play for children who had more experience in social interactions through play show directly the contribution of play to social development (Cohen, 1993). Children's frequency of social pretend play has been shown to predict their social competence, popularity, and role-taking ability (Connolly, 1980). Findings by Rubin and Maioni (1975) also indicated that children who engaged frequently in dramatic play in a preschool classroom scored high on classification and spatial perspective-taking tasks. Thus, these kinds of experiences in early childhood may be critically important for the development of skills.

Similar to social development, children's emotional health and development are facilitated through play. Children need to balance social demands and their own interests and develop a healthy attitude toward self and others as well as life in general (Beckwith, 1985). Play can be a medium for the expressing and handling of either positive or

negative feelings constructively (Rogers & Sawyers, 1988). Hence, the value of play as a therapeutic tool even in cases of severe emotional disturbance has long been recognized (Schaefer, 1986). Through play, as children acquire more control over their bodies, they freely move around in well-equipped spaces, expand their interactions with their environment and refine language facility, from which children develop a sense of autonomy and confirm their ability to master the environment (Athey, 1984).

In the following section, several of the most often used and recognized stages of play development are reviewed. Theorists have shown a tendency to emphasize different components of play with either a cognitive focus or a social focus.

Stages of Play Development

The development of play behavior has been classified in many ways. Two individuals whose work in the area of play development continue to be the major influences today are Piaget and Parten. According to Rogers and Sawyer (1988), Piaget focused primarily on children's play as it relates to their cognitive development, whereas Parten concentrated on children's social development through social interaction. These two systems have been adapted and combined by other researchers in an effort to refine and expand these original groundbreaking taxonomies of play.

Piaget (1962) incorporated play into a systematic theory of the development of cognition and summarized three stages in the development of play: (a) sensorimotor or practice, (b) pretend or symbolic, and (c) games with rules. A child's first 24 months, termed the sensorimotor stage, are dominated by practice play, and this practice play continues through the next stage of the preoperational period. During the sensorimotor

stage, play consists of simple physical actions, which are combined and repeated for the simple pleasure of mastering new combinations later on (Van Hoorn, Nourot, Scales, & Alward, 1993). From ages 2 through 7 years, the preoperational stage, children engage in symbolic play. During this period, children comprehend both concrete and familiar objects, and they begin to gain some abstract concepts as they exercise their newly developed speech ability. Then from ages 7 through 12 and beyond, in the concrete operational stage, children become interested in games with rules. During this period, children begin to have consistent concepts around their world and start to use these concepts in social coordination and successful reproduction of reality.

Smilansky (1968) elaborated upon Piaget's (1962) original categories and labeled them as follows: (a) functional play (simple repetitive muscle movements with or without objects); (b) constructive play (manipulation of objects to construct or to create something); (c) dramatic play (the substitution of an imaginary situation); and (d) games with rules (the acceptance of prearranged rules and the adjustment to these rules). Ages 2 to 4, the period when language begins, marks the entry into the preoperational period. Several types of symbolic play emerge during this stage. Symbolic play marks the beginning of representational thought through the use of substitute objects or action. During this stage, social interaction is incorporated into children's pretend play, and thus sociodramatic play begins. From approximately the ages of 7 to 12, symbolic play declines and is replaced by interest in games with rules.

Just as children develop their cognitive capabilities, social interactions with play partners also develop from simple stages to complex stages. Parten (1932) studied 42

children in the Nursery School of the Institute of Child Welfare at the University of Minnesota. In this study Parten developed sequential categories of social participation development based on two aspects of social participation, extensity, or the number of social contacts made by an individual, and intensity, or the kind of groups participated in and the role of the individual in those groups. Her categories included unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, and cooperative play. For a number of years, these categories, either with slight modification or in combination with other measures, have been used in much research related to young children's play.

Unoccupied behavior is defined as children not playing, but occupying themselves with watching anything that draws their momentary attention. Unoccupied children wander around the classroom, follow teachers and just stand around at times. Children who are involved in onlooker behavior observe the other children playing, without overtly entering into the play. A third type of play behavior is playing alone or solitary play. Children play alone and independently, and their only interest is their own play. Children do not make any effort to get close to and speak to others in order to relate their own activity to that of other children. An anecdotal description of alone play provided by Van Hoorn et al. (1993): "4-year-old Hilary sits cross legged, alone in the corner of the block area. She concentrates, wrinkling her brow, as she fits a piece of wooden train track onto the four already connected. She adds yet another piece, struggling to fit the piece evenly." (Van Hoorn et al, 1993, p. 37). According to Parten (1932), parallel play, a first type of group play, appears after individual solitary play. In parallel play, children play

independently, but by the nature of the activity, children get close among other children. Children in parallel play use toys that are similar as those which the children around them are using, but they play with the toy without influencing the activity of the children near them. They play beside each other rather than together with the other children (Parten, 1932); for instance, "Joyce and Renita are playing parallel to one another with small wooden blocks and a large dollhouse. They each carry on quiet dialogues animating their characters. As one child puts down a block or a piece of dollhouse furniture the other may pick it up, but they do not overtly acknowledge each other's play" (Van Hoorn et al., 1993, pp. 38-39).

Two others types of group play are associative play and cooperative or organized supplementary play. Associative play is group play in which children recognize their common activity, interests, and personal associations, which gives some degree of control over their play as a group activity. Children in associative play borrow and loan play material and they interact with each other while they are playing in a group with or without shared goals. At the associative level of play, there is no intended cooperative work toward a final goal. Cooperative or organized supplementary play is the most highly organized group activity. In contrast to the associative play, children in cooperative play have the same goals and interests to attain through the play and in order to fulfil them, children work in a collective fashion. Children in cooperative play divide their labors and accept centralized leadership involved in one or two children who would control each and every member's contribution to the play for the attainment of final goal. Group members have to subordinate individual desires to that of the group for the achievement of shared

group goals.

A great deal of study on play behavior has used one of the above categories depending upon its nature: cognitively focused, socially focused, or combined focused. The next section addresses literature which used the stage categories described above and examines their relationship to developmental changes in social play.

## Developmental Changes in Social Play

In this section, developmental changes in various aspects of preschool children's play such as social play level, play settings, play partner, and verbal interaction are reviewed through literature with special attention to children's gender and their family's socioeconomic status.

### Play Level

Play changes with age and therefore reflects children's development. Many studies have examined various aspects of play as children grow by observing children in either natural or experimental settings. Many of them (e.g., Jacobs & White, 1994) found that young children's play shows developmental changes in social interaction as well as cognitive construction as they grow older. Younger children play using rudimentary cognitive functions with simple social participation; they like to play alone; they like to explore new worlds with their own bodies through repetitive and functional trials. During infancy and toddlerhood, solitary play provides opportunities for exploring the environment, developing gross motor skills through play on bicycles and climbing frames, and for learning techniques of mastery over larger and more mobile objects and tools. As children leave toddlerhood, they begin playing more often with other children. Between

the ages of 2 and 5 years, the degree of social participation increases (Barnes, 1971; Gowen, 1988; Parten, 1932; Rubin, Watson & Jambor, 1978).

Rubin et al. (1978) studied the free play behaviors of preschool (approximately 4 years old) and kindergarten (approximately 5 years old) children from lower-and middle-class homes. In this study, a format of play behavior which combined the cognitive play categories of Smilansky (1968) with the social play categories of Parten (1932) was used. The kindergarten children exhibited significantly more group-dramatic play and significantly less solitary-functional play than did preschool children. Preschoolers engaged in significantly more parallel-functional and less parallel-constructive and parallel-dramatic play than the older children. With increasing age from preschool to kindergarten, there was a decrease in solitary-functional, solitary-dramatic, and parallel-functional play, while there was an increase in parallel-constructive play and group dramatic play as an increase in role-taking ability. Preschoolers also displayed significantly more unoccupied and onlooker behavior than kindergartners. Findings from Rubin et al. (1978) are consistent with those of Parten's (1932) and Pellegrini and Perlmutter's (1989) study. Parten (1932) found that onlooker and unoccupied play did not happen as frequently as other forms of social play. Onlooker (8.72%) and unoccupied play (7.38%) together were observed 16% of play time across all ages (under ages 2 to 4) and the amount decreased with age. Across ages, children were involved 16.37% of observed play time in solitary play, and it was most common at 2 and one-and half years. Solitary play declined as children became older. Parallel play was observed most frequently (34.14%) followed by associative play shown in 25.98% of observed play time across all ages. Parallel play was

observed most often among the 2-year-olds, and least often among the children from 3 to 4.

Correlations between age and social participation were also reported by Parten (1932), indicating the older the children, the more they played in more highly integrated groups. There were high negative correlations between age and the unsocial play types (unoccupied, solitary and onlooker) whereas there were high positive correlations between age and social play (parallel, associative and cooperative). Associative group play increased in popularity as the children became older, and was most frequent in the oldest group. Children were involved in cooperative play about 15.19% of observation time. The overall correlation between age rank and social participation ranks was .61.

There have been many other studies which support findings of Parten (1932) and Rubin et al. (1978). Johnson and Ershler (1981) found that dramatic interactive and pretend play, which mostly occurs at the level of associative and cooperative states, increased significantly with age and, once children engaged in interactive play, they commonly continued being in an interactive state. This implies a developmental trend that once children reach the highest social level, children are able to and prefer to stay in the same level while they play. Gowen (1988) studied lower-class black children of 3- and 5-years-old in a laboratory and found a similar transitional trend in their social and cognitive play. On the average, cooperative play occurred during only about one minute out of the 20-minute session for the 5-year-olds (5%), and about half that often for the 3-year-olds (2.5%) during peer condition and the mean levels of solitary play and parallel play were similar for the two age groups. This amount of cooperative play in both age groups was

much smaller than Parten's findings. It might be accounted for by the differences in settings where the observations were conducted (e.g., laboratory vs. classroom) as well as in the social class and ethnicity of subjects (e.g., white middle-class vs. black lower-class).

Regardless of the amount of each type of play, the findings indicate that the 3-year-olds spent significantly more time than the 5-year-olds in activities that did not involve peer or object interaction. The 3-year-olds transferred with more than chance, from the interaction-only-with-objects to the combined interaction (objects and peers), from other (unoccupied and onlooker) to peer interaction and its reverse. For the 5-year-olds, the only transition with more than chance was from the peer interaction to other. Results from this study are consistent with those of Bakeman and Brownlee (1980) who found probable changes in social domain, from parallel play with objects to group play with objects.

Both Gowen (1988) and Bakeman and Brownlee (1980) asserted developmental trends in social and cognitive play stages. Younger children's play (3-years-old) showed more transitions from without peer play to with peer play, and children who were involved in unoccupied and onlooker play showed a transition to the peer interaction stage skipping solitary play. However, for older children (5-years-old), the only possible transition was from the peer interaction to combined interaction. These findings on possible developmental transitions between stages of cognitive and social play raised speculations about the validity of Parten's hierarchical stages of social play development.

In sum, most children's play progresses from solitary behavior to social cooperation (Barnes, 1971; Parten, 1932; Smith, 1978). Unoccupied, solitary, and parallel

play decline during the preschool years, while associative and cooperative play increase with an increase of pretend and sociodramatic play as children approach kindergarten (Parten, 1932). Similar trends have been found in recent research using several cultural groups (Bakeman & Brownlee, 1980; Barnes, 1971; Harper & Huie, 1985; Parten, 1932; Rubin, 1977; Rubin, 1985; Rubin & Maioni, 1975; Rubin, Maioni, & Hornung, 1976; Rubin et al., 1978) and longitudinal data (Johnson & Ershler, 1981; Smith, 1978). In these studies, on average, the three unsocial play types, unoccupied, solitary and onlooker, made up about 25% of the observations, whereas the social types, parallel, associative, and cooperative or organized supplementary made up approximately 75% of total observations with some variation from one study to another. Table 1 shows the summary of research findings from a very diverse literature including the ones that have already mentioned above.

Table 1

Summary of Research Findings on Amount of Social Play of Various Groups of Children

| | Parten (1932) | Barnes (1971) | Rubin et al. (1976) | Rubin et al. (1978) | Smith (1978) | Bakeman & Brownlee (1980) | Gowen (1988) |
|---|---|---|---|---|---|---|---|
| Age of Children | 1 to 5 years | 3 to 5 years | 4 years | 4 to 5 years | 2 to 4 years | 3 to 4 year | 3 and 5years |
| Ethnicity & SES | American Urban all SES (over-weighting from professional class) | Canadian Rural all SES (over-weighting from professional class) | American White Middle/ Lower-Class | American Lower-Middle Class | English Skilled-Working Middle-Class | American Inner-city Lower-Income | American Black Lower-Income |
| Type of Classroom | University-Nursery Child-oriented | Child-oriented Cooperative kindergarten | University-Center | University-Nursery Pubic school Kindergarten | | Day Camp | Laboratory |

(table continues)

Table 1(Continued)

| | Parten (1932) | Barnes (1971) | Rubin et al. (1976) | | Rubin et al. (1978) | | Smith (1978) | | Bakeman & Brownlee (1980) | Gowen[a] (1988) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Social Play (%) | | | MC[b] | LC[c] | PR[d] | K[e] | G1[f] | G2[g] | | 3Y[h] | 5Y[i] |
| Unoccupied | 7.38 | | | | | | 6.57 | .09 | 8.50 | | |
| Onlooker | 8.72 | 24.00[j] | 17.20[j] | 15.12[j] | 12.43 | 8.93 | | | | | |
| Solitary | 16.37 | 26.78 | 14.96 | 19.83 | 23.40 | 17.66 | 39.00[k] | 35.00[k] | 25.30 | | |
| Parallel | 34.14 | 23.82 | 29.07 | 37.37 | 24.67 | 30.10 | 23.00 | 27.00 | | | |
| Associative | 25.98 | 18.92 | 29.49 | 22.75 | | | | | | | |
| Cooperative | 15.19 | 6.47 | 9.28 | 4.98 | 32.91[l] | 38.77[l] | 37.00[l] | 38.00[l] | 17.20[l] | 5.00 | 2.00 |
| Together[m] | | | | | | | | | 20.70 | | |

Note. [a] Gowen's study did not use Parten-like social play scale. Only the amount of cooperative play for both age groups were reported. [b]MC=Middle-Class; [c]LC=Lower-Class; [d]PR=Preschool; [e]K=Kindergarten; [f]G1=Group 1; [gf] G2=Group 2; [h]3Y=3-years-old; [i]5Y=5-years-old; [j]Amount of unoccupied and onlooker; [k]Amount of unoccupied, onlooker and solitary; [l]Amount of associative and cooperative; [m]Unoccupied in group

However, some speculations on the developmental sequence of Parten's scale require more clarification of the nature of continuity of the scale. In particular, the status of solitary and parallel play has drawn the most attention since the amount of solitary and parallel play tends to decrease without showing other significant differences in behavior. Results are not always consistent between different studies using the same Parten and Smilansky categories. It is now well established that the Parten categories cannot be read as a straightforward developmental sequence (Smith, 1978), and this may well be true for the Smilansky categories, too. It certainly seems premature to assume the scale has been validated as a developmental sequence or hierarchy of less and more mature forms of play (Smith, 1986). In the following section, research particularly on the relative position of solitary and parallel play levels on Parten's social play developmental sequence.

