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Ecological Influences of the Dramatic Play Center
on Children's Play

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ABSTRACT

Ecological Influences of the Dramatic Play Center

on Children's Play

Hariclia (Harriet) Petrakos

Although early childhood experts argue that the dramatic play center promotes social, emotional, cognitive and language development, limited research exists on the influence of the physical design (types and design of toys) of this center on children's play.

In the present study the center theme (extended house, train station) and design of the equipment (solitary versus group design) were manipulated. The social and cognitive play behaviors of thirty-one 4- and 5-year-olds were observed in (a) the traditional housekeeping center, before and after the implementation of the novel center and (b) during the implementation of the four novel centers (i.e., extended house-solitary, extended house-group, train station-solitary, train station-group). Results revealed that, (a) the solitary designed centers facilitated more solitary play interactions and group designed centers facilitated more group play interactions; (b) the extended house center offered children a greater opportunity to engage in a variety of roles (e.g., garage mechanic, taxi driver, mother, father) and it provided an interesting set-up for males and females (c) thematic centers may have limited the children's play to role-enactment

related to the theme of the center; (d) overall, significantly higher frequency of dramatic play was observed in the novel and post-intervention centers than in the traditional housekeeping centers.

v

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

Page

INTRODUCTION

Children's play has long been a topic of interest to child development experts; pretend play, in particular has received increased attention in the past two decades. This type of play has been found to occupy a growing amount of time in a child's life from the preschool years to the elementary years. Theorists have speculated about the importance of pretend play in the development of children's social, emotional, cognitive and language skills (Rubin, Vandenberg & Fein, 1983). Specifically, pretend play has been linked to the development of children's social competence (Garvey, 1977; Singer, 1973; Vygotsky, 1976), the enhancement of children's role-taking skills (Fink, 1976; Saltz & Johnson, 1974), and group cooperation (Rosen, 1974; Saltz, Dixon, & Johnson, 1977; Smith & Sydall, 1978). Additionally, observational studies in naturalistic settings have established that social pretend play is positively related to teacher ratings of social competence, peer popularity, and social role-taking ability (Connolly & Doyle, 1984; Rubin & Maioni, 1975). Therefore, the importance of play and in particular, pretend play has been well-recognized by early childhood educators. As a result, the dramatic play center has been designated as one of the areas in the early childhood classroom where pretend play can easily occur. If one's goal is to provide children with the best opportunities to engage in pretend play and to

achieve social competence, cooperation and role-taking skills, the design of the equipment, space and type of materials available in this area need to be studied in great detail; thus, offering educators clearer guidelines for the implementation of dramatic play centers.

Among researchers and theorists there is a lack of consensus on the definition of play; however, psychological theorists have agreed upon certain features that distinguish play from other behaviors (Rubin, et al., 1983):

1. Play is believed to be intrinsically motivated (i.e., the activity is chosen voluntarily with a genuine desire to engage in the activity).

2. Play is characterized by attention to means rather than ends (i.e., the goals are imposed by the players and may change as the play progresses; there is less concern about the attainment of the goals).

3. Play has also been distinguished from exploratory behavior. Exploratory behaviors allow the player to obtain information about the object by manipulating it to find out what it can do; play behavior allows the player to manipulate the object and find out what one can do with it.

4. Play can also be described as nonliteral, simulative behavior that is characterized by an "as if" representational set.

5. Play is free from externally imposed rules. Although there are no externally imposed rules it can be

governed by rules that dictate how individuals are supposed to interact with one another.

6. In a play situation the player needs to be actively involved in the play. Passive states of boredom, inactivity have been ruled out as play behaviors.

Each of the six characteristics of play have been drawn from different theories and research which maintain that play is an important aspect of human development (Rubin, et al., 1983).

In the present report, the literature review will consist of an introduction to major theories of play and their approach to the fantasy or symbolic element of play. The empirical studies which follow will include relevant developmental studies which examine children's social and cognitive play behaviors. Empirical research examining the influence of play areas and gender on children's play will be included. Developmental and gender differences in children's enactment of roles in dramatic play will also be presented. Environmental influences, such as the physical organization of play areas, the influence of types of toys on children's play, program goals and their influence on the spatial arrangements of play areas will be discussed. In particular, questions regarding the influence of the physical set-up of the dramatic play area will be addressed.

Theories of Play

Theorists have speculated about the importance of play

and its influence on children's social, emotional, cognitive and language development. Although, some have taken the view that dramatic play allows children to act out their emotions (Freud, 1959; Erickson, 1963), others have focused on the cognitive (Piaget, 1962; Vygotsky, 1967) and social outcomes (Bruner, 1972; Sutton-Smith, 1967) of play.

Many experts have viewed play as having an important role in children's emotional development. Although Freud (1959) did not formulate a systematic theory of play, he proposed that play provides children with an outlet for anxiety, produced from traumatic experiences. Erickson (1963) also maintained that through play children could relive a situation which may have caused uncertainties and anxieties. The use of play therapy with emotionally-disturbed children has become popular as a result of this perspective (Rubin et al., 1983).

Piaget (1962) viewed play as closely related to the theory of cognitive development. He believed that during play, children incorporate events, objects and situations into existing patterns of thinking in an attempt to fit reality into their cognitive organization. Pretend play was seen as a stage in the development of representative thought. Since this perspective has had a great impact on the early childhood curriculum it will be further explained in the section that follows.

Vygotsky (1967) believed that play provides an

opportunity for children to dominate the situation and control tension that may have arisen in real-life situations. Through play, the child practices rules used in everyday situations and becomes more skillful in solving problems that deal with social relationships and roles. Pretense allows children to separate meanings from objects and actions aiding in the development of symbolic representation and later in the development of abstract logical thought.

Sutton-Smith (1967) proposed that play gives children the opportunity to explore new behaviors and new ideas and as a result develop new strategies, associations and behaviors to be used later in more serious situations. He focused his attention on the "as if" nature of children's symbolic play. Symbolic play was believed to contribute to creative thinking, role reversals, allowing children to develop role flexibility and autonomy.

Bruner (1972) has been another recent theorist who believes that play contributes to the development of new behaviors and ideas. He suggests that play is a safe environment allowing children to explore and create new behaviors with impunity. As a result, play makes possible the development of behavioral strategies which may prove functional in other contexts.

It is apparent that theorists attribute importance to the role of play in children's lives, even though they each

may focus on different aspects of a child's development
(i.e., cognitive, social, emotional, language).

Piaget's theory of play

Piaget's cognitive play categories have had a great
impact on the early childhood curriculum, therefore, a
closer examination of this theory may allow one to determine
why play and dramatic play, in particular, has been of value
to early childhood experts.

According to Piaget (1962), play represents an
imbalance in which assimilation dominates over
accommodation. That is, during play children incorporate
events, objects and situations into existing patterns of
thinking in an attempt to fit reality into their cognitive
organization. The behavior resulting from this assimilative
orientation reflects the child's level of development
(Piaget, 1962).

Piaget (1962) classified children's play into three
categories: practice games, symbolic games and games with
rules. Practice play is believed to characterize stages II
to V (ages 1-18 months) of the sensorimotor period. During
this period, practice play emerges as a child moves from
primary to secondary and tertiary reactions (these are
substages of the sensorimotor period). The child repeats
already acquired modes of behavior and gains a sense of
control over him/herself and the environment. Actions are
exercised for their functional value (Piaget, 1962).

Symbolic play emerges in stage IV of the sensorimotor period and becomes prominent in the preoperational period (ages 18 months to 7-years-old). This type of play "implies a representation of a given object since there is a comparison between a given and an imagined object" (Piaget, 1962 p. 111). The child in this stage is able to understand that one object or person can represent another (Piaget, 1962). According to Piaget (1962), symbolic play develops from solitary to social; it is infrequent during the second year of life and increases in frequency and complexity during the third and fourth year of life, then decreases thereafter. Pretend play is characteristic of the symbolic stage and sociodramatic play is known to be the most highly developed symbolic play in which roles become reciprocal and events enacted become more realistic (Piaget, 1962).

The third category of play pertains to games with rules dominating the concrete operational period (ages 7- to 11-years-old). These socialized games involve rules imposed by the group and which carry a sanction if violated (Piaget, 1962).

In order to better understand the importance of play and to link theory to practice, empirical research has been conducted on children's cognitive and social play behaviors.

Research on children's cognitive play

Researchers have investigated Piaget's stages of play and found some consistencies with regard to Piaget's

formulations. Symbolic play has been found to emerge in the second and third year of life (Fein, 1979; Nicolich, 1977; Fenson & Ramsay, 1980). Dramatic play has been found to increase with age and functional play to decrease with age from 3- to 5-years-old (Rubin & Krasnor, 1980).

Smilansky (1968) also used Piaget's categories to study disadvantaged children's play. She found that disadvantaged preschool children lacked dramatic play skills. In order to enhance the dramatic play interactions of these children, she employed three methods of intervention: procedure (A) by providing children with knowledge and enriching experiences, such as props, field-trips, discussion and explanations; procedure (B) by providing children with direct teaching in play techniques; procedure (C) by combining both procedures (A) and (B). Smilansky (1968) found that method A (providing the enriching experiences) alone was not sufficient. However, method B (teaching play techniques) significantly improved the disadvantaged children's sociodramatic play. The combination of both methods A and B (the enriching experiences and the play teaching techniques) were found to have an even greater benefit on the children's dramatic play.

Other researchers following Smilansky's play-training paradigm have reported that children trained in pretend play showed increases in language development (Lovinger, 1974; Saltz, Dixon & Johnson, 1977), perspective-taking skills

(Burns & Brainerd, 1979; Saltz & Johnson, 1974) and social skills (Smith, Daglish & Herzmark, 1981).

Eifermann (1971) challenged Smilansky's argument that Israeli disadvantaged children lacked sociodramatic skills, by conducting a large-scale observational study of children's play and games. She found that sociodramatic play in a comparable socioeconomic group (to that of Smilansky's) of children appeared at a later age (i.e., 6- to 8-years-old rather than 3- to 6-years-old). Not only did this group of children engage in dramatic play, but they also displayed a higher rate than did their advantaged peers.

Others (Ariel & Sever, 1980; Freyburg, 1973; Feitelson & Ross, 1973) who have presented similar results regarding the lack of dramatic play skills in disadvantaged children have not included a middle-class comparison group. Smilansky (1968) did compare disadvantaged Israeli children to middle class European children, however, the European lifestyle was considered the norm and cultural differences were not taken into account. It appears that studies (Ariel & Sever, 1980; Freyburg, 1973; Feiterlson & Ross, 1973; Smilansky, 1968) have assessed children's play deficiencies in a narrow range of contexts (i.e., laboratory and schools), instead of using more natural situations outside of school or experimental contexts (e.g., home environment, parks, street). For example, Labov (1972) found that

lower-class children were more imaginative in their role-playing outside of school or experimental contexts and displayed a variety of social and survival skills. Therefore, in interpreting findings which report cultural and class differences, experimenter bias, and situational effects should be taken into account (Schwartzman, 1984).

Although a number of studies focused on play as an important indicator of children's cognitive development (Fein, 1979; Fenson & Ramsay, 1980) and as facilitator of children's language (Lovinger, 1974) and perspective-taking skills (Burns & Brainerd, 1979; Saltz et al., 1974), it is also important to review the studies which have focused on children's play and social development.