Solitary and parallel play. Solitary play was considered by Parten (1932) as the lowest level of social play, observed most often around 2 to 3-years-old of age. A developmental decrease in solitary play with age has usually been treated either as evidence that earlier high levels were due to a lack of social skills (Parten, 1932) or were needed as an outlet for imagination and fantasy (Herron & Sutton-Smith, 1971). However, more recent research (Moore, Everston, & Brophy, 1974; Rubin et al., 1976; Smith, 1978; Wintre, 1989) suggested that solitary play also requires some maturity, independence, and confidence from children. Moore et al. (1974) argued that much solitary play is seen in goal-directed activities (33.6%), large muscle play (24.5%) and educational play (15.5%) while onlooking behavior only accounts for 10.5% of solitary

play. Even when children do not play with one another, being alone can be productive as much as being in group play for pursuing task-oriented projects. During solitary play, positive actions and learning happen. Rubin et al. (1976) asserted that preschool children who already have the highest level of social interaction may choose solitary play to get away from it all while those others play alone due to lack of skills to play in an associative or cooperative manner. Smith (1978) suggested that solitary behavior might have simply reflected changing friendship preferences, without indicating immaturity of children.

In a longitudinal study, Smith (1978) also asserted that solitary play need not be either an indicator of poor social adjustment or a negative indicator of development merely because it is more frequently observed at relatively younger ages. He argued that parallel play instead of solitary play may be less mature by pointing out the inconsistent appearance of parallel play in the social play developmental sequence. The older children are observed in group most often, next in solitary, and then in transition between two states. However, the transition to parallel either from group or solitary is rare. The younger children most often stay in solitary, next in group, and they move approximately equally from solitary to parallel, parallel to group, or solitary to group. Therefore, depending on children's momentary needs in a play situation, children's social participation can swing among parallel, group, and solitary with no indication of immaturity.

Bakeman and Brownlee (1980) had the same argument--parallel play could be a precursor of group play, which frequently initiates or leads into group play. However, they argued that it was not substantive stage but a timely bridge between solitary and

group play. The transitional probabilities indicated that children in unoccupied play infrequently moved next into parallel or group play. They commonly switched to either solitary or together play. Together play was defined as the children who were unoccupied in the presence of peers. As for the children in parallel play, either together or group play were the next movement. When engaged in solitary play, as in Smith's study (1978), children switched with about equal probability into the other four play states. There were transitions from solitary to group with or without an intervening state of parallel play. Bakeman and Brownlee argued that the frequent transition from parallel to group play constitutes one form of social involvement because the transition between parallel and group did not need a substantial time period while solitary activities constitute an independent set. Therefore, it might not be necessary for children to pass through the parallel play level in order to show group play. Children can skip parallel play and go directly from solitary to group play.

Johnson and Ershler (1981) also reported that the most common change in children's group play was a vacillation between parallel and interactive play. Collectively, if this is so, then there is no particular reason to expect the amount of parallel play to decrease much with age during the preschool years. Parallel and interactive play were comparable alternatives to being alone. In fact, Smith (1978) reported that the amount of parallel play remained stable at around 25% of play observed over the 9 month course of study for the 2- and 3-year-olds.

Interestingly, on the other hand, it might be concluded that parallel and not solitary

play is the least mature level in the hierarchy of social developmental stages for 3- and 4-year-olds (Rubin, et al., 1976). Solitary play seems to be an option for older children, in a way in which it is not for the younger ones who lack skills for making friends and may have little choice but to play alone. Therefore, it may be that solitary activity is a separate type of behavior whereas parallel play is only a short bridge between solitary and cooperative play, not an independent stage. This contrasting but interesting issue needs more specific and smaller studies to analyze and determine its meaning in the sequence of social development. Whether parallel play is a short term "bridge", or an optional stage for the rest of the play stages, parallel play seems to be most commonly and persistently utilized by younger children in a mixed-age group, those who do not have sufficient social skills to function appropriately in group play. It seems likely that among 3 to 5-year-olds, parallel play allows the less experienced younger children to gain the acceptance of their older playmates (Johnson & Ershler, 1981; Mueller & Brenner, 1977). How much a child plays alone is not related to how much the child interacts when playing with others (Smith, 1978).

So far, only the time (age) factor of social play development was reviewed through previous research findings. However, there are many possible variables that may influence children's social play level, and affect play in an interrelated fashion with other variables. In next sections, the influence of gender and children's family SES background are reviewed.

Gender differences. Gender has been a popular topic in studies of young children's play. Gender differences and preferences in play activities emerge as early as 12-18 months of age (Maccoby & Jacklin, 1974). Between the ages of 3 and 5 years, consistent gender differences in toy and activity preferences have been found. In social play behavior, studies show that boys engage in more physical and interactive roles with a larger groups of play partners than girls (Black, 1989; DiPietro, 1981; Johnson & Ershler, 1981; Smith & Connolly, 1972). Throughout early childhood, boys were more likely to engage in rough-and-tumble play, play with aggressive themes, riding vehicles and building materials which require more solitary-functional and associative-dramatic play (Moore et al., 1974; Monighan Nourot & Van Hoorn, 1991; Rubin et al, 1976; Smilansky, 1968). Boys spend more time in outdoor activities, and their play is more active and aggressive (Harper & Sanders, 1975; Liss, 1981; Smith & Connolly, 1972; Tizard, Philps & Plewis, 1976).

Johnson, Ershler, and Bell (1980) found that girls were engaged in more constructive play, while boys displayed more functional play. In the studies by Moore et al. (1974) and Rubin et al. (1978), girls displayed more parallel-constructive, less parallel-dramatic play, and more solitary-constructive play than boys whereas boys engaged in more functional solitary play than did girls as well as more functional interactive play and more dramatic interactive play. Moore et al. (1974) found that girls engaged in more educational play that is goal oriented than boys such as making patterns, completing missing puzzles and different types of tasks. Girls engaged in more parallel, constructive,

and onlooker behaviors and boys displayed more functional dramatic play. Also from Liddell, Kaslsvig, Strydom, Qotyana, and Shabalala's study (1993), it is reported that South African preschool-aged boys participated in solitary play significantly more than girls; girls were involved significantly more in cooperative play.

Other studies (Barnes, 1971; Parten, 1932; Rubin & Maioni, 1975; Smilansky, 1968) found no sex differences in preschool children's play behavior. On the other hand, Rubin et al. (1976) reported that girls showed more sedentary activities (solitary and constructive play), in contrast to boys who engaged in more dramatic play. A few of the studies also report a greater incidence of pretend play for boys than girls (Rubin & al., 1976; Sanders & Harper, 1976). Only one study has reported a greater incidence of fantasy play among girls (McLoyd, 1980).

When the type of classroom has been considered along with gender, social play development shows a somewhat more complicated relationship to gender. In Johnson and Ershler's study (1981), play behaviors in two types of classroom were compared. The formal class used small group instructions and one free-play period, while the discovery class used two planned, free-play periods. The formal class considered the role of preschool education as providing knowledge and enhancing skills derived from Piaget's theory of logical concept development. In contrast, the discovery-based program was to facilitate the process of thinking rather than skill acquisition.

Johnson and Ershler (1981) compared boys and girls across classrooms revealing that boys showed more functional-parallel play in a formal class than girls, whereas girls

showed the parallel play more in the discovery. In the discovery preschool program, girls displayed significantly more onlooker behavior and more total parallel play, while boys engaged in more dramatic interactive play. These findings imply that an educational program can influence play behaviors, and that boys and girls can be differentially affected. Future research might elucidate the process by which individual programs affect children's play. Importantly, Rubin et al. (1983) noted that sex differences in the overall amount of pretend play appeared to be sensitive to ecological factors such as the availability of sex-typed props and whether the play takes place indoor or outdoors. As mentioned earlier, there seems to be a close relationship between social play levels and play areas (contextual factors), which can also account for preferences of gender. The research related to this issue is reviewed in the play area section.

Findings on gender differences in children's play are not consistent. It seems that boys play more solitary and interactive play than girls through physical and dramatic play, while girls engaged in more parallel play than boys and in more task-oriented play. There are few data that concern longitudinal gender differences in developmental changes in play over time. In the following section, studies on the relationship between children's social play development and their family's SES background are presented since some researchers have suggested that socioeconomic status may be a critical variable with regard to social play behavior (Fein & Stork, 1981; Gowen, 1988).

SES differences. Recent research is just beginning to document carefully the effects of social class and cultural on children's play (Heath, 1985; Jacob, 1984;

Schwartzman, 1978; Sutton-Smith & Heath, 1981). The premise behind much of this research is that children of poverty have less stimulation, less parental acceptance of the value of play in learning and perhaps have overall a less optimal environment for development (Tizard et al., 1976). Smilansky (1968) believed that the relative lack of sociodramatic play behaviors among lower-class children stemmed from the failure of the home to provide these preschoolers sufficiently with the required verbal, cognitive, and social skills. Because this is only a narrow premise with no careful examination of different cultures, research findings based on this premise have not shown consensus regarding social class differences in the development of social play.

Instead, there are many arguments on how to interpret differences in play among various classes. Interpretation of these differences has made this area of research particularly controversial. Schwartzman (1984) argues that the deficits some researchers have described in both culturally and economically diverse populations may be misinterpreted by researchers themselves who already have preconceived ideas about what play ought to be. Similarly, other writers (Eiferman, 1971; McLoyd, 1982) pointed out that children who are from culturally or economically different from the middle-class researchers may exhibit play in ways unfamiliar to the researchers or on a time table different from that proposed by Piaget (1962). Therefore the findings of social class differences in children's play must be evaluated with contextual factors, such as location (e.g., indoors versus outdoors), school curriculum and teacher training (Huston-Stein, Friedrich-Cofer, & Susman,1977; Smith & Dodsworth, 1978; Tizard et al., 1976). In the

review of social class differences in sociodramatic play, McLoyd (1982) argued that depending upon the children's culture, there may be a set of conditions under which play is facilitated. For example, settings that enhance the pretend play of lower class children (e.g., outdoors) may inhibit that of middle class children. On the other hand, parents could differ in their views of where children's play should occur. In some families, outdoors is for play; houses are for eating, sleeping, and quiet, orderly activities. There is some evidence that this view is more likely to appear in lower rather than middle class families and that children locate their play according to their parents' preferences.

Many researchers reported that children from economically disadvantaged families have a tendency to engage in less representative, imaginative and sociodramatic play whereas the social play behavior of middle-class children seems developmentally more advanced, less parallel and functional, and significantly more associative, cooperative, and constructive than did their lower-class age mates (Fein & Stork, 1981; Griffing, 1980; Rosen, 1974; Rubin et al., 1976; Smilansky, 1968; Smith & Dodsworth, 1978; Tizard et al, 1976; Udwin & Shmukler, 1981). Smilansky (1968) reported that while 69% of disadvantaged children were not engaged in any pretense, only 3% of the advantaged children were also not involved. Similar differences between social classes were reported by Smith and Dodsworth (1978) for English children, ages 4- to 5-years old. The suburban private school children (upper middle-class) engaged in pretend play about 37% of observed play time as opposed to 13% of an inner-city public school children (mostly lower-class immigrant families). In addition, some researchers (Griffing,

1980) have found that middle-class children enact longer but not more episodes of sociodramatic play than lower-class children. Others (Golomb, 1979) have found that neither the length of pretend play episode, nor the complexity of pretend play is related to social class.

Taken as a whole, studies of social class differences in pretend and sociodramatic play as well as in general developmental changes in social play are inconclusive. More research is needed in which economically disadvantaged children are a major interest. Furthermore, more studies on the interrelated aspects of each category of social participation during play as well as the depressed frequency of sociodramatic play among economically disadvantaged children are in need. McLoyd (1985) asserted that middle class children may not surpass lower class children on measures of advanced developmental status, nor may lower class children surpass middle class children on measures of less advanced status. It may simply be that lower class children have fewer opportunities to perform behavior that they are quite capable of performing. Therefore, the issue may be opportunity rather than competence. The ideas of social class and income are so broad that these findings are not very helpful in determining why or even whether these children really play in different ways (McLoyd, 1985).

Beyond the relationships between SES and play behavior, children's play is also representative of their ethnic backgrounds and the unique socialization experiences associated with different ethnicities. Most research studies on play have not addressed the interactions between SES and ethnicity.

Children's play behaviors are therefore best understood within an ethnic and a cultural context (Slonim, 1991). Slonim (1991) asserted that family values shaped by transmitted traditional societal values generation after generation often determine overall aspects of play: (1) whether independence is encouraged in children; (2) how much the play should be structured; (3) whether the child should be encouraged to incorporate fantasy and/or pretend play into their play; (4) whether basic mastery skills should be fostered through play; (5) whether the parents should be involved in the play; (5) whether creativity should be encouraged; and (6) whether messy play should be tolerated. Experiences at home and in the neighborhood may differentially prepare children to play in groups in a preschool classroom, the places where most of the research studies have been conducted. There is no way at this point to determine "base line" developmental expectations separately for various ethnic groups. Future research should focus on this issue.

In the following sections, previous research with additional aspects of play are reviewed: play settings, peer interaction and verbal interaction. These aspects are all intermingled in relation to children's play behavior both in the cognitive and social domains. Therefore, considering all these aspects in addition to the social play development will provide more valid and conclusive information on the preschool children's play.