Research on children's social play

According to Fernie (1983), the early childhood classroom is, above all, a social environment. Parents send their children to these centers to provide them with opportunities to play with their peers. A classic research study conducted on children's social play was that of Parten (1932). Parten (1932) described typical levels of social play in young children. She found a significant correlation between age and the level of social participation in children's play. The youngest children (2- to 3-years-old) were found to play alone or in parallel groups, whereas the oldest children (3 1/2- to 4-years-old) were found to play in groups. Recommendations were made to teachers who wished

to support these varying levels of play for a group of children of similar ages to those of her study (2- to 4 1/2-years-old). Materials ranging from puzzles and playdough for solitary play, to blocks and dramatic play props for group play, were considered appropriate (Parten, 1932).

Researchers who attempted to extend Parten's work have found some inconsistencies; for example, they question Parten's orderly progression toward cooperative play (Bakeman & Brownlea, 1980; Rubin 1977; Smith, 1978). Smith (1978) found 3-year-olds who did not engage in parallel play, but progressed from solitary to associative and cooperative play. In addition, 3- and 4-year-olds were found to alternate their associative and cooperative play with extended periods of solitary play (Smith, 1978). Moreover, Rubin (1977) found age differences only for particular forms of solitary, parallel and group play and cautioned researchers against using the Parten categories without the supplemental cognitive categories (i.e., functional, constructive, dramatic, games with rules - borrowed from Piaget and Smilansky). Using this dual approach, Rubin (1977) found age differences between solitary-functional and group-dramatic play. Preschool children were found to engage in more solitary-functional play and less group-dramatic play than kindergarten children and parallel play was found to be the most indicative of the least mature level of social play. Rubin (1977) believed

that solitary play may be reflective of a child who wishes to be alone in order to get away, whereas parallel play may reflect a desire to play with others, but being unable to do so, because of a lack of social skills. Other researchers (Bakeman & Brownlee, 1977) found parallel play to be common, but brief and serving as a transitional phase prior to group play. They suggest that children move from solitary to parallel to group play in a matter of minutes.

Furthermore, some studies place relative value on different levels of social play. High values may be assigned to sophisticated interactions typical of cooperative play (Serbin, 1977; Orlick, 1981). Other studies have stressed the value of nonsocial solitary play (Moore, Everlson & Brophy, 1974; Mackinnon, 1962) believing that independent task-oriented behavior is functional in school situations, indicative of social maturity (Moore et al., 1974) or contributes to an individual's creativity (Mackinnon, 1962).

Such inconsistencies in the value of one play form over another leads to confusion for early childhood experts who seek to plan an optimal play environment. According to Fernie (1983), it is also difficult to determine from many studies what typifies social play in group settings because the setting may differ from one to another. The social play literature does not address questions such as: which play behaviors should be encouraged, and how space, equipment and

materials can be used to encourage both social and solitary play?

Since the beginning of the nursery school movement, educators, stressed the development of the "whole child" and the importance of play as a process supporting development (Clarke, Stewart & Fein, 1983; Hendrick, 1988). Although the developmental literature has focused on the study of play as a contributing factor to children's development, very few studies have addressed questions regarding the influence of activity settings (i.e., types of toys and design of play centers) on children's play. Such studies could provide valuable information for educators who wish to set up a playful environment for young children.

The influence of play areas and toys on children's play

Studies which have examined the influence of play areas and toys on children's play have found that play varies as a function of the activity settings in the classroom. For example, Shure (1963) studied the popularity of the different interest areas in a preschool, as well as children's social interactions in those areas. Art and block areas were found to be the most popular areas and to promote more constructive play than other areas such as the doll corner, book center and sandplay area. The doll corner was found to elicit the greatest proportion of complex social interaction (i.e., group play, as measured by Parten's participation categories). Tyler (1975) also found

the block and art areas to be popular, however, he pointed out that the overall extent of interaction was low and speculated that this was due to the type of materials provided in the art and block areas. These areas were well-equipped with materials (such as, blocks, brushes, paints, paper) so that the children were not required to interact in order to use the material, but could play alone.

Quilitch and Risley (1973) also found that the selection of play materials was an important consideration in any effort to encourage children's social behaviors. Furthermore, the type of toys given to preschoolers within a free play setting may have an influence upon the children's social play and the amount of time spent playing socially or cooperatively. Toys which were evaluated beforehand as social toys, such as clay and tinker toys, were found to encourage more social play among the children than isolate toys (i.e., toys such as puzzles, which were primarily played with by one child at a time). In addition, children played three times as long with social toys as opposed to isolate toys.

Other researchers have found social and nonsocial behaviors to differ according to play center. According to Quay, Weaver and Need (1986) the most complex social interactions (i.e , group play) occurred in the doll/dollhouse and housekeeping centers. The highest frequency of social interaction was observed in the sand,

manipulatives, vehicle and reading centers (Quay et al., 1986; Rubin, 1977). The lowest frequency of social interaction was observed during painting and teacher-directed language activities (Quay et al., 1986; Rubin, 1977).

Limited research on the impact of play centers on children's cognitive play has been conducted. Rubin et al. (1983) after reviewing several studies, found that constructive play accounted for approximately 50% of the play among 4- to 6- year olds. It was concluded that since all these studies (Hetherington, Cox & Cox, 1979; Rubin, Maioni & Hornung, 1976; Rubin, Watson & Jambor, 1978) were conducted in formal preschool settings the materials available to the children "pulled for" educational forms of play. For example, most preschools placed emphasis on such activities as puzzles, art, blocks, facilitating a constructive use of materials (i.e., creating or making something) rather than pretending (as in dramatic play) or playing games. Christie and Johnsen (1989) used the Parten/Piaget scale to investigate children's play patterns in a preschool classroom and two different kindergartens (Kindergarten A and B). The preschool served both lower-and middle-class children and had a play-oriented curriculum. Kindergarten A served middle- and upper-class children and had a very academic orientation allocating only 30 minutes a day to freeplay, and providing play materials

which were primarily constructive in nature. Kindergarten B
served lower class children and viewed play as an important
part of the curriculum, allocating ample time and materials
for both constructive and dramatic play. Results revealed
marked differences between the three classrooms with respect
to the cognitive categories. Contrary to developmental
trends, dramatic play was found to be more frequent among
preschoolers than kindergartners. Christie and Johnsen
(1989) attributed these differences to an interaction of
play materials, teacher attitudes toward play and social
class differences. The preschool, which served middle-class
children, had dramatic play materials and the staff had an
accepting attitude about the appropriateness and value of
dramatic play, was found to have a high frequency of
dramatic play. In addition, twice as much dramatic play
occurred in Kindergarten B (which had ample quantities of
dramatic play props and whose staff had a positive attitude
towards pretend play), than Kindergarten A (where no
materials for dramatic play existed and the staff controlled
and directed the children's play). Even though
Kindergarten B consisted of lower class children they still
displayed more dramatic play than the middle and upper class
children in Kindergarten A. Christie and Johnsen (1989)
suggested that the setting variables (i.e., curriculum and
teacher attitudes) were more powerful in influencing play
patterns than the children's social class.

Since research indicates that different materials promote different play interactions, perhaps an examination of children's behaviors in different segments of a classroom (e.g., dramatic play area, block area, art area) may allow one to identify constraints and possibilities for children's play within each learning center (Fernie, 1983). More systematic research needs to be conducted to examine the effects of setting (i.e., types of toys and design of space) on children's play behaviors. According to Christie and Johnsen (1989) many teachers regard the social and cognitive age trends as indicative of normal growth, and delays in these patterns are considered developmental delays without taking into account the curriculum goals (whether they are academic or play-oriented), the teacher's attitudes towards particular play behaviors and the materials available for the children's play. Studies on gender preferences for different play centers have also indicated that gender is an important variable to consider when designing a play environment for young children. In addition, age and gender in terms of children's role-enactment during dramatic play may allow one to plan better play centers and, in particular, dramatic play centers which appeal to the interests and abilities of all children.

The influence of gender and age on children's play and role-enactment

Research has also been consistent in showing that there

are gender preferences for different play centers. Early studies have reported girls' preferences for the housekeeping corner and boys' preferences for blocks, on-push toys, vehicles, (Beeson & Williams, 1979; Clark, Wyon & Richards, 1969; McDowell, 1937). More recent studies have also focused their attention on gender preferences for play materials. Gershner and Moore (1985) examined the activity choices made by females enroled in a multi-aged classroom. Results indicated that girls preferred art, books, cooking, dramatic play and music more than transportation toys, math activities, movement, woodworking and construction toys. Since this study did not investigate male toy preferences, a comparison of gender toy preferences could not be established.

Overall, studies on preschoolers' freeplay activities have been consistent in showing that females were more likely to engage in art (Beeson & Williams, 1985; Rubin, 1977; Wolfgang 1985), dolls and houseplay activities (Clark et al., 1969; Coates, Lord & Jakabovics, 1975; Cramer & Hogan, 1975; Gershner & Moore, 1985; Parten, 1933; Shure, 1963; Wolfgang, 1985) and boys were more likely to play with vehicles (Beeson & Williams, 1985; Clark et al., 1969; Parten, 1933; Rubin, 1977; Tizard, Philps, & Plewis, 1976; Wolfgang, 1985) blocks (Beeson & Williams, 1985; Rubin, 1977; Wolfgang, 1985) and structured materials such as letters, numbers, number pegs and colored pegs (Wolfgang,

1985).

In terms of gender and dramatic play, research has shown that males are more likely than females to engage in pretend themes completely unrelated to the props in the center and to generate more creative themes, that is, to transform objects and situations (Black, 1990). Males have also been found to prefer superhero play (Connolly, 1980; Cramer & Hogan, 1975; McLoyd, 1980; Pulaski, 1973) and more rough-and-tumble dramatic play involving violent roles than females (Aldis, 1975; Di Pietro, 1981; McGrew, 1972; Neill, 1976; Smith & Connolly, 1972). By contrast, females have been found to prefer familial roles (Connolly, 1980; Cramer & Hogan, 1975; McLoyd, 1980; Pulaski, 1973). With this in mind, it becomes evident that one of the reasons the dramatic play center is preferred by females is because it meets their needs and interests. Furthermore, if one's goal is to encourage males to play in the dramatic play center, props that allow for more creative uses such as transformations of objects and situations, should become a part of this center.

It has also been demonstrated that there are developmental differences in the types of roles children prefer when engaging in dramatic play. Older children have been found to engage in more fantasy or fictional roles (e.g., fairy tale themes) and younger children in more imitative, relational or domestic roles, for example, mother

and father roles (Garvey & Berndt, 1977; Matthew, 1977).
Garvey (1990) also explained that role-enactment is
influenced by everyday experiences and that older children
do not adopt fantasy and character roles to the exclusion of
family roles, but rather that the quality of interactions in
these roles change over time. That is, domestic or familial
roles in older children are drawn in far more detail than
that of younger children.

In a more recent study the effect of indoor and outdoor
play environments on the social pretend play of preschoolers
was examined (Droege & Howes, 1991). The children were
observed in high structure (e.g., house center) and low
structure (e.g., block corner) centers and it was found that
high structured areas encouraged imitative types of dramatic
play interactions (e.g., family roles), whereas low
structure areas promoted more creative types of play
interactions, for example, pretending to be a creature from
outer space. Sometimes however, it became difficult to
classify themes as imitative or creative and the authors
suggested that pretend play themes be viewed along a
continuum, from those which are clearly an imitation of a
child's real life, such as eating breakfast, to themes which
do not resemble everyday life experiences, such as
pretending to be a wild lion (Droege & Howes, 1991). In
terms of gender differences, it was found that girls engaged
in six times more family roles in the high structure

housekeeping area than in any other area and although, boys showed little interest in family themes in other areas, they engaged in home themes as often as girls in this area.

Since it is not clear why these gender and age differences in toy preference and role enactment exist, it may be worthwhile to examine specific play areas more closely, to determine why children of different gender and age are attracted to the different areas. Perhaps examining the organizational set-up and the properties of different toys and play areas, may provide some answers.