## Additional Aspects of Play Behavior

### Play Settings

The physical environment in which a child plays has always drawn a certain degree of interest from investigators. During the 1930s when research on play was popular due to the increase in nursery schools, a considerable amount of research was conducted on the effects of play materials and settings on children's play. This early research was primarily motivated by practical concerns such as finding better ways to design and equip preschool classrooms, to provide an effective early learning environment. Lately, with the increase in the population of disadvantaged children, the concern about providing an appropriate physical preschool environment for these children in order to ameliorate the negative effects of a poor environment, brought a number of studies about the relationship between the physical environment of school settings and preschool children's play.

Children's play varies as children's toy preference changes with age. There are consistent developmental changes from the choice of simpler activities which only require simple muscle movements with or without toys to more complicated activities which require symbols and fine motor skills. More complicated constructive play using clay, paper, or paints become popular as the children grow older (Van Hoorn et al., 1993) and older children use more symbols and display more fine motor skills: making simple patterns with colored crayons and playing with dolls representing children. Pellegrini and Perlmutter (1989) showed that with age, children tend to engage more in interactive-dramatic, rather than constructive play, that in turn brings more use of low-structured and

ambiguous props, such as blocks, into their play. They also addressed that as the children gain the ability to manipulate play props for the specific play themes, children tend to use more ambiguous props to engage in dramatic play. Shure's (1963) study on 4-year-olds reported that more time was spent in the block area and secondly in art with books the least popular among these children. The doll corner was ranked third. Pellegrini (1984) studied only three play centers: blocks, arts, and housekeeping and found that children in both age groups (3-year-olds and 4-year-olds) chose most frequently to play in the art centers. Since raw materials such as sand and water as well as blocks, and gross motor play such as swing and riding kiddy-cars do not require advanced skills, they are popular among the children of all the ages but preferred more in younger children (Liddell et al., 1993). Play with dolls representing adult figures also increases in popularity with age (Herron & Sutton-Smith, 1971).

The development of play level is closely related to where the children play. Shure (1963) found that solitary play was the most common form of play in game areas, whereas group play predominated in the block and housekeeping areas. Parallel play and onlooking behavior were exhibited most often in the art area while more associative play in a room containing large motor equipment such as a jungle gym and slides. Pellegrini and Perlmutter (1989) found similarly that children engaged in constructive and solitary play in the blocks and art areas whereas children engaged in dramatic and interactive play in the replica area, where kitchen props, mini cars and other miniatures of real life were present.

Another factor related to the development of setting preferences of preschool children is their gender. Fagot (1978) reported that outside sandbox play, play with transportation toys, riding trucks and cars, and physical aggression, throwing rocks, hitting, pushing, shoving were preferred more by boys. Boys spent more time engrossed in manipulation using bigger muscles. Blocks were used most by boys whereas the art area was used most by girls (Fagot, 1978; Huston, 1983; Rubin et al., 1983; Shure, 1963). Girls have shown a greater tendency to manipulate small objects and construction materials in play, like art materials (Hartup, 1983; Shure, 1963; Sutton-Smith, 1979) and to prefer dramatic play involving nurturant and domestic activities (Moore et al., 1974; Rubin et al. 1976; Johnson & Ershler, 1981). Girls spent significantly more time involved in dress, games, dolls, kitchen utensils, sewing, swings, singing, rhyming and listening to music (Fagot, 1978; Harper & Sanders, 1975; Johnson & Ershler, 1981; Liddell et al., 1993; Smith & Connolly, 1972).

Huston (1983) reported that non-sex-typed toys such as clay, books, board games and puzzles were equally used by both genders. McLoyd (1983) found that children played more in their own gender-typed play area and they played in a more sophisticated way in these areas. For example, in the male-oriented blocks area, older girls' play was less sophisticated than the younger girls' play since older girls have already developed clear gender-typed identity. In the replica area, boys were involved more in parallel-constructive subcategory while same-age girls showed more dramatic play. This finding suggests that as children get older their play may become more sensitive to sex role

expectations. Hence, developmental changes in play area are also a function of gender in addition to children's age and nature of play settings.

In sum, research results from various studies suggest that there are developmental trends in selecting play settings and materials for preschoolers. In addition to the age factor, the nature of play settings should be considered in the developmental spectrum. Blocks and art areas appear to bring out more constructive and solitary play whereas the replica area leads more to dramatic and interactive play. Most of the research has found gender effects on children's choice of play area. Gender differences and developed gender-type preferences in choosing play materials have been reported in the youngest of children. Boys like to play in areas which require larger muscle movement, rough and tumble activities as well as more fantastic and imaginative themes. Girls are usually involved in constructing activities with various art materials and housekeeping activity imitating their gender-typed roles in real world. Both boys and girls prefer to play in the area where their own gender-typed play materials and props exist so that they can play sex-typed themes in their play. On the other hand, children's socioeconomic home background gives an important intuition into the children's choice of play setting. However, SES needs to be examined in a comprehensive way to also include the relationship between play areas and social participation level in regard to the SES influence. Some play areas were used for higher level of social participation as well as more frequent language interactions. Therefore, it is important to have integrated knowledge how play develops with consideration of some critical factors, such as

children's age, gender, and their family and social backgrounds. As one step further toward the integrated knowledge on children's play behavior development, the next section covers development in peer interactions during preschoolers' play.

Peer Interaction

It has long been assumed that children's social and cognitive competencies depend upon their interactions with other children as well as adults (Cohen, 1993). Peer interaction is important for the development of social skills and social cognition (Rubin, 1980). Play with peers facilitates children's development by providing a setting where children can practice negotiation with other's perspectives as well as enhance their problem-solving skills for disagreements and conflicts. The review by Fantuzzo, Sutton-Smith, Coolahan, Manz, Canning, and Debnam (1995) suggested that young children who were not able to master social skills and form positive peer relationships were likely to experience maladaptation throughout their lives, especially when their surrounding environment was unsupportive. Longitudinal research has indicated that young children with poor peer relationships are at a risk for school failure and later social dysfunction. Through play interaction with peers, young children test out social roles and social rules; they are socialized to share, take turns, cooperate, consider others' perspectives, and inhibit aggression. Research has revealed significant correlations among preschoolers' levels of sociodramatic play, measures of social competence, and peer acceptance (Connoly & Doyle, 1984; Pellegrini, 1988). Pellegrini (1984) reported that peer presence related to higher order types of play. For 3-year-olds, peer presence related significantly

and negatively to parallel interaction and positively to dramatic play. For 4-year-olds, the more peer participants in any center, the less frequently 4-year-olds exhibited non-social behavior. Therefore, peer presence was a significant negative predictor of both solitary and parallel interaction, furthermore, peer presence was a significant positive correlate of the most mature form of play for this age group, dramatic play.

Not only the interaction with peers but also the interaction with the adult are related to children's optimal development. Children's social activity with adults decreases steadily throughout childhood (Fein, 1981). As they grow older, children play mainly with other children even though the proximity of adults and other children are equal to them (Harper & Huie, 1985; Liddell et al., 1993). Pellegrini (1984) found less complex pretend play occurred in the presence of an adult, indicating that adult proximity may discourage children from negotiating their own solutions to conflict. In the same study, it was found that adult presence for the 3-year-olds related positively to children's active engagement with the materials but not with children's social interaction. Adult presence was a positive significant predictor of 3-year-olds' constructive play and parallel interaction while it seemed to discourage social interaction among the same children. No significant relationships between adult presence and any of the social cognitive aspects of play for 4-year-olds were reported from the same study. Other work on lower socioeconomic status children, such as most notably that of Smilansky (1968), suggested that adult presence had a facilitative effect on preschoolers' play behaviors. Therefore, it may be that, when children are capable of sustaining their own play, adult presence does inhibit play. Less

capable children's play may be facilitated by adult presence or the often inhibitory effect of adult presence on advanced forms of play may be related to the other factors such as socioeconomic status of the children.

Then, there is an issue as to how an adult should interact with children in a school setting. Rogers and Sawyers (1988) asserted that the teacher, as a primary adult in classroom, should not suppress children's interactions by interrupting their play frequently. Teachers of young children should be able to use each of the activity centers for eliciting specific aspects of children's social and cognitive behaviors, according to an individual child's needs.

Young children are more likely to interact in groups of two than in larger groups (Bronson, 1975; Vandell, 1977). With age and maturity, children appear better able to handle large groups (Hartup, 1983). Children play alone more at younger ages and get more involved with more people in a collective group as they grow older. There are several studies concerning the effects of the size of group on young children's play. Research by Van Alstyne (1932) showed that over 50% of the children ranging from 2 to 6 years tended to play by themselves, while only about 40 % of the observations were in any type of grouping. Salusky (1930) reported that between the ages of 2 years 3 months and 4 years, 40% of the children took part in play groups consisting of 4 or 5 children, 29% in groups of 2 or 3 children, and only 5% in large groups of 11 to 20 children. Van Alstyne dealt with a larger age range of children and summarized total percentages for them as one group, while Salusky used smaller age groups ranges and more specific

categories; thus it is hard to compare the two sets of research findings. Both studies showed a clear developmental trend in grouping of play partner: from fewer in number to more peers in children's play groups as the children grow older. Interestingly, Liddell et al. (1993) revealed that 9% of the African children's play time was spent in groups of five or more, and these larger groups were seven times more likely to be of mixed sex than of same-sex partners. This implies that there may be cultural differences in the numbers of play partners.

Powlishta, Serbin and Moller (1993) reviewed several studies related to gender differences in choosing play partners that showed differences in choosing play partners during playing. Girls tend to stay within close proximity to teachers, presumably inviting teacher interaction and reflecting their desire to stay close to the teacher due to teachers reportedly give more attention to boys in the classroom. Because girls chose teachers, Halliday and McNaughton (1982) argued that the structured nature of teacher-guided tasks may, in fact, limit girls' opportunities to use materials in novel ways and to negotiate conflicts without reliance on adults. In Bost, Cielinsku, Newell and Vaughn's study (1994) of boys' and girls' social networks, they found that boys tended to play in larger groups that facilitated group-oriented games and team sports, whereas girls preferred dyadic interchanges and emotional intimacy. In Powlishta et al.'s (1993) study, boys tended to play in larger, hierarchically organized groups and played more in public places. Girls received more adult-supervision. Additionally, females were more likely to seek help from others, and to name more informal sources of support (e.g., peers and unrelated

adults) than boys. However, individual boys and girls appeared to vary in their desire for adult proximity.

Regardless of conditions under which children were observed, it seems that children of preschool ages play with mostly two to four children on average when they are involved in group play and the size of the group gets larger as they grow older. Five or more in a group seems to be a developmental mark for the grouping of older children. Boys tend to form bigger groups and this can account for the play they like, such as rough and tumble, and more aggressive but more interactive play. The issue of whom children play with, how big the play group is and how this changes developmentally has to be examined in conjunction with consideration of many other factors, such as toy preference, availability and characteristics of the toy, children's gender, socialization histories and curriculum structure of the classroom.

Verbal Interaction

Early childhood is the period during which the child learns to talk. During early childhood, children are expected to accomplish much in speech and language development (Heath, 1983). By age 3, children are able to communicate in sentence structures like an adult although their words are limited (Christie & Johnson, 1987). Children continue to develop better language skills through oral interactions as they grow older. Smith and Dickinson (1994) asserted that there are particular types of interactions learned during the preschool years that maximize a child's chances for later school-based literacy success. Skills to engage in interchanges draw strongly upon children's oral language skills.

Therefore, children's verbal skills are closely related to their social interactions as well as cognitive constructions (Van Hoorn et al., 1993). In the preschool years, children exercise their language by repeating questions and creating interesting words or sounds. The nature of verbal interaction that occurs in preschool classrooms has an important impact on children's emerging language and literacy-related abilities (Gallas, 1992; Tough, 1976). Hence, it has been strongly argued that the atmosphere of early childhood environment must be one which encourages the child to talk easily with children and with adults (Gallas, 1992; Tough, 1976; Rogers & Sawyers, 1988).

It has been suggested in the review by Dickinson and Smith (1991) that certain activity settings within preschool classrooms may function as supportive contexts for literacy-related oral language development, such as time for reading books and discussing them in a small group, verbal interactions during free play, small-group time with other play materials and meal times when adults are staying closely to the children so that children are free to interact with them. "Sharing Time" and "Show and Tell" also provide children with opportunities to develop skills to engage in oral interchanges (Gallas, 1992; Smith & Dickinson, 1994).

Children's main speech partners are often other children (Liddell et al., 1993), reflecting the same data as for interaction partners. Peer interaction when not combined with object play almost always involves speaking or listening to the other child. Gowen (1988) found very little purely nonverbal interaction, implying that when children play together, they are involved in verbal interactions. Differences have been shown in the

verbal interaction patterns of boys and girls. Although children talk quite often when there are no peers present (egocentric speech, comments to the experimenter or teachers), they verbalize much more when a playmate is present (Gowen, 1988). Male preschoolers were found to talk significantly more (as determined by total number of utterances) to their same-sex peers than did females; female preschoolers like to talk to the teacher more than male preschoolers (Maccoby and Jacklin, 1974).

Many early intervention programs have put a great deal of effort in improving disadvantaged children's language skills, so that when the children enter school later, they will have an easier adjustment to language oriented instructions as well as social interactions with adults and their peers (Karnes, Shwedel, & Williams, 1983). Language-emphasis intervention programs for low-income children have shown immediate short term gains in language ability (Miller & Bizzell, 1984). In the same study, cognitive and social-emotional growth has been reported, and it is argued that future educational and emotional problems are prevented by language-focused intervention programs. Fisher (1992) asserted that by reducing language problems and socioemotional difficulties, the progress of early development improved social adjustment.

Play as an essential learning medium has multi-dimensional aspects. Two major dimensions of play represent the cognitive and social components of play, and as children get older these components interact. Children's play behavior changes subject to their age, gender and family background including in which place they play, whom they play with, and with whom they have verbal interactions. In order to find out the best environment

for the disadvantaged children, all the literature mentioned above needs to be considered through an integrated perspective. The next section will review intervention programs some of which have adapted a play philosophy.

## Early Intervention

### Theoretical Base

The first appearance of intervention preschools for young children can traced back to Margaret MacMillan's nursery school in London in the early 1900s and Maria Montessori's school in the slums of Rome in 1907. The philosophical foundations of early intervention education go far further back, to Rousseau in the 1700s and Pestalozzi in the 1800s. These forerunners advocated the use of nursery or infant schools for poor children, believing in the possibility of modifying a young child's cognitive capacity by providing proper education. Through decades of examination and adaptation of these ideas which were developed in other societies, early intervention, as compensatory education, developed in the United States for children considered at risk for school and health problems due to socioeconomic conditions. The enthusiasm to break the link between poverty and school failure created the basis for the early intervention movement in the mid-1960s. With the assumption that lower income implies a lower quality environment in a child's own home, the goal of early intervention has been for the child's optimal development to be enhanced through strengthening the amount of intellectual and socioemotional stimulation in developmentally appropriate early environments (Campbell & Ramey, 1994; Ramey & Baker-Ward, 1982).

The preschool period is an important time during which children develop a sense of self, a view of others and motives that will influence their coming years (Zigler et al., 1982). Psychologists like D. O. Hebb (1949) asserted that early childhood is qualitatively as well as quantitatively different and the most malleable period in response to new experiences: Children form a great portion of their cognitive, social, and emotional competence during this period. Following the same thinking, theorists like Piaget (1962) focused on the early years as a time when special learning takes place. According to Piaget, an organism's ability to learn in later life depends on the quality and quantity of its early, primary experiences through an unvarying series of stages. More advanced learning builds on earlier learning rather than replacing it.

The importance of this early period in children's development started to get more attention with emerging perspectives and empirical data on the determining factors in children's development. Hunt (1961) suggested that a child's intellectual and physical development is not predetermined by heredity only, and that it is a product of interactions between a child and her/his environment. Bloom (1964) also developed a general theory of stability and change in human characteristics and asserted that just as people achieve half of their adult height by 2 and a half years of age, they achieve half of their adult intelligence by age 4. Theories from the 1950s and 60s are compatible with the notion that the effect of the environment is greatest during periods of the most rapid development of a characteristic and least in the periods of least rapid development. Lately, the transactional theory by Sameroff and Fiese (1990) has espoused a viewpoint on

intellectual development as well as other areas. Transactional theory implies that a developmental trait is viewed as an inseparable dynamic relationship between genetic material and environmental opportunity. In sum, children's development is not only a direct but also a complex and mixed product of many factors from various sources of experience such as customs, traditions, family environment, school experience, community involvement, children's unfolding biological prepositions, motivation, and emotions as well.

These theories provide a strong support for the importance of an early period and for the influential effect of the environments where the children live, which in turn supports the importance of early intervention. Educators have also begun to implement the belief that during the rapid growth period, the average level of intellectual functioning could be altered significantly by altering environmental conditions. Longitudinal investigation on IQ development in early education programs reported that the variations achieved reflected actual variation in intelligence and were indicative of malleability from environmental effects on intellectual development during early years (Horowitz & Paden, 1973). In particular, research findings on early intervention program efficacy have created the persistent enthusiasm and belief in fixing the negative consequences of poverty in young children. Some reported effects from several landmark research studies have set an optimistic impression of early intervention. In addition to that, the face validity that intervention programs made good sense has created strong support for these programs. In the following section, several pertinent pools of data from which most of the influential but contrasting conclusions of intervention efforts were drawn are reviewed.

Research Findings

Research findings on the effects of early intervention can be summarized into three big data pools: Head Start and Project Follow Through, Consortium for Longitudinal Studies, and the Carolina Abecedarian Program.

Findings from Head Start and Project Follow Through laid an important cornerstone in program efficacy research. Children who completed Head Start and were in Project Follow Through in Seitz et al.'s study (1983) showed higher general information test scores than non-Follow Through children after termination of the intervention. In the same study, some of the Head Start Follow Through girls showed lasting effects on their mathematics achievement for at least 6 years after leaving the program. Hebbeler (1985) examined achievement and school progress of three cohorts of Head Start graduates in public schools after 4 to 12 years past Head Start graduation. The results showed that the first cohort performed significantly better than the controls, but the others did not. Lee et al.'s (1990) recent retrospective study with a follow up of Head Start graduates who were in the program during 1969 and 1970 found strong effects into kindergarten but dissipation of effects by the end of first grade. The general conclusion on the efficacy of Head Start and Project Follow Through by Washington and Oyemade Bailey (1995) is that Head Start with emphasis on preschool education and social competence skills has produced immediate gains for children upon school entry but the immediate cognitive gains have faded out over time.

A second group of studies on the efficacy of intervention consists of individual programs begun in the early 1960s and contained in The Consortium for Longitudinal

Studies. Those included in The Consortium for Longitudinal Studies were not Head Start Programs. The Perry Preschool Project, one of the programs in the Consortium for Longitudinal Studies, has provided the most extensive evidence of the benefits of early intervention including positive results on social aspects as well as IQ gains. The experimental group receiving a cognitive-developmental preschool program with home visits showed a chain of lasting effects that stretched from preschool to early adulthood. There were IQ gains for the experimental group at ages 3 and 4. The differences declined after school entry and ceased to be statistically significant by second grade. But the experimental group performed better on achievement tests and on teacher ratings throughout the school years and was less likely to be placed in special education (Schweinhart & Weikart, 1983). The children were more likely to pursue higher education and had higher employment rates and higher incomes, less involvement in crime and delinquency, and as teenagers, girls had born fewer children (Schweinhart, Berrueta-Clement, Barnett, Epstein, & Weikart, 1985; Farnworth, Schweinhart, & Berrueta-Clement, 1985). Cost-benefit analysis showed, through and beyond age 19, the net present value of the Perry Preschool program to society was positive (Barnett, 1985).

Another big data pool of influential findings is The Abecedarian Program. The Carolina Abecedarian/Project CARE (Carolina Approach to Responsive Education) program is one of the few intervention efforts newly implemented in the 1970s (Ramey & Campbell, 1984; Ramey, Bryant, Sparling, & Wasik, 1985). The Abecedarian children, who entered the program when they were infants and were randomly assigned either to an experimental group who received a university-based demonstration program or a control

group who enrolled in community child care programs or stayed home. At age 3, the experimental group children were most different in performance on standardized tests from children in control group, and at the age 4 there were still significant differences in the test scores of two groups. The effects have lasted up to age 12 (Ramey et al., 1985).

In sum, most of the research studies have reported positive effects on intellectual gains assessed by standardized IQ tests. A few longitudinal studies tried to assess social development of the children who received intervention. However, unlike standardized IQ tests, there has not been a normative base to compare outcome measures on social aspects in order to draw general conclusions. At the same time, the effects of the specific curriculum of what really makes the differences for specific groups of children and what mechanism is involved in the process need to be given more attention. In following section, at more micro level, several studies that examined different effects of intervention programs are reviewed. Different curricula are reviewed since not all the early intervention or educational program have the same values and goals.

Curriculum Effects

There are a large number of different views of learning and development to support a great variety of curricula for young children, and therefore early intervention program have differed from each other in the type of curriculum offered (Condry, 1983; Reynolds, 1994). Johnson and Ershler (1981) also argued that an educational program could influence children's development with a specific orientation of its philosophy, goals and means to fulfill them and the influence of the program could be varied according to the characteristic of target groups, such as different SES, gender, or ethnicity. Johnson

and Roopnarine (1983) also asserted that curricular influences may contribute to observed differences in the play behavior between children from different preschool programs. True to their assertion, research findings on the various programs have provided somewhat different results in various developmental areas.

Miller and Bizzell (1984) followed up through tenth grade low-income black youths who had participated for one year as 4-year-olds in various preschool curricula: Bereiter-Engelman, DARCEE, Montessori, or Traditional prekindergarten. In kindergarten, Montessori males and DARCEE females were high on their general achievement tests whereas Montessori males were performing at about grade level on reading and math. The results of IQ scores showed the same direction of improvement as the achievement tests. In a similar curricula comparison study, Schweinhart, Weikart, & Larner (1986) compared the High/Scope Curriculum to the Direct Instruction Model (DISTAR) and a Traditional nursery program. The initial effects of all three approaches assessed at age 10 were similarly positive. There were no differences later among the three curriculum groups on IQ and school achievement, except that the DISTAR children sustained less loss in their scores during the early elementary grades. These would suggest that at least in the short run programs with a more academic focus produce higher academic achievement in the children.

Results from the curriculum comparison studies, showed that there was a close relationship between the curriculum and children's development. For instance, since the DARCEE program is a non-play based, direct instructional method which focuses on academic skills and Montessori also focuses on task-oriented mastery, it was not

unexpected that these programs showed better progresses on intellectual areas like reading and math. The focus of DISTAR is also to enhance academic skills, therefore the results of sustaining better IQ score in Schweinhart et al.(1986) are not surprising. In contrast, because two other programs are more play-based focusing on other than cognitive development, they might not have shown sustained effects on IQ tests.

However, it should be noted that academically focused programs typically have more adult-directed interactions, which may reduce other kinds of play. Huston-Stein et al. (1977) found that the amount of adult-directed activities in Head Start programs was negatively related to imaginative play. A previous comparative study of spontaneous social and cognitive play by preschoolers enrolled in a formal and a discovery program demonstrated both classroom and sex differences in play over the course of one semester (Johnson & Ershler, 1981). In the discovery classroom, boys engaged in more dramatic interactive and less constructive parallel play than girls did. This indicated that boys would get more benefit from the discovery classroom than girls in development of interaction.

Recently, Marcon (1993) studied the differential effects of academically-focused versus socioemotional kindergartens. Children who had previously attended prekindergarten and Head Start were included. Children in two cohorts of inner-city kindergartners were assessed for a range of developmental domains and early skills acquisition. Although girls were found to be developmentally more ready than boys for academic experiences, they actually achieved greater mastery of basic skills when enrolled in kindergartens that valued socioemotional development. The negative impact on

achievement and social development of overly academic early childhood programs was not seen in the early grades but was clearly apparent in children at age 9 in follow-up sample. By fourth grade, children who had attended an academically-directed pre-kindergarten program were earning noticeably lower grades and passing fewer fourth-grade reading and mathematics objectives. By fourth and fifth grades, children from the academic pre-K programs were developmentally behind their peers and displaying notably higher levels of maladaptive behavior.

In a play-based curriculum, the teacher takes the child's view of experiences and materials in the classroom and functions as a keen observer of children's behavior and supports play by indirectly organizing the environment or facilitating interactions. Informal learning is acquired through exploration and unstructured associations with peers. Play-based curriculum emphasizes consideration for children from an individual perspective as well as a social-contextual perspective. Therefore, ongoing assessment plays an important role not only as a tool for assessment but also for meeting children's developmental needs. It could be argued that the exploration in play-based programs is foundational for skills that do not gain importance until the curriculum changes in elementary school, from an emphasis on concrete skills in the early grades to more implicit, narrative requirements of the middle grades.

These theories provide a strong support for the importance of an early period and for the influential effects of different environments children inhabit. From the various research studies in this area, notably Marcon (1994) and Schweinhart et al. (1986), it can be inferred that there is a relationship between the nature of intervention programs and

their effects on the children. It must be acknowledged that both the knowledge and data bases suggesting different effects of various intervention program are very shallow from a scientific perspective. Beyond the question of whether the intervention programs are effective in general, studies need to focus more on finding the best match between types of program and disadvantaged children's needs. This is particularly appropriate at the present time as the number of public school preschools increases rapidly and the increased need for quality day-care for growing number of disadvantaged children. Although, the notion is accepted in developmental theory that play is an important part of preschool children's development, it has not received enough attention in intervention research. In particular, the fact that play-based early intervention effects appear much later in the school years may indicate that these programs are important for long term development while academically focused programs affect on short term and immediate skills that dissipate. In the next section, concerns about public preschool intervention under the light of the importance of play-based curriculum for the young and disadvantaged children will be discussed.

## Public School Preschool Intervention

Facing a high number of children living under poverty, public shcool preschools have been growing in numbers and in the importance of their mission as early intervention. The concerns among scholars about the possible negative effects of an academically focused curriculum in the public shcool preschools raise questions about whether these programs will show positive effects on children's development (Elkind, 1986; Zigler, 1986). But the relationship between curriculum focus of public shcool preschools and

their outcomes has not been studied. It is not clear what the particular focus of these programs is or how children are responding.

In sum, the focus of intervention has mostly been academic since the goal of early intervention is getting children ready for the school. Therefore, the assessment of the program effects have been mostly focused on the gains in cognitive development. However, an academically focused program can have negative social consequence by emphasizing too much academics at the expense of other areas of development. As Marcon's (1993) study showed, even academically focused programs did not produce better results in later school grades. The longitudinal studies have shown play-based programs to be more effective long term attending to various aspects of development as well as cognitive development. However, the effect of specific curriculum of the public shcool preschools for disadvantaged children on their development in broad sense is understudied. Therefore, in the present study, play behavior that is considered as a general representation of children's development, will be examined to pursue the answer to the question about what type of preschool intervention will best serve disadvantaged children.

## Hypotheses

In order to examine the change over time in the play behavior of low-income children in public shcool preschools for the various features of play such as play level, play setting, play partner and verbal interaction, the following hypotheses will be tested:

Hypotheses:

No classroom effects are expected in the following hypotheses.

Play Levels

1) Across the year in preschool, children will increase their frequency of social play (parallel, associative and cooperative).

2) Across the year in preschool, children will decrease their frequency of unsocial play (unoccupied, alone and onlooker).

3) Across the year in preschool, boys will show more associative and cooperative play than girls.

4) Across the year in preschool, girls will show more parallel play than boys.

Play Areas

5) Across the year in preschool, children will increase play in settings which requires more symbolic interactions (dramatic play area) and fine motor skills (manipulatives).

6) Across the year in preschool, boys will play more in the block area than girls.

7) Across the year in preschool, girls will play more in manipulatives than boys.

Verbal Interactions

8) Across the year in preschool, children will increase their verbal interactions, in general.

9) Across the year in preschool, girls will talk more than boys.

10) Across the year in preschool, boys will talk more with peers than girls.

11) Across the year in preschool, girls will talk more with the teacher than boys.

Play Partner

12) Across the year in preschool, children will increase the amount of peer interaction.

13) Across the year in preschool, boys will participate in more interactions with peers than girls.

14) Across the year in preschool, girls will associate more with teachers than boys.