Spatial organization of play areas

Even though, studies conducted during freeplay in early childhood centers may have contributed some information regarding the influence of play materials on children's social and nonsocial behaviors, as well as, gender preferences in the use of materials, such studies have given educators a general picture regarding selection of play materials rather than specific guidelines to employ when arranging a playful environment. These studies have not looked at what happens to children's behaviors when play areas are altered in terms of space, equipment, space and arrangement of furniture.

Studies have been conducted on density as measured by number of square feet per child. This kind of research is usually regulated by government licensing codes. The average stipulation for indoor space found in most daycares

in the United States is 35 square feet per child (Prescott, 1981). Research has shown that there is a relationship between density and behavior. For example, McGrew (1970) studied social and space density with 3- and 4- year-olds and observed more proximity behaviors at low density and less physical contact at high density. In addition, Hutt and Vaizey (1966) noted a decrease in social interactions with increased density, but also an increase in aggressive and destructive behavior. In a review of the literature on physical space Prescott (1981) concluded that, although density has been found to be an important dimension it is confounded with the amount of play equipment, the shape and organization of play areas, and the way in which adults conceptualize spatial use for groups of children.

Hartup (1983) pointed out that the spatial arrangements, the resources available and the children's familiarity with the situation also constrain social arrangements and, in turn, the social interactions among children. Kritchevsky, Prescott and Walling (1969) suggested that an analysis of the play equipment based on the level of complexity, the variety and the amount to do per child is required in order to understand to what extent the physical set-up determines the social interactions of young children. It has been found that, to a large extent, physical space determined social interactions of young children. Where daycare quality was high, it was found that

daycare teachers were sensitive and friendly in their manner toward the children and encouraged them to choose their own activities. Low quality daycares tended to have insensitive teachers who used frequent guidance and restrictive teaching of the "arbitrary rules of social living" (Kritchevsky, et al., 1969). As a result, children were less involved and interested in their play.

To a large extent, these studies (Hartup, 1983; Kritchevsky et al., 1969) focused on how the physical setup (i.e., complexity, variety, amount to do per child and teacher's manner toward the children) of an early childhood classroom can determine the quality of the program and, in turn, the social interactions of the children. However, systematic observations of children's social and cognitive play behaviors have not been collected. The literature suggests that the spatial organization is important in determining the children's play interactions. However, even though some literature on influence of the spatial arrangements on children's social interactions (Hartup, 1983; Kritchevsky et al., 1969; McGrew, 1970; Hutt & Vaizey, 1966) exists, it is very speculative and systematic observation of children's social and cognitive play behaviors is lacking. As a result, we are still unsure whether different physical set-ups will, in fact, have differential effects on children's social and cognitive play behaviors. Defining our goals in early childhood education

is a preliminary step to determining which behaviors we wish

to promote more than others and how to arrange an

environment to support those behaviors.

Program goals and spatial arrangements of play areas

Kritchevsky et al. (1969) contributed to knowledge

about programs for children in early childhood centers and

determined differences in program quality. Their main focus

was on the organization of the early childhood classroom as

a means of supporting program goals. For example, it was

suggested that if one's goal was to promote social

development, educators needed to be non-intrusive in their

manner to encourage free choice of activities and self-

sufficiency in their children. In addition, super units

(i.e., a play activity which had three or more materials

juxtaposed, for example - a dramatic play area with

furniture, dress-up clothes, dolls and cooking props) were

seen as accommodating the most children at one time and

holding their interest longer than complex units (i.e., two

materials juxtaposed - sandplay with shovels) and simple

units (i.e., with only one material - puzzle). Variety in

the kind of materials available in the classroom was also

considered an important element in allowing children to have

a wider array of choices rather than being overwhelmed by

one kind of activity. Moreover, providing clear pathways,

easy accessibility to materials and adequate play space per

child were considered important factors in facilitating

availability of choice for every child.

Prescott (1984) has provided additional guidelines that one can follow when organizing an early childhood classroom. Softness in materials was recommended as providing "experiences responsive to the children's tactile sensory stimuli" (p. 3) and pillows, soft furniture, plants, etc. were recommended in making a classroom more "homey" for young children. Opportunities for seclusion (i.e., privacy) and inclusion (i.e., interaction with others) were also considered important to provide for the needs of different children. High mobility (e.g., climbing equipment) and low mobility (e.g., book corner) areas also need to be available to allow for some children who want to climb and jump, and others who need a peaceful, restful place to relax. Of most interest to the present study was Prescott's suggestion that open, as opposed to closed equipment that can be manipulated in a variety of ways can allow for exploratory behaviors and creative play. Moreover, complex and super units were suggested to hold children's attention longer and to increase the variety of play opportunities with the material (Prescott 1984).

Even though research (Kritchevsky et al., 1969; Prescott, 1984) has given educators a clear analysis of the equipment and activity centers in the classroom as a means of fulfilling program goals, questions still remain regarding the effects of equipment and classroom

organization on children's social and cognitive play
behaviors. It is not clear how the arrangement of a
classroom to correspond to program goals, actually
influences the play interactions that occur in specific
areas. Educators need to pay attention to the
organizational set-up of specific play areas as an important
influence on children's play behaviors. For example, why
are certain areas frequented by some children more than
others? What kind of materials should there be in an area
to promote higher levels of social and cognitive play
interactions? Does the complexity of the play center
influence the kinds of social and cognitive play
interactions that will occur in that center. Although these
questions have not been systematically determined, the
literature indicates that simple play units (i.e., puzzles,
individual art work) only allow for solitary kinds of
activities and perhaps more functional or constructive play
behaviors. Complex units (i.e., dolls and dollhouse,
sandbox and digging equipment) may allow children to engage
in parallel or group interactions as well as constructive or
dramatic play behaviors. Super units (i.e., dramatic play
center with three or more materials juxtaposed) have been
proposed to hold children's attention the longest and
increase their play opportunities with the materials.
Therefore, one would expect super units to promote the most
group play and the highest level of cognitive play among

preschoolers, that is, dramatic play. A systematic examination of the organizational arrangements of specific centers may provide us with valuable information concerning the influence of the organization of specific play areas and their influence on children's play.

In conclusion, although the dramatic play area has been a part of the preschool curriculum since the beginning of the nursery school movement, very little is known in terms of how it should be set up to promote meaningful experiences for young children and to enhance their cognitive and social play interactions.

Dramatic play and curriculum planning

"With a greater emphasis currently in early childhood education on back to the basics the respect for pretend play as a major developmental task and attribute of preschool children seems to be on the wane" (Curry & Arnaud, 1984, p. 287). However, developmental research and early childhood experts still advocate the importance of dramatic play. For example, dramatic play among other activities (e.g., puzzles, blocks, art, sandplay etc.) has been recommended by the NAEYC (1986) to be developmentally appropriate activities for preschool children. Particularly, the NAEYC (1986) recommended that "more complex dramatic play props (for playing work, family roles, and animals)" (p. 49) be included in the dramatic play area. However, specific guidelines about how to implement dramatic play centers

effectively have not been provided.

A review of the research literature indicates that introducing novel dramatic play settings in the early childhood classroom may enhance children's active involvement in their play (Woodard, 1984; Wood, cited in Griffing, 1982) and facilitate their social and cognitive play interactions (Howe, Moller & Chambers, in press).

Woodard (1984) provided some guidelines for implementing dramatic play centers effectively in the early childhood classroom. Although her study did not use objective methods for data collection, it offered some helpful suggestions for implementing dramatic play settings in the early childhood classroom. Woodard's (1984) university-level early childhood students implemented a variety of theme corners (e.g., drugstore, hair salon, veterinarian's office, ice cream shop, clinic, shoe repair shop, gas station, appliance repair shop, restaurant, bank, airport and shoe store) over a period of several semesters. One theme corner was introduced at a time while maintaining the permanent housekeeping corner. Each theme remained for a few weeks (it was not clear exactly how long each theme remained) before a new one was introduced. Children were provided with experiences related to the theme through field trips, films, books, discussions and the dramatic play area was planned in a space somewhat separate from other activities, providing a captivating environment. Fairly

realistic, theme-related, durable homemade props made by the student-teachers were also provided. Parent involvement in the form of suggestions and the making of props proved to be very helpful. Initially, the student teams were more involved in the children's play by suggesting, answering questions and, from time to time, by actively modelling appropriate behaviors when necessary. Children seemed to become more experienced over time and to need less guidance and involvement on the part of the student teachers in facilitating their play (Woodard, 1984).

In another study, Wood (cited in Griffing, 1982) arranged the dramatic play area in the gymnasium of her school for a class of eleven second graders. Four centers were planned; a home and store were present every day, for six weeks. Two supplemental areas (such as a doctor's office and an area corresponding to the weekly social studies theme) were varied each week. Initially, the teacher took an active role in the play of the children, but with time the children took charge rearranging the furniture, props and inventing new themes that had not been planned in advance (Wood, cited in Griffing, 1982). Wood suggested that the home center should be kept in operation even when other dramatic play areas are planned, since it is a preferred theme for the children and provides opportunities to engage in familiar, meaningful roles. The integration of the home center with other themes may help

children to begin to understand the relationship between home and other community activities (Wood, cited in Griffing, 1982).

In a more recent study, Howe et al. (in press) used both the traditional housekeeping and thematically novel novelty, duration and materials on children's social and cognitive play patterns. Five novel centers (i.e., hospital, bakery, pharmaceutical counter, pirate ship, pizzeria) were designed and implemented by first-year university students in a teacher-training program. The traditional housekeeping center was set up before and after the novel centers to allow for an investigation of the impact of the novel centers on children's social and cognitive play behaviors. Therefore, the children were obser ed in the housekeeping center before, immediately after, and one month after the implementation of the novel centers. The children's social and cognitive play behaviors were also recorded during the first and last (third) day of implementation of each of the novel centers. Dramatic play was found to be the most observed play behavior in both the housekeeping and novel centers, although, some centers (i.e., pizzeria, bakery, hospital, pre- and post-intervention centers) were found to have a greater impact on children's group-dramatic play. In addition, more dramatic play was observed in the familiar centers (i.e., housekeeping, bakery and pizzeria) as opposed to the less familiar centers (i.e., hospital, pharmacy,

pirate ship). The design of the centers appeared to influence the social play of the children. For example, the delivery truck in the pizzeria center which allowed for a single driver encouraged more solitary play. The bakery center which included bakery items and playdough presented in a row, encouraged more parallel play than other centers. Group play was observed most frequently in the post-intervention center (housekeeping center) since the children by then may have been more familiar with the roles and setting and had the experience of playing in the novel centers. It was also reported that on day one of the novel centers more parallel and dramatic play were observed, whereas, on day three more functional play and onlooker behavior were observed. This was inconsistent with previous studies which have found that children initially explored novel toys (through exploratory and functional play) and then proceeded to play with them (Rabinovitz, Moely, Finkel & McClinton, 1975; Hutt, 1971). It seems that the children played with the toys on day one and by day three, they may have been losing interest in the centers and engaging in simpler or less mature behaviors such as functional play and onlooker behaviors. Finally, teacher's ratings of centers revealed that the novel centers attracted more children, and in particular, attracted more boys than girls (Howe et al., in press).

Based on their study, Howe et al. (in press) offered

some guidelines. It was suggested that: a) the centers should be changed frequently, b) more familiar themes facilitate more pretend play, c) integrating the theme of the center across all aspects of the curriculum (i.e., art, story-telling, fieldtrips, movies) would probably facilitate dramatic play, and d) the design of the environment and play materials would influence the social and cognitive play of the children.