# CHAPTER III

# METHOD

## Subjects

Included in the final analyses are 283 children from 23 Chapter 1 funded public pre-kindergartens for economically disadvantaged children from the original 489 children of 31 pre-kindergarten. Eight preschools are not included for the final analyses because they began half way through the year. Children who had less than 7 sweeps of observation out of 10 were also excluded for the final analyses. All of these schools were sponsored by the Department of Public Instruction and located in eight school districts in the piedmont region of North Carolina. Classrooms to which the children belong were connected through a funded project called the "Preschool Initiative Network" (PIN). PIN was developed to create a support network in collaboration with teachers that would help make their classrooms developmentally appropriate for disadvantaged children, given the increasing number of intervention preschools under the public school system. The average number of observed children per class was 15. Most of the classes had a lead teacher and a teacher's aide and the class hours were from 8 am to 2:30 pm. Gender of the subjects were almost equally balanced between boys (47%) and girls (53%); and the racial composition of the subjects was predominantly black (73%).

## Observation and Instrument

### Manual for Observation of Play in Preschools

The Manual for Observational of Play in Preschool (MOPP) (Culp & Farran, 1989) (see Appendix A) was developed through combining Parten's (1932) play categories with a system for observing additional aspects of play behavior in open classrooms. The MOPP consists of two general categories of play behavior: behavioral and verbal. Behavioral aspects are divided into six sub-categories: play setting, play level, play with whom, social initiation, social affect, and type of play. Verbal sub-categories include the occurrence of talking and listening, the form of the verbal expression, its affect and to whom the utterance was directed. The MOPP play levels are developed from Parten's (1932) categories of social participation during play. In this particular study, only observations in the categories, play setting, play type, play partner, talking and listening will be used for the analyses.

Agreement between observers was determined by using the formula of number of agreements over number of agreements plus disagreements, then multiplying by 100. Five classrooms were used for the reliability check. The reliability was mostly above 80% across the categories and sweeps with range 76% to 99%. The category of play setting showed the highest reliability of 99% while the category of type of task showed the lowest reliability 80%.

### Event Sampling

The observational technique of event sampling was used to collect the data. The observer spent two to five seconds observing each child once the target child was located.

The next 10 seconds following the observation was used for writing the codes and anecdotal notes. The observer had 3 more seconds to locate the next child in the room. During each minute, three children were observed. When each child in the class has been observed, one "sweep" had been performed. Ten sweeps of observations per child were conducted. The order of observation was randomly decided at the first round of the observation of all the children in the class. Once the observer had the order settled at the first round, the same order of children was applied for the second and subsequent rounds.

## Procedures

Children were observed in their classroom throughout one school morning at two different times, in the middle of year and at the end of the year. The observations were conducted during free play time when the children were freely circulating and exploring various materials available in their classroom environments. The trained observer arrived in time for the opening of school and stayed through morning. Teachers were contacted for schedule information so that observers could collect data during scheduled periods of free play in the classroom.

## Data Analyses

### Variables

Of the ten MOPP categories across behavior and verbal sections, only five of them shown in Table 2 were used for the present study: play setting, play level, playwho, verbal, and to whom. In addition to the five MOPP play categories, children's gender obtained from demographic information was used for additional data analyses. Attributes under each category were collapsed among similar constructs. For instance, three different

values of art areas: art1, art2, and art3 were collapsed into one art area since each area were equipped art materials and it was rather an expansion of art areas instead of a separate activity area in its nature.

Table 2

Description of Play Categories

| Play | Description |
|---|---|
| Play Setting | Activity centers available in the classroom / Where the children are physically located<br>Art, Blocks, Books, Science, Dramatic, Gross Motor, Sand & Water, Manipulatives, Listening, Time out, and Others (Computer, Music, Open Area, Math, Writing, Games, Wood) |
| Play Level | Level of social participation / What level of social participation the child involved in |
| Not engaged in Play | Tying shoes, cleaning, looking for a crayon, moving from one chair to another, or involved in some other type of behavior not captured by the code below |
| Unoccupied | Not engaged in any activity beyond sitting alone or wandering around the room |

(table continues)

Table 2 (Continued)

| Play | Description |
|---|---|
| Onlooker | Observing other children or a teacher doing an activity or explaining an activity. |
| Alone | Alone in a nonverbal activity with an object and shows little regard for other people |
| Parallel | Being with another child or children, but not playing with each other |
| Associative | Social interaction with little or no organization involved |
| Cooperative | Social interaction in a group with a sense of group identity and organized activity |
| Social Talk | Talking to one or more children with no object in sight or no pretend play evidenced |
| Play With Whom | Who is in the center with the child / if the child is in an open area who is within arms reach of the child? Teacher or Adult, One Child, Group of Children, Child and Teacher. |

(table continues)

Table 2 (Continued)

| Play | Description |
|---|---|
| Verbal | Is the child speaking? |
| Yes | The child is talking. |
| No | The child is not talking. |
| Listening | The child is listening to others. |
| Talk to Whom | To whom is the child speaking? |
| | Teacher or Adult, One Child, Group of Children, Child and Teacher, Self |

Statistical Procedures

The ranges, means and standard deviations were summarized by percentages of each focused variable. Children who were not observed more than seven sweeps because of absence or unavailability for observation were eliminated for the analyses in order to decrease error variance. Since the number of sweeps obtained on each child still varied from seven to ten, the actual number of times each child was observed in each play situation could not be used as an index of the amount of each category of the child. Instead percentages had to be used. In order to see play behavior changes, usage of play settings, and the influence of gender over school year, repeated-measures designs were applied. Gender and time were two factors to explain changes in play. Two-factor mixed-

effects ANOVAs served best for testing each hypothesis. The main effects of each factor as well as the interaction effects between them can be examined by this design. A series of repeated measures of multivariate analyses of variance (MANOVA) was conducted for each hypothesis test. [1]

[1] In order to test the hypotheses, a secondary data set was created from original data. Original data were entered by sweeps. This means that one child had multiple observations for each observational time. Since the unit of analysis of the present study is the child, in order to examine the changes of behavior across time, a secondary data set (working data set) was created with summary scores per individual child. By doing this the unit of analysis was converted from sweeps to individual children. Variables also were converted to the higher level of measurement (e.g., summarizing different play areas).

# CHAPTER IV

# RESULTS

The results are presented in four play categories: play levels, play areas, verbal interactions, play partners, matching the areas of hypotheses. Within each category, results are presented for each hypothesis. In the overall tests for hypotheses, the standard deviations for each play category were quite large, indicating that there were outliers. In order to check the influence of the outliers on tests of significance, the same statistical tests were conducted with and without outliers for each hypothesis. The presence of outliers did not make a significant difference in the results. Throughout hypotheses tests, reported significant Fs for multivariate analysis of variance were calculated based upon Wilks Lambda and Fs for the follow-up univariate analysis of variance were conducted by using unique sums of squares.

## Play Level

Hypotheses 1 through 4 were designed to explore the changes in social play level over time. A series of repeated measures of multivariate analyses of variance (MANOVA) was conducted to test Hypotheses 1 through 4.

### Hypothesis 1

Hypothesis 1 was designed to investigate the amount of social play in which children engaged over time. Social play consisted of the sum of three play levels: parallel, associative, and cooperative play. In Table 3 the ranges, means, and standard deviations

for each play level at the two different times are presented in percentages. Table 3 also presents data for two categories not included in the analyses: Social Talk and Not Engaged in Play. Together with social and unsocial play, these categories total 100% of the play observed in children at each time.

Table 3

Descriptive Statistics for the Play Levels (N=283)

| | Time 1 | | | Time 2 | | |
|---|---|---|---|---|---|---|
| | Range | M | SD | Range | M | SD |
| Social Play | 0 - 100 | 62.52 | 20.91 | 0 - 100 | 64.58 | 20.10 |
| Parallel | 0 - 100 | 31.50 | 20.83 | 0 - 100 | 41.35 | 21.45 |
| Associative | 0 - 100 | 30.24 | 21.94 | 0 - 90 | 23.19 | 21.13 |
| Cooperative | 0 - 33 | .79 | 3.71 | 0 - 13 | .04 | .74 |
| Unsocial Play | 0 - 100 | 26.98 | 20.00 | 0 - 89 | 21.60 | 18.27 |
| Unoccupied | 0 - 50 | 3.37 | 7.34 | 0 - 50 | 1.40 | 5.30 |
| Onlooker | 0 - 67 | 10.50 | 13.06 | 0 - 70 | 7.92 | 11.11 |
| Alone | 0 - 83 | 13.12 | 15.14 | 0 - 89 | 12.28 | 15.80 |
| Social Talk | 0 - 25 | 1.64 | 4.46 | 0 - 30 | 2.49 | 5.71 |
| Not Engaged in Play | 0 - 50 | 8.85 | 10.58 | 0 - 63 | 11.33 | 11.93 |

A repeated measures MANOVA was conducted on the total amount of social play at time 1 and time 2. Means for time 1 and time 2 did not show a statistically significant difference: $F(1, 282) = 1.61$. Therefore, Hypothesis 1 that over the year in preschool, children will increase their frequency of social play was not confirmed. However, interesting findings in the changes of social play levels were observed. Even though social play as a whole did not show a significant change, each sublevel in social play showed quite a different direction in mean changes over time. At both times, children engaged in parallel play the most among three social play levels. While the percentage of parallel play increased over time, associative and cooperative play decreased. Therefore, for the each level of social play, a series of follow-up repeated measures ANOVAs were conducted to test changes in the amount of each play level over time. The results are shown in Table 4.

Time had statistically significant effects on each category. Children were involved in significantly more parallel play in time 2 than time 1, whereas the percentages of time involved in either associative or cooperative play decreased significantly over time. Because these changes were in opposite directions, the summed score of social play (composed of all three play levels) failed to achieve significance even though all three of the individual levels were significantly different over time.

Table 4

Follow-up Repeated Measures Analysis of Variance for Social Play Over Time (N=283)

| | | Social Play | | | | | |
|---|---|---|---|---|---|---|---|
| | | Parallel | | Associative | | Cooperative | |
| | df | F | p | F | p | F | p |
| Within Cells | 282 | | | | | | |
| Time | 1 | 27.49 | .00** | 15.70 | .00** | 10.85 | .00** |

Hypothesis 2

Hypothesis 2 was designed to determine changes in unsocial play across time. Unsocial play is defined by summing three play levels: unoccupied, onlooker, and alone. The means and standard deviations for unsocial play are presented in Table 3. The amount of unsocial play decreased significantly over time, with an alpha level of .05: $F(1, 282) = 12.22$, $p = .001$. Children engaged significantly less in unsocial play over time. Therefore, Hypothesis 2 was confirmed that over the year in preschool, low-income children will decrease their frequency of unsocial play. Comparisons of the components of unsocial play were conducted through repeated measures univariate ANOVAs and those results are presented in Table 5. It is apparent that while both unoccupied and onlooker behavior decreased, alone play did not change.

Similar as in social play, in addition to the hypothesized question, follow-up tests of univariate repeated measures of analysis were conducted to examine which play levels showed significant changes among unsocial play levels. As shown in Table 3, among the three unsocial play levels, children engaged most in alone play. As seen in Table 5, among the three levels of unsocial play, there were significant effects of time for unoccupied and onlooker play whereas no significant effect of time was found for changes in the amount of alone play. The amount of the unoccupied and onlooker play decreased significantly over time.

Table 5

Follow-up Repeated Measures Analysis of Variance for Unsocial Play over Time (N=283)

| | | Unsocial Play | | | | | |
|---|---|---|---|---|---|---|---|
| | | Unoccupied | | Onlooker | | Alone | |
| | df | F | p | F | p | F | p |
| Within Cells | 282 | | | | | | |
| Time | 1 | 13.06 | .00** | 7.21 | .01** | .52 | .47 |

In sum, Hypothesis 1 that children in public school preschools will increase the frequency of social play was not supported. However, within the category of social play, there were significant differences in each one of three sub-categories over time; the percentage of parallel play significantly increased over time while associative and cooperative play decreased significantly. Hypothesis 2 that children in public school preschools will decrease the percentage of their participation in unsocial play was supported. From the follow-up univariate analyses, it was found that unoccupied and onlooker play decreased significantly over time whereas there was no significant difference in the amount of alone play over time.

## Gender Effects of Play Level

In the next section, gender effect on play levels was examined by testing Hypotheses 3 and 4. The ranges, means, and standard deviations for each play level by gender are summarized in Table 6.

### Hypothesis 3

Hypothesis 3 was designed to examine whether boys played more in associative and cooperative play than girls, which implies more play at the social interactive level for boys than girls. Both boys and girls played at a parallel level the most over time. As reported in Table 7, over time, there were significant gender effects for associative play but not for cooperative play. However, the direction of difference in associative play was opposite to what was hypothesized. Although it was hypothesized boys would spend more time in associative, in fact, girls engaged more in associative play than boys over time, and both decreased their associative play significantly by time 2. There was no interaction effect

between time and gender. Therefore, Hypothesis 3 that boys will play more associatively and engage more in cooperative play was not supported.