In conclusion, making decisions concerning which behaviors should be encouraged in an activity setting is a question of educational philosophy (Phyfe-Perkins, 1980). The equipment and materials available may influence children's play behaviors. If one's goal is to promote group and dramatic play in the dramatic play area one needs to consider the equipment, materials and organizational arrangement of this area. Varying the organizational set-up may provide answers as to what kind of set-ups promote high levels of cognitive (dramatic) play and group play as opposed to solitary play. It is clear that the housekeeping corner found in many preschools is one in which dramatic play often occurs, however, this area is often limited and static in terms of the arrangement of space and equipment. Careful planning goes into the arrangement of other interest areas (e.g., art area), while the housekeeping area remains the same from week to week. Research has shown that introducing novel (in theme and equipment) dramatic play

centers may stimulate more sophisticated group and dramatic play interactions (Howe et al., 1989; Wood, 1982; Woodard, 1984). However, there is a lack of information regarding the influence of the physical set-up on children's social and cognitive play behaviors. By manipulating the design of the dramatic play center one may be able to assess whether the furniture arrangement and the design of the equipment will influence children's social and cognitive play behaviors. It appears, that the novelty of a theme is not enough to influence children's play. Research needs to focus on the design of the dramatic play center as a means of facilitating group versus solitary play. Such research may provide educators with guidelines regarding the organization of a dramatic play center as a means of fulfilling curriculum goals (i.e., the development of social play interactions), promoting valued play behaviors, and meeting the needs and interests of the children.

The present study

The present study was designed to manipulate the physical design of the dramatic play center to assess environmental influences on children's play behaviors. In particular, the design of the equipment and materials (including the furniture arrangement) were arranged in a solitary (e.g., single-seating in the train - offering no opportunity for group interactions) versus a group design (e.g., double-seating in the train - offering an opportunity

for group interactions) in order to assess the impact on children's social and cognitive play behaviors as measured by Rubin's (1985) Pretend Observation Scale.

Thirty-two 4- to 5-year-olds attending a community daycare center were observed. The housekeeping area of two classrooms was altered (a) in theme (i.e., extended housekeeping area, train station) and, (b) in design of the equipment (i.e., solitary versus group design). The traditional housekeeping corner was set up before and after the implementation of the centers. The children's social and cognitive play behaviors were observed two days prior to the implementation of the new centers, two days during the implementation of each new center and two days after the implementation of the new centers.

The following hypotheses were made:

1. A higher frequency of dramatic play was expected in the novel centers (# 2, 3, 4, 5) than in the pre and post housekeeping centers (#1, 6).

2. Centers designed in a solitary fashion (centers # 2, 4) were expected to promote more solitary play than group-designed centers (centers # 3, 5).

3. Centers designed in a group-oriented fashion (centers # 3, 5) were expected to promote more group play than those designed in a solitary fashion (centers # 2, 4).

METHOD

Subjects

Initially the sample consisted of two classrooms (class A and class B) of 32 children (16 in each class) with ages ranging from 43 to 64 months and a mean age of 56.8 months. By the end of the first week one male from class A left the preschool thus, the sample size was reduced to thirty-one.

Procedure

Initial visits were made by the observers to familiarize themselves with the children and the classroom settings. The consent of the parents, and director were obtained and the cooperation of the children and teachers were required to conduct the observations (see Appendix A). The educators were told that the investigator would be observing how the children were playing with the new props in the dramatic play center. The investigator also emphasized that the teachers continue to engage in normal daily activities and routines.

Initially, the children were randomly assigned in groups of four, however, with such a small sample it was impossible to attain groups with similar dramatic play abilities and peer familiarity. Since research has shown that socially competent players can influence the play of their playmates (Konner, 1972), the teachers were asked to rate the children's dramatic play skills to ensure that each group was composed of children with low (rating of 3 - child

seldom engaging in dramatic play), medium (rating of 2 - child sometimes engaging in dramatic play but taking on same roles most of the time, such as father, mother, ninja turtles) and high (rating of 1 - child engages in dramatic play everyday in the house center or in other areas of the classroom and leads other children to play with him/her) levels of dramatic play abilities. In addition, teachers were asked to comment on the composition of the groups regarding the social relationships of the children within each group; this was done to ensure that children were grouped with familiar playmates, since research has shown that dramatic play was more likely to occur in the presence of familiar playmates (Doyle, Connolly, & Rivest, 1980; Rubenstein & Howes, 1976). Additionally, the groups in class B and two groups in class A were comprised of two males and two females; unfortunately, in class A the other two groups could not be mixed by gender. Once selected the composition of the groups remained the same across the study (i.e., in the traditional housekeeping and implementation dramatic play centers). Each group played in each dramatic play center for ten minutes on each day of observation. During initial visits to the classrooms the teachers and observer agreed that 10 minutes was sufficient time for the children to play in this center, especially since there were so many other centers set up and the observer had to ensure that the children's natural environment would not be

disrupted. The children were told that the observer was there to see how children play and that she had brought some new toys for them to play with, but that she would take them home at the end of the week.

The observations were conducted during the afternoon freeplay period (3:30-4:45) when the children were able to choose among ongoing activities such as art, books, blocks, puzzles, dramatic play. Baseline data on the social and cognitive play behaviors of the children were collected for two non-consecutive days prior to the implementation of the novel centers. The novel implementation centers were each set up for two non-consecutive days and observed on those days. The groups of children were designated by the color of the necklaces that the children were asked to wear. When the color of the group (e.g., yellow group) was called out, the children entered the dramatic play center in groups of four and played in this area for 10 minutes. The observers waited one to two minutes (until the children settled into their play) before beginning the recording of the children's play.

A time-sampling procedure of 10-second observation period followed by a 10-second recording period was used to observe the social and cognitive play behaviors of the children in the dramatic play center. The first child of each group was selected randomly and observed for ten seconds; the recording period of ten seconds followed; this

procedure was repeated until all the children in the center had been observed. The same order was kept for the next group of observations until approximately the same number of observations were collected for each child.