Table 6

Descriptive Statistics for the Play Levels by Gender(N=283)

| | Time 1 | | | Time 2 | | |
|---|---|---|---|---|---|---|
| | Range | M | SD | Range | M | SD |
| Boys (n=133) | | | | | | |
| 1. Social Play | 0 - 100 | 63.05 | 20.78 | 11 - 100 | 65.14 | 19.74 |
| Parallel | 0 - 100 | 35.08 | 22.12 | 0 - 100 | 42.55 | 26.53 |
| Associative | 0 - 100 | 26.97 | 20.54 | 0 - 90 | 22.59 | 21.75 |
| Cooperative | 0 - 33 | 1.00 | 4.53 | 0 - 0 | .00 | .00 |
| 2. Unsocial Play | 0 - 100 | 26.38 | 19.15 | 0 - 67 | 20.90 | 17.58 |
| Unoccupied | 0 - 33 | 2.68 | 6.00 | 0 - 50 | 1.51 | 5.83 |
| Onlooker | 0 - 44 | 8.71 | 10.54 | 0 - 38 | 7.21 | 9.90 |
| Alone | 0 - 83 | 15.00 | 16.45 | 0 - 63 | 12.18 | 15.93 |

(table continues)

Table 6 (Continued)

| | Time 1 | | | Time 2 | | |
|---|---|---|---|---|---|---|
| | Range | M | SD | Range | M | SD |
| Girls (n=150) | | | | | | |
| 1. Social Play | 10 - 100 | 62.06 | 21.09 | 0 - 100 | 64.09 | 20.47 |
| Parallel | 0 - 80 | 28.32 | 19.13 | 0 - 100 | 40.30 | 24.49 |
| Associative | 0 - 100 | 33.14 | 22.78 | 0 - 88 | 23.71 | 20.62 |
| Cooperative | 0 - 17 | .60 | 2.79 | 0 - 13 | .08 | 1.02 |
| 2. Unsocial Play | 0 - 83 | 27.51 | 20.70 | 0 - 89 | 22.21 | 18.90 |
| Unoccupied | 0 - 50 | 3.99 | 8.32 | 0 - 40 | 1.30 | 4.79 |
| Onlooker | 0 - 67 | 12.08 | 14.80 | 0 - 70 | 8.54 | 12.08 |
| Alone | 0 - 57 | 11.45 | 13.72 | 0 - 89 | 12.37 | 15.73 |

Hypothesis 4

Hypothesis 4 was designed to examine the amount of parallel play across time by children's gender. As Table 7 shows, there was a significant difference in the amount of parallel play by gender, however, in contrast to the direction of hypothesis, boys played significantly more in parallel play across time. Therefore, Hypothesis 4 that across the year in preschool, low-income girls will show more parallel play than boys was not confirmed. Boys demonstrated more parallel play than girls at both time periods as Table

6 shows. There was no gender by time effect on any play category.

Table 7

Repeated Measures Analysis of Variance for Parallel, Associative, and Cooperative Play by Gender over Time (N=283)

| | | Parallel | | Associative | | Cooperative | |
|---|---|---|---|---|---|---|---|
| Source | df | F | p | F | p | F | p |
| Between subjects | | | | | | | |
| Within Cells | 281 | | | | | | |
| Gender | 1 | 4.99 | .03* | 3.95 | .05* | .48 | .49 |
| Within subjects | | | | | | | |
| Within Cells | 281 | | | | | | |
| Time | 1 | 26.68 | .00** | 15.04 | .00** | 11.23 | .00** |
| Gender by Time | 1 | 1.43 | .23 | 2.01 | .16 | 1.12 | .29 |

Play Areas

Hypotheses 5 through 7 are related to children's usage of play areas. The ranges, means, standard deviations for the percentage of the observations children were in each play area are shown in Table 8. The addition of mean percentages of three play settings

does not add up to 100% because there were some setting categories that were not used for this study (e.g., books or sand and water). The three areas on which this study focused each accounted for about 10% of the play observed. For the tests of hypothesis 5, 6, and 7, a set of repeated measures MANOVA was conducted.

Table 8

Descriptive Statistics for the Play Areas (N=283)

| | Time 1 | | | Time 2 | | |
|---|---|---|---|---|---|---|
| | Range | M | SD | Range | M | SD |
| Dramatic Play | 0 - 75 | 10.39 | 15.88 | 0 - 90 | 10.86 | 17.89 |
| Boys (n=133) | 0 - 75 | 7.94 | 14.37 | 0 - 90 | 9.29 | 15.67 |
| Girls (n=150) | 0 - 75 | 12.56 | 16.86 | 0 - 90 | 12.25 | 19.58 |
| Manipulatives | 0 - 75 | 8.38 | 14.13 | 0 -100 | 10.94 | 18.53 |
| Boys | 0 - 75 | 8.97 | 15.00 | 0 - 100 | 11.54 | 18.33 |
| Girls | 0 - 75 | 7.86 | 13.34 | 0 - 100 | 10.42 | 18.75 |
| Blocks | 0 - 90 | 10.26 | 16.84 | 0 - 100 | 12.13 | 18.26 |
| Boys | 0 - 75 | 11.96 | 17.05 | 0 - 100 | 13.94 | 20.11 |
| Girls | 0 - 90 | 8.76 | 16.56 | 0 - 78 | 10.54 | 16.36 |

Hypothesis 5

Hypothesis 5 was designed to examine changes in the amount of play in settings which require more symbolic interactions and fine motor skills. Symbolic interactions were observed through the amount of play in the house-keeping and dramatic play areas and fine motor skills were observed through the amount of play in the manipulatives area. Means and standard deviations for play in three areas (dramatic, manipulatives, and blocks) are presented by gender and time in Table 8.

Hypothesis 5 proposed that preschool children would increase their play in a dramatic play setting which requires pretend play and in the manipulatives play setting which requires fine motor skills were partially supported. The mean differences of play in manipulatives setting were significant over time. Children played significantly more in manipulatives setting in time 2 ($F = 3.85$ with df 1, 282, $p = .051$). There was no significant differences of play in the dramatic play area over time ($F = .11$ df 1, 282, $p = .736$)

Hypothesis 6

Hypothesis 6 investigated whether boys would play more in the block area than girls across time; means are presented in Table 8. As shown in Table 9, there were statistically significant differences in the use of the block area by gender. Boys spent significantly more time in the block area than girls over time. Therefore, Hypothesis 6 that boys would play more in the block area over time than girls was supported; boys played more in the block area at both data collection times. No time by gender interactions were found, and there was no change in use of play areas over time.

Hypothesis 7

Hypotheses 7 examined whether preschool girls would play more in the manipulatives area than boys over time. There was no gender effect on the amount of use of the manipulatives area across time (see Table 9). Therefore, Hypothesis 7 was not supported. However, in an additional finding, girls spent significantly more time in dramatic play area than boys over time. The difference by gender in use of dramatic play area was statistically significant (see Table 9).

Table 9

Repeated Measures Analysis of Variance for Play Areas by Gender (N=283)

| | | Dramatic | | Manipulative | | Blocks | |
|---|---|---|---|---|---|---|---|
| | df | F | p | F | p | F | p |
| Between subjects | | | | | | | |
| Within Cells | 281 | | | | | | |
| Gender | 1 | 6.07 | .01* | .54 | .46 | 4.19 | .04* |
| Within subjects | | | | | | | |
| Within Cells | 281 | | | | | | |
| Time | 1 | .14 | .71 | 3.83 | .05* | 2.05 | .15 |
| Gender by Time | 1 | .37 | .54 | .00 | .97 | .02 | .88 |

In sum, as hypothesized, boys were engaged significantly more in the block area than girls and it was unexpectedly found that girls played significantly more in the dramatic area than boys. There was a significant increase in use of the manipulatives area over time in both gender with no indication of significant difference by gender.

## Verbal Interaction

In this section, the results of Hypothesis 8 through 9, which are related to children's verbal interactions, are presented. The ranges, means and standard deviations for the percentages of verbal interaction while playing as well as to whom the children talked are shown in Table 10. Children were observed talking about 20% of the time. Among the verbal interactions, talk exclusively to peers was the highest percentage. Children made more than 50% of their verbal initiations to their peers. For the test of hypotheses, repeated measures ANOVAs were conducted.

### Hypothesis 8

Hypothesis 8 investigated the amount of verbal interaction over time. There was no significant change in the amount of verbal interaction over time ($F = .92$, $df = 1, 282$, $p = .339$). Therefore, Hypothesis 8 that preschool children will increase verbal interactions over time was not supported. However, there was a time effect on the distribution of percentages within specific categories to whom the verbal interactions were made to the total group. As time passed the percentages of verbal interaction made to mixed group decreased significantly ($F = 5.65$, $df = 1, 281$, $p = 0.18$) for both genders.

Hypothesis 9

Hypothesis 9 was designed to examine gender effects on the total amount of verbal interaction. Means and standard deviations for verbal interaction are presented in Table 10 for gender and by time. Gender had no effect on the total amount of verbal interaction over time: $F$ (1, 281) = .47, $p$ = .496. Therefore, Hypothesis 9 that preschool girls will talk more than boys was not confirmed.

Table 10

Descriptive Statistics for the Verbal Interactions(N=283)

| | Time 1 | | | Time 2 | | |
|---|---|---|---|---|---|---|
| | Range | M | SD | Range | M | SD |
| Verbal Interaction | 0 - 60 | 19.36 | 14.67 | 0 - 70 | 20.46 | 15.79 |
| Boys (n=133) | 0 - 60 | 20.19 | 15.78 | 0 - 60 | 20.65 | 15.67 |
| Girls (n=150) | 0 - 60 | 18.63 | 13.63 | 0 - 70 | 20.29 | 15.95 |
| Talk to Whom | | | | | | |
| Peers | 0 - 100 | 54.06 | 38.93 | 0 - 100 | 53.65 | 40.19 |
| Boys | 0 - 100 | 52.77 | 35.41 | 0 - 100 | 52.74 | 38.00 |
| Girls | 0 - 100 | 55.08 | 41.61 | 0 - 100 | 54.42 | 42.10 |

(table continues)

Table 10 (Continued)

| | Time 1 | | | Time 2 | | |
|---|---|---|---|---|---|---|
| | Range | M | SD | Range | M | SD |
| Teacher | 0 - 100 | 15.90 | 28.77 | 0 - 100 | 18.61 | 31.81 |
| Boys | 0 - 100 | 17.56 | 29.96 | 0 - 100 | 13.32 | 25.80 |
| Girls | 0 - 100 | 14.60 | 27.84 | 0 - 100 | 23.10 | 35.63 |
| Mixed | 0 - 100 | 10.49 | 24.95 | 0 - 100 | 4.92 | 15.80 |
| Boys | 0 - 100 | 8.20 | 19.40 | 0 - 67 | 4.81 | 13.55 |
| Girls | 0 - 100 | 12.31 | 28.53 | 0 - 100 | 5.01 | 17.54 |
| Self | 0 - 100 | 18.69 | 31.12 | 0 - 100 | 22.83 | 32.63 |
| Boys | 0 - 100 | 20.26 | 30.01 | 0 - 100 | 29.14 | 35.41 |
| Girls | 0 - 100 | 17.45 | 32.04 | 0 - 0 | 0.00 | 0.00 |
| Non-Person | 0 - 100 | .86 | 7.65 | 0 - 0 | 0.00 | 0.00 |
| Boys | 0 - 100 | 1.21 | 10.13 | 0 - 0 | 0.00 | 0.00 |
| Girls | 0 - 100 | .58 | 4.89 | 0 - 0 | 0.00 | 0.00 |

Hypothesis 10

Hypothesis 10 examined whether boys would talk more with peers than girls. The relevant means and standard derivations are presented in Table 10. Hypothesis 10 that

preschool boys would talk more with peers than girls was not supported ($F = .01$; $df$[2]= 194, 1; $p = .936$). There was no difference by gender in the percentage of talk to peers.

Hypothesis 11

Hypothesis 11 was designed to examine whether girls would talk more with their teachers than boys over time. Those data are also presented in Table 10. Hypothesis 11 was not supported: $F(281,1) = 1.44$, $p = .232$. However, there was an interaction effect between time and gender. The percentage of conversational overtures made to teachers by boys decreased, while girls talked more to teachers over time ($F = 6.26$; $p = .013$). Girls talked more than boys to teachers in Time 2 although girls had talked less to teachers in Time 1.

In sum, there was no significant increase in the amount of preschool children' verbal interactions in these classrooms. There was no gender effect on the total amount of verbal interaction over time. Both boys and girls talked the most to their peers. The amount of verbal interaction made to teachers increased for girls over time but decreased for boys.

## Play Partner

Hypotheses 12 through 14 are related to the play partner with whom the children were engaged. The ranges, means, and standard deviations for play partners are presented in Table 11. When children had a partner, they played far more with their peers (about half the interactions that involved a partner) or they played with peers and a teacher.

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[2] A third of children were lost because they were never observed talking. Therefore, $df$ in testing hypotheses on whom the children talk to shows much smaller number of subjects compared with other play categories.

Hypothesis 12

Hypothesis 12 examined whether there would be a change in the amount of play with peers over time. There was slight increase in the amount that children played with peers over time (see Table 11); however, it was not statistically significant: $F$ (1, 281) = 2.60, $p$ =.11. Therefore, Hypothesis 12 that across the year in preschool, low-income children would increase their levels of peer interaction was not confirmed.

Hypothesis 13

Hypothesis 13 examined whether boys participated in more interactions with peers than girls. Those data are presented in Table 11. There was no gender effect on choosing play partners. Across both genders, all preschool children played most with their peers, next with peers with teacher and least with teachers alone: $F$ (1, 281) = .14, $p$ = .71. Therefore, Hypothesis 13 that across the year in preschool, low-income boys will participate in more interactions with peers than girls was not supported.

Hypothesis 14

Hypothesis 14 examined whether girls associated more with teachers than boys. There was no gender effect on choosing play partners. Across both genders, preschool children played with teacher alone about 2% of time they were observed. Therefore, Hypothesis 14 that across the year in preschool, low-income girls will associate more with teachers than boys was not supported.

In sum, there was no increase in the amount of play with peers over time for both boys and girls. Boys did not show more interaction with peers compared to girls and girls did not show more interaction with teachers over time than boys.

Table 11

Descriptive Statistics for the Play Partners(N=283)

| | Time 1 | | | Time 2 | | |
|---|---|---|---|---|---|---|
| | Range | M | SD | Range | M | SD |
| Play with Peers | 0 - 100 | 45.44 | 21.02 | 0 - 100 | 48.10 | 22.24 |
| Boys (n=133) | 0 - 100 | 44.54 | 20.86 | 10 - 100 | 48.22 | 21.06 |
| Girls (n=150) | 0 - 90 | 46.23 | 21.20 | 0 - 100 | 47.99 | 23.31 |
| Play with Teacher | 0 - 30 | 2.74 | 5.76 | 0 - 30 | 2.25 | 5.12 |
| Boys | 0 - 20 | 2.34 | 4.85 | 0 - 22 | 2.21 | 5.00 |
| Girls | 0 - 30 | 3.11 | 6.46 | 0 - 30 | 2.29 | 5.24 |
| Play with Mixed Group | 0 - 88 | 38.08 | 20.71 | 0 - 100 | 35.05 | 19.74 |
| Boys | 0 - 88 | 37.65 | 21.18 | 0 - 80 | 34.24 | 19.71 |
| Girls | 0 - 80 | 38.46 | 20.34 | 0 - 100 | 35.76 | 19.80 |
| Play alone | 0 - 60 | 13.74 | 13.81 | 0 - 90 | 14.61 | 16.15 |
| Boys | 0 - 60 | 15.47 | 15.32 | 0 - 70 | 15.33 | 16.70 |
| Girls | 0 - 50 | 12.21 | 12.18 | 0 - 90 | 14.00 | 15.67 |

## Summary of Results

Two out of 14 hypotheses were confirmed, one was partially confirmed and nine were rejected. There was no significant difference in overall amount of social play over time; however, there were significant differences in the each category of social play. Children were involved significantly more in parallel play in time 2 while the amount of cooperative play decreased over time. On the other hand, children engaged significantly less in unsocial play at time 2. In particular, there was a significant decrease in unoccupied and onlooker play over time. Girls played at an associative level significantly more than boys whereas boys played more at a parallel level. There was no increase in the amount of symbolic interactions whereas fine motor play increased over time. As expected, boys played significantly more in block area than girls while girls played significantly more in dramatic area. There were no differences in the use of the manipulative area by gender over time. There was no increase in verbal interaction over time among both boys and girls; however, verbal interactions made to a mixed group (teachers and children) decreased significantly over time. There was no gender effect on the total amount of verbal interaction and the amount of verbal interaction made to teachers as well as peers. However, there was a gender and time interaction effect in the amount of verbal interactions addressed to the teachers. Girls addressed more verbal interactions to teachers in time 2 whereas boys' verbal interaction to teacher decreased. In relation to play partner, there was no increase in the amount of play with peers over time and there were no gender effects on peer play.

# CHAPTER V

# DISCUSSION

The purpose of this study was to examine the effects of early intervention on the development of preschool children's play behavior in Chapter 1 funded public school preschools. The study observed disadvantaged preschool children's play over the school year in preschool classrooms to explore developmental changes in play behavior. At the same time, the amount of observed play behavior across various aspects of play will be compared with research findings from previous studies from a very diverse set of studies. Various aspects of play such as social play level, play settings, play partner and verbal interaction were studied with consideration of gender and SES as well.

The theoretical perspective which provided the conceptual framework for the study was the importance of play in children's development particularly during their early years with a focus on environmental influences from contextual conditions. Piagetian perspectives on cognitive construction emphasize children's exploration and interaction with their environments, and the transactional approach (Sameroff & Fiese, 1990) suggest an integrated way of looking at play with equal focus on cognitive and social components of play.

The review of the literature suggested that play facilitates every aspect of the development of young children since the nature of play is intrinsically motivating and will

be matched to children's developmental level. Therefore, a play-based classroom, which is the center of developmentally appropriate practices, might be the best learning environment for preschool children, especially for disadvantaged children, who need a specialized and individualized approach to lessen the discrepancy in their experiences between their routine home and neighborhood environments and the school environment. In contrast to an academically focused curriculum which aims at school readiness for preschool children, play during the early years of life has been supported as the best environment where children can develop through interactions with their physical and social environments.

Housing preschools in the public school is relatively new and unstudied so no one knows if these environments facilitate children's play. Considering the tradition of didactic instruction in kindergarten and primary grades in public schools, some concerns about a possibly too academically focused curriculum in preschool were raised among scholars as the number of public school preschools grow.

Using developmental research, it was hypothesized that different levels of social play would increase over time while unsocial play would decrease. Boys were hypothesized to be involved more in associative and cooperative play than girls. Girls were hypothesized to play more at a parallel level than boys. It was also expected that symbolic interactions would increase over the school year demonstrated in children being seen more in the dramatic area as well as using fine motor skills. Boys were expected to play more in the block area than girls, whereas girls were expected to play more in the manipulatives area. The amount of verbal interaction was hypothesized to increase for all

children over time. Compared to girls, boys were expected to talk more overall and to talk more to peers whereas girls were expected to talk more to the teacher. It was also hypothesized that over the school year, there would be an increase in the total amount of peer interaction. Boys were hypothesized to interact more with peers than girls while girls would associate more with their teachers.

As a whole, the results from this study indicate that the play of disadvantaged children in these public school preschools was somewhat different from what would have been expected developmentally.

## Summary of Results

### Play Level

There was no significant difference in the overall amount of social play over time since the opposite directional changes among the sub-categories cancelled out each other. However, there were significant differences among the sub-categories of social play. Children were involved significantly more in parallel play in time 2, while the amount of associative and cooperative play significantly decreased. The direction of these observed developmental changes in the three social play levels was opposite that which most previous research studies would have suggested (e.g., Parten, 1932; Rubin et al., 1978). In the present study, considering the fact that each category was dependent on the others, the increase in parallel play meant significant decreases in associative and cooperative play. This combination of changes raises serious concerns about the curriculum of the public school preschools as sites for early intervention for children reared in poverty. The opposite directional changes in higher levels of social play development may indicate a

critically important issue in preschool intervention in the public school. One wonders if these preschools might be implementing an academically oriented curriculum delivered by teachers' direct instruction, with the intention of helping the preschoolers be ready for school. "Parallel Play" is the learning mode of the elementary grades where children work in isolation on the same instructional materials. Often in kindergarten and primary grades classrooms, children are sitting beside each other at table and are doing similar tasks such as making or cutting patterns with no reference to the other children. The decreased amount of group play in this study is not consistent with Johnson and Ershler's (1981) findings that higher level thinking was observed more at the level of group interaction and that once children engaged in interactive play, they commonly continued being in an interactive state.

In addition to the lack of increase in group play over time (associative and cooperative), the observed absolute amount of group play reached only about 24% of the observed play time, close to the least observed amount from previous studies (ranges from 25% to 42%). The low absolute level of any type of group play may also indicate that these preschools are not facilitating children's social interactions, those that are essential for children's development. However, since in at least one other study of low-income children there was similar low amount of group play, the finding needs to be interpreted with a caution.

In addition to being the opposite of developmental changes expected in the amount of parallel play, the absolute amount of parallel play reached over 40% of observed play by the end of the school year, an amount larger than most of the other previous reports.

The ranges in the amount of observed parallel play reported by previous studies were from 23% to 37%, with the highest reported from the lower-class children in Rubin et al. (1976). This significant increase in parallel play is also not compatible with the notion that parallel play is the "bridge" between solitary and group play (Bakeman & Brownlee, 1980). It may indicate, particularly for the lower-income black minority , that either parallel activity was a goal of these classrooms in preparation for performance expectations in kindergarten or the children themselves preferred this form of play.

On the other hand, children played significantly less unsocial play over the school year. More specifically, there were significant decreases in unoccupied and onlooker play over time while there was no significant change in the amount of alone play. This is consistent with the previous results that showed the amount of unsocial play would be expected to decrease as children grow older (Barnes, 1971; Parten, 1932; Rubin et al., 1976). However, the unchanged amount of alone play is not supported by previous findings. This may indicate that alone play is not the least mature play level in the developmental sequence of social interaction. Instead, it may be an option for children who want to get away from all the other children, consistent with the findings by Rubin et al. (1976). It supports the argument that alone play may be constructive rather than a sign of maladjustment (Moore et al., 1974). The absolute amount of unsocial play (26.98% in time 1 and 21.60% in time 2) is a smaller amount compared to previous findings. In studies, the amount of unsocial play ranged from 26% to 51% (see Table 1).

The decrease in unsocial play and the smaller amount of unsocial play observed indicates positive aspects of public preschool programs. It may be that children who were

in unsocial play moved into parallel play over the school year while at the same time, children who had already reached more complex levels of social participation also moved into the parallel play. These findings indicate that the public school preschool environment for disadvantaged children may bring children together in their play, without necessarily facilitating a group interaction, which has considered traditionally as a learning mode of teacher-directed elementary grades classrooms. This result creates serious concerns. If parallel play is a less mature form of social participation than alone play, these classrooms may be encouraging a less mature form of play behavior. Children in these classrooms will not have the opportunity to develop social skills, and these opportunities may be the most needed for disadvantaged children.

There was also a significant gender effect on parallel and associative play. Over time, boys played significantly more in parallel play than girls while girls were involved more in associative play than boys. There was no significant difference in cooperative play by gender but there was very little cooperative play observed. These results do not agree with previous research findings (Monighan Nourot & Van Hoorn, 1991; Rubin et al., 1976). Most of the previous research indicated more associative-dramatic play and functional-interactive play among boys whereas parallel and constructive play was observed in girls. In terms of social participation, Liddell et al. (1993) found that boys were significantly more solitary than girls, and significantly less cooperative. In these classrooms, since more boys played in the block area than girls, it may simply be because of the play settings where boys chose to play that more parallel play would occur.

In sum, the unexpected findings on the total amount of and increases in parallel

play and decreases in associative and cooperative play over time bring particular attention to the schools this study examined. If the public school intervention preschools have as their goal to make the children ready for further school experience, an increase in parallel play, traditionally considered a primary behavioral mode for elementary school, shows that these classroom are working toward that goal. However, when preschool intervention aims at long-term positive effects both on cognitive and social development of the children, the observed developmental changes in parallel, associative and cooperative play in these classrooms raise serious concerns about preschool intervention in public school preschools. As already discussed, academically oriented program can do harm both in social as well cognitive functionings in the long run (Marcon, 1993, 1994; Schweinhart et al., 1993).

Play Settings

There was no increase in symbolic interactions observed in dramatic play whereas there was a significant increase in using the manipulative areas involving fine motor skills over time. This finding is partially consistent with those by Pellegrini and Perlmutter (1989). Based on the literature, it was expected that over the year, symbolic interactive play as well as constructive play would be increased (Herron & Sutton-Smith, 1970; Pellegrini & Perlmutter, 1989). Previous literature supports that as children grow, they tend to play more with acquired symbols as well as advanced fine motor skills (Van Hoorn et al., 1993). The lack of comparable development in the children in these 23 schools adds more concerns about public school preschools as interventions.

Boys played significantly more in the block area than girls. This could be one of

the explanations for more parallel play among boys since by its nature, block play produces the most parallel play at the preschool age. Previous findings also showed a close relationship between boys' play with blocks and interaction levels of social play (Shure, 1963), but results from the present study do not agree. Boys played more in blocks, but there was no sign that they played at a functional or interactional level of social play in block area. There were no differences in the use of the manipulative area by gender over time. In most previous research, manipulation using bigger muscles and the blocks were observed more among boys whereas more art related constructive play was observed among girls (Fagot, 1974). The present study did not support this conclusion.

Unexpectedly, girls showed significantly more dramatic play than boys over time. Usually, boys were reported to be involved in more dramatic play using more symbolic interaction with various imaginative themes (Shure, 1963). Results from the present study could be accounted for by the fact that most of the props in the dramatic play area were related to house-keeping and dolls, which are typically preferred by girls as their own sex-typed toys.

Verbal Interaction

There was no increase in the total amount of verbal interaction over time among boys or girls which is not consistent with previous findings for this age (Christie & Johnson, 1987). Across gender and time, children engaged in verbal interaction about 20% of observed play time. This percentage of talk during free play does not seem very high, perhaps explained by the high amount of parallel play and little symbolic interactive play. This can be interpreted in different ways. Since the subjects of this study were

predominantly black, the representations in verbal interaction may be accounted for more by ethnic related language development. Heath (1983) argued that the expectations of school are very different from the way black children have been acculturated at home. The majority of children served in these classrooms is black (73%); many of the teachers were also black. However, teachers might have concluded that low-income black children learn better in parallel and non-interactive situations, and they may not have known how to facilitate verbal exchanges. Regardless of the various contributory reasons, the classrooms in this study do not seem to facilitate informal verbal interactions during free play; rather they may emphasize language skills through reading books or telling stories in a designated time. However, verbal interaction made to a mixed group of children and teachers decreased significantly. Over time, children appear to learn to talk either to teacher or to peers. Children talked to themselves quite a large amount of time (about 20% of observed verbal time), which is consistent with Gowen (1988).

There were no gender effects on the total amount of verbal interaction, the amount of verbal interaction made to teachers as well as peers. This does not correspond to previous research that showed children's verbal interactions with teachers decreasing while their verbal interactions with peers increase (Gowen, 1988). The lack of increase in verbal interactions can be attributed in part to the small amount of symbolic interaction observed. Importantly, there was an interaction effect between time and gender on whom the children talked to. Girls' talk to teacher increased over the year while boys' talk to teachers decreased. Since boys and girls talked the same total amount, one can only wonder who is initiating this change. In these predominantly African-American

classrooms, teachers may inadvertently be establishing patterns of behavior in the classroom that will not be facilitative for later development.

Play Partner

In terms of play partners, there was no increase in the amount of play with peers over time and there were no gender effects on playing with peers. In general children preferred to play with their peers rather with the teacher, consistent with findings from Fein (1981). The percentage of peer interaction was close to 50% of observed play time. This amount is consistent with Salusky's (1930) study. However, less than 3 % of observed play was with teacher alone. This is a confusing result because parallel play is often associated with teacher presence. In these classrooms, it may be inferred that while children played at a parallel level the most, teachers may not have interacted with the children and only stood by to supervise the play. However, considering the importance of teacher presence on children's play development, the public school preschools show another potential problem in their practices. The importance of teacher presence to children's play was reported in many research studies. Howes and Clements (1994) addressed that as a facilitator, a teacher shapes and determines children's social interaction with peers as well as teachers themselves, through which the children practice and refine their language skills and appropriate social roles. The teacher plays a role of active play partner with whom the children make more advancement in their development, at the same time the teacher provides and patrols the play environment by assuring developmentally appropriate practices that will enhance children's development in the immediate future as well as the long run (Bredekamp, 1987; Rogers & Sawyers, 1988).

## Implications

Looking at all aspects of the play simultaneously, this study did not show evidence for a strong play-based curriculum in these classrooms, rather the indications are for a more academically oriented curriculum. Children in these public preschool classrooms played most in parallel level without an expected developmental increase in verbal and social interactions. Children in these classrooms do not show developmental changes in sociodramatic or manipulative skills. Therefore, unlike the research that focused on cognitive gains from early intervention, when the focus is given to the social environment and appropriate play interactions, the public school preschools do not show an environment to produce the skills needed for better adjustment in later school grades. Therefore, the public school preschools should be closely explored as to whether they are serving the goals of helping the disadvantaged children be ready for the school success both immediately and in the long run. Early intervention with the good intention of ameliorating the negative influences of poverty may not be serving that purpose as indicated by the small amount of associative and cooperative interactions and the increase in parallel play. The possible negative impact of having too few of those opportunities is the chance to learn and practice more complex social and verbal skills. It can be inferred by the amount of parallel play as well as its increase over time, these classrooms emphasize academic skills through direct and task-oriented instructional environment. According to Marcon (1993, 1994) and Schweinhart et al. (1984), this kind of learning environment may harm children's development in the long run.

## Recommendations

This study only examined changes in play behavior among low-income children in one type of classroom; no comparison was made with other intervention programs for economically disadvantaged children like Head Start. Additionally, this study had no developmental measures for outcomes. Thus no relationship could be established between academic growth and behavior in the classrooms. For the valid comparison between this study and previous research studies, comparable subjects in their ages, SES and ethnic backgrounds, as well as the learning environments where the children were observed need to be established. This study also did not examine factors that might be important in play activities, such as familiarity of play partners, genders of the play partners, previous preschool experience, peer presence in the symbolic interactions, and availability and content of the play materials. More broadly, an explanation as to why these classrooms did not show similar results to that of previous research should be explained in terms of possible contributions.

Finally, this study cautions the teachers who are teaching in public school preschools that there may be a lack of understanding on what facilitates young children's development and how they can implement play-based curriculum. Empirical data are important to make them aware of what occurs in the classroom. Teachers may have a textbook understanding that play is important for young children's development; however, they may not know how to *implement* play-based curriculum especially with the pressure from higher grades school for academic preparation. Also, they may not know their roles in play-based classrooms and how to evaluate the progress in children's development. In-

service trainings focused on implementing a play-based curriculum and in particular, what the teachers' roles might be seem to be essential for creating the kind of classrooms disadvantaged children need. Most of all, education is not a short-term matter, it is a long-running commitment. Teachers, as well as society as a whole--being a basis of values for education--need to remember this. I want to end this study with an old Confucius philosophy saying "education is a big plan of a hundred years".

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# Appendix A

# MANUAL FOR OBSERVATION OF PLAY IN PRESCHOOLS

# M O P P

## MANUAL FOR OBSERVATION OF PLAY IN PRESCHOOLS

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# MOPP

## MANUAL FOR OBSERVATION OF PLAY IN PRESCHOOLS

This manual was developed for coders who are observing and recording the free play behavior of each child in a preschool setting USING A SCAN METHOD. Definitions accompany each code.

Scan Method: Every child is observed in the classroom. The observer spends 2 seconds observing each child, once the child is found. The observer watches the child for **2 seconds.** Following the 2 seconds, the observer uses approximately 15 seconds to write the codes and any words the coder wants to write. This is not much time to write, so the code should be memorized. The observer has 3 more seconds to find the next child in the room. Begin coding this child at the 20 second mark. During each minute, 3 children will be observed.

After all children in the room have been coded, the coder takes one minute, if necessary, to review codes and clarify **anecdotal notes**. After one minute of clarifying notes, the coder begins observing the children again in the same order of observation.

After you are finished coding please write a paragraph describing the interactions and the behaviors in the classroom.

This set of codes is designed to describe **free play behavior** of children in a preschool classroom. This set of codes does not cover play behaviors that occur during large group time, snack time, or outside activity time. If children are in **group time do not code Type of Play OR Type of Task**. If children are **eating** or **outside, do not code anything**. Indicate on the scoresheet what the child is doing (eating, going outside, in large group time.

This coding manual is divided into three sections (**Setting, Physical Behaviors, Verbalizations**) and each section has codes within it.

## I. SETTING

Take time to write down the activity centers available in the classroom. Each classroom is different and offers different centers and activities.

For this code please indicate where the child is physically located in the classroom.

. **N** - Not in classroom- MISSING DATA - Enter into computer as ".".

1. **A** - Art area

2. **B** - Block Area

3. **BK** - Book Area

4. **C** - Computers

5. **D** - Dramatic area - house; pretend play

6. **GM** - Gross Motor

7. **GT** - Group time - large teacher-directed group time.

8. **JG** - Jungle Gym (Indoor Play Gym Equipment)

9. **M** - Manipulatives - puzzles; beads

10 **MU** - Music

11 **OP** - Open area in classroom

12 **Q** - Quiet Area - place for child to be by themselves or quietly with other children

13 **S** - Science Area - animals; plants; science activity; food activity

14 **SA** - Sand Area

15 **SW** - Sand and water area

16 **WA** - Water Area

17 **DR2** - A second Dramatic Play area

18 **MA** - Math Area

19 **WR** - Writing Area

20 **P** - Puzzle Area (separate from the Manipulative Area)

21 **A2** - A second Art Area (playdough in addition to another art area)

22 **G** - Games

23 **A3** - A third Art Area is set up.

24 **M2** - A second Manipulatives Area is set up.

25 **D3** - A third Dramatic Play area is set up.

26 **BK2** - A second Book Area is set up.

27 **W** - Wood Area

28 **L** - Listening Center

98 **TO** - Time out - Child has been asked to sit in time out.

99 **X** - No area can be determined or child is in transition.

**SETTING CODES REVISED**

1 ART, Art2, Art3

2 BLOCKS

3 BOOKS, books2, quiet area

4 SCIENCE AREA

5 DRAMATIC PLAY, Drama2, Drama3

6 GROSS MOTOR, Jungle Gym

7 GROUP TIME

8 SAND, Water, Sand & Water

9 MANIPULATIVES, Manips2, Puzzles

10 OTHER (Computer, Music, Open, Math, Writing, Games, Wood, Listening)

98 TO - Time Out

99 X - No area can be determined; child in transition

## II. DEFINITIONS OF BEHAVIOR CODES

**PLAYLEV**

**A. WHAT TYPE OF PLAY?** (Some definitions are adapted from Parten, 1932).

.) N - The child is not in the classroom-MISSING DATA- ENTER ".".

1) X - **Not engaged in play**. This child is tying shoes, cleaning, looking for a crayon, moving from one chair to another, or involved in some other type of behavior not captured by the codes below (try to include a note with this code if you can to give a more specific indication of the activity in which the child is engaged).

2) U - **Unoccupied** - The child is not engaged in any activity beyond sitting alone or **wandering** around the room. This child is not alert to what is going on around him/her. He or she may stand in one spot, look around the room, or perform random movements that do not seem to have a goal. In most preschools, unoccupied play is less frequent than other levels of play.

3) O - **Onlooker** - The child is observing other children or a teacher doing an activity or explaining an activity. This child appears to be alert to what is going on in their center. A child wandering from one center to another would **not** be coded here. An onlooker may ask other children questions but does not enter into their play behavior. The child's active interest in other children's play distinguishes onlooker play from unoccupied play.

4) A - **Alone** - The child engages **alone in a nonverbal activity** with an object and shows little regard for other people. For example, the child may be coloring, playing with blocks alone, or at the computer alone. The child is alone and not in a center with other children. A child in a center with other children can not be coded here.

5) P - **Parallel play** - The child is with another child or children, but they are not playing with each other. The child plays alone, but with toys like those that other children are using or in a manner that mimics the behavior of other children who are playing. An example of this would be two (or more) children sitting at the same table quietly doing separate puzzles, drawing, etc... but without interacting with each other.

6) AS - **Associative play** - Social interaction with little or no organization involved is called **associative play**. In this type of play, children seem to be more interested in associating with each other than in the tasks they are performing. Borrowing or lending toys and following or leading one another in line are examples of associative play. The child plays with other children although there is no division of labor and no organization of activity. Verbalizations and conversation can occur. This does not necessarily have to be a positive experience.

**Type of Play, continued.**

7) C - **Cooperative play** - Social interaction in a group with a sense of group identity and organized activity characterizes cooperative play. Children's formal games, competition aimed at winning something, and groups formed by the teacher for doing things together are examples of cooperative play. Cooperative play is the prototype for the games of middle childhood; little of it is seen in the preschool years.

8) T - **Talking** - A child is talking to one or more children with no object in sight or no pretend play in mind. This code is reserved for those children who are doing nothing but talking to each other.

9) - Do not code because child is in large group time. (Recode as Missing data as needed for analysis)

**Note: Teachers and other adults in the room should be coded as if they are actors in the play behavior. For example, if a teacher and child are building something together, then the child gets coded as behaving in associative play with a note that it is with the teacher. If a teacher is only observing a child's activities, however, the child is coded as playing alone (or whatever code is applicable). If the teacher interacts with the child while observing, then the child can be coded as being involved in associative play with the teacher.**

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**PLAYWHO**

**B.) WHO IS NEAR (IN PHYSICAL PROXIMITY TO) THE CHILD?**

This is defined as who is in the center with the child or if the child is in an open area who is within arms reach of the child?

.) N - The child is not in the classroom-MISSING DATA-ENTER ".".

1) T - Teacher or Teacher Aide

2) A - Adult in room other than teacher

3) C - Child

4) G - Group of children (more than one child)

5) GT - Group of children with teacher

6) CT - Child and Teacher

7) S - Self (i.e. is alone)

8) CH - Child Helper (A 5th grader).

9) CC - Child Helper and another child

10) CG - Child Helper and Group

**SOCIAL**

**C.) WHAT KIND OF SOCIAL INTERACTION (PHYSICAL BEHAVIOR) IS OCCURRING?**

Whenever the coder marks positive or negative interaction, the coder is required to write a brief anecdotal note.

.) N - The child is not in classroom-MISSING DATA-ENTER ".".

1) ± - positive (holding hands, jumping up and down with each other, handing a toy to another child, hugging)

2) 0 - neutral - not positive or negative

3) - - negative (pushing away, hitting)

**AFFECT**

**D) WHAT IS THE CHILD'S AFFECTIVE STATE?**

.) N - The child is not in the classroom-MISSING DATA - ENTER ".".

1) ++ - high positive (excited; broad smile with teeth showing, loud laugh)

2) ± - positive (smile; lips turned up but not so high teeth show

3) 0 - neutral (face looks like child is interested or concentrated)

4) - - negative (frown, lips turned down; disappointed)

5) - - - high negative (sad with tears, or anger with eyebrows frowned downward)

**TYPETASK**
**E) WHAT IS THE CHILD'S TYPE OF TASK ENGAGEMENT?**

.) N - The child is not in the classroom-MISSING DATA -ENTER ".".

1) X - Not engaged in a task; child is by self and just talking to him/herself; or child is with other children but not doing any playing or talking.

2) S - Primarily social play with other children without any objects (i.e.conversation)

3) NS - Nonsequential play - involved with objects, but at a low level of activity (i.e. holding a block or crayon without using it)

4) SQ - Sequential play - involved with objects in a high level of activity (i.e. building, combining, or creating things - dressing a doll, building with blocks, painting a picture, looking at a book)

5) SQ/M - Sequential/Make-Believe - children are involved in fantasy play. They are pretending to be mommies, daddies, etc., and they are acting this out. The coder can determine this either by the conversation or the props the children are using.

6) D - Disruptive behavior - aggressive play whether physical or verbal. **Include a note if this is used.**

7) O - Other - behaviors that do not fit in above categories; **include a note if this code is used.** If a child is coded X under Type of Play, code O here under Type of Task.

8) - In large group time - Do not code. (Recode as missing data as needed for analysis)

## III. DEFINITIONS OF VERBAL CODES

**VERBAL**
**A) VERBAL - IS THE CHILD SPEAKING?**

.) X - The child is not in the classroom-MISSING DATA - ENTER ".".

1) N - No

2) Y - Yes

3) L - Listening

**VRBFORM**
**B) VERB FORM - WHAT FORM IS THE UTTERANCE?**
.) N - The child is not in the classroom-MISSING DATA - ENTER ".".

1) Q - Question

2) D - Declarative statement ("My tree is green.")

3) DR - Directive statement ("Go get the block!")

4) NS - Nonspeech - (Yuck. Aaak.)

5) S - Singing

6) X - Unable to determine

7) - The child is not speaking (Recode as Missing Data as needed for analysis)

8) ESL - English spoken as a second language

**C. VERBAFF WHAT IS THE UTTERANCE'S AFFECT?**
.) N - Child is not in the classroom- MISSING DATA- ENTER "."

1) + - Positive (i.e. I like you. Your dress is pretty.)

2) 0 - Neutral (i.e. This is a block. The block is green.)

3) - - Negative: "Go away." "Na-nana-nana." "Hurry up!" "No one will take me home!"(child is upset).

4) X - Child is not speaking. (Recode as missing data as needed for data analysis).

**D) TO WHOM IS THE CHILD SPEAKING?**
.) N - Child is not in the classroom- MISSING DATA - ENTER ".".

1) T - Teacher

2) A - Adult in room other than teacher

3) C - Child

4) **G** - Group of children (more than one child)

5) **GT** - Group of children with adult

6) **S** - Self

7) **X** - Child is not speaking.

8) **NP** - Non-person (doll, animal)

**PIN SCORESHEET:**

SCHOOL_____NAME_____NUMBER_____
DATE_____TIME OF
DAY_____PAGE_____OF_____
OBSERVER 1:_____OBSERVER
2:_____
TIME: Begin:_____ End:_____

COMPUTER
ENTERED:INITIALS_____DATE:_____CHECKED:_____

**BEHAVIOR** **VERBALIZATIONS**

| Setting | Play | Who | Soc/int | Affect | Typetask | Verbal | Form | Affect | To whom |
|---|---|---|---|---|---|---|---|---|---|
| Art | Xnone | Tchr | +pos | ++ | Xnone | No | Q ? | + | T |
| Blcks | Unocc | Adlt | oneut. | + | Social | Yes | Decl | O | Adlt |
| BKs | Onlkr | Chld | -neg | o | NS | List | DRect | - | Cld |
| Comp | Alone | Grp | | - | SQ | | Nonsp | | Grp |
| Dram | Par | GTchr | | -- | SQ/M | | Sing | | GT |
| Manp | ASoc | Self | | | Disrpt | | X | | Self |
| MUsic | Coop | | | | Other | | | | |
| OPen | Talk | | | | | | | | |
| Quiet | | | | | | | | | |
| Scien | | | | | | | | | |
| SWatr | | | | | | | | | |
| X | | | | | | | | | |
| GTgptm | | | | | | | | | |

1._____

2._____

3._____

4._____

5._____

6._____

7._____

8._____

9._____

10._____

11._____

12._____