Intervention Procedures. Prior to intervention all children in their randomly assigned groups were observed in the traditional housekeeping area for two non-consecutive days. During the intervention phase each class was provided with four dramatic play set-ups. The centers (i.e., Theme 1 - extended housekeeping, Theme 2 - train station) were implemented under two different conditions: (a) solitary (b) group. All four centers were set up as super units (i.e., with three subparts). The physical design and theme were rotated so as to ensure that the effects being observed were not due to the order of presentation of the different conditions. The order of presentation of each condition is shown on Table 1. According to Kritchevsky et al. (1969), "complexity is the extent to which play units contain potential for active manipulation and alteration by children" (p. 10). A super unit is "a complex unit with one or more additional play materials, i.e., three or more play materials juxtaposed" (p. 10). This unit is believed to accommodate six to eight children at one time. In addition, super units can also be designed to contain a greater variety of play materials than complex units, thus inviting the children to play in a variety of ways by assuming a

variety of roles in the dramatic play center). All six dramatic play centers in this study were organized as super units because they contained three juxtaposed play areas. For example, the extended housekeeping center contained a kitchen area, an office area, and a car center and the traditional housekeeping center contained a kitchen area, a dollhouse area and a dress-up area.

Physical Design. The physical design of each center was varied. Group-designed centers contained furniture (e.g., two or more chairs placed around a table, a vehicle designed with double-seating to allow for face-to-face interactions) designed for promoting group interactions. Centers with an individually-oriented solitary design contained furniture and equipment (e.g., one chair at a table, one tool box in the car center, single seating in a car) designed to promote more solitary play interactions and individual utilization of materials.

The dramatic play centers planned by the investigator and their differences in terms of (a) theme, (b) furniture arrangement and equipment design as well as sketches of these centers are outlined in Appendices B, C, D, E, F, G, H, I, J, K and L.

Measures

Social and Cognitive Play. The checklist based on Rubin's Pretend Observation Scale (Rubin, 1985; Rubin & Mills, 1988) was used to observe the children's social and

cognitive play behaviors (see Appendix M). This scale was developed by combining Smilansky's (1969) cognitive play categories with Parten's (1932) social participation categories. Additional nonplay categories were included to account for behaviors such as: onlooker, unoccupied, transitional, rough-and-tumble behaviors and peer conversations. Two nonplay categories (wandering, conversations with peers) were also included (Howe et al., in press). Specific details regarding the types of props used and the enactment of roles were also recorded (see Appendix N). Anecdotal records regarding specific events that may have taken place during the session were kept. Inter-rater reliability was conducted before, during and after the implementation of the novel centers and an overall Kappa coefficient of .82 was achieved.

Table 1

Intervention Procedures: Order of Presentation of Each
Condition.

Week	Theme	Physical Design	Class	Days
1	Trad. House	Group	A	Mon/Thurs.
1	Trad. House	Group	B	Tues/Fri.
2	Extended House	Solitary	A	Mon/Thurs.
2	Extended House	Solitary	B	Tues/Fri.
3	Extended House	Group	A	Mon/Thurs.
3	Extended House	Group	B	Tues/Fri.
4	Train Station	Solitary	A	Mon/Thurs.
4	Train Station	Solitary	B	Tues/Fri.
5	Train Station	Group	A	Mon/Thurs.
5	Train Station	Group	B	Tues/Fri.
6	Trad. House	Group	A	Mon/Thurs.
6	Trad. House	Group	B	Tues/Fri.

RESULTS

This section will begin with descriptive data for the whole sample and overall frequencies for children's social, cognitive and nonplay behaviors. Since two classes participated in this study, preliminary analyses will be conducted to examine class differences at baseline (pre-intervention). In addition, age and sex differences will be explored. The hypotheses will be investigated in the following order: a) the frequency of dramatic play in the intervention centers compared to traditional pre and post-intervention centers, b) comparisons of solitary play in the solitary versus group-designed centers, and c) comparisons of group play in solitary versus group-designed centers. The data will then be explored further to investigate: a) the themes enacted in pre and post centers versus those in the intervention centers, and b) the influence of toys on children's dramatic play. Since the data to be analyzed consists of categorical frequencies chi square analyses were computed. In this type of analysis, the null hypothesis was evaluated by comparing the observed frequency of a cell with the expected frequency of that cell assumming that the null hypothesis was true. The chi square was based on the differences between observed and expected frequencies for each response category.

Descriptive data for class A and class B

The sample consisted of 31 children with ages ranging

between 43 and 64 months and a mean age of 56.8 months for both classes. Ten boys and five girls were observed in class A with ages ranging between 53 and 64 months and a mean age of 59.9 months. Class B included 8 boys and 8 girls with ages ranging between 43 and 62 months and a mean age of 54.0 months. The number of observations on each child ranged from 48 to 72 ten-second intervals with a mean number of observations of 61.2 per child for class A and 63.8 per child for class B. A total of 2063 observations were collected. The reason for the range of observations per child was that children who were sick and could not attend daycare on certain days were not observed on those days.

Frequency of play and nonplay behaviors

The frequency of occurrence of children's play and nonplay behaviors in classes A and B separately and combined is summarized in Table 2. In addition, overall percentages of children's most frequent versus their least frequent play and nonplay behaviors are displayed in this table.

Actual counts and percentages are presented on Table 2 but for ease of interpretation percentages will be reported in this section. Overall percentages for both classes revealed more play than nonplay interactions. Within the cognitive play category, dramatic play (41.4%) had the highest percentage, followed by constructive play, functional play (both at 6.3%), exploratory play (4.4%) and

games with rules which was only observed once. A similar
pattern was evident for each class except that functional
play occurred more frequently than constructive play in
class A (7.4% and 6.3%, respectively), while the reverse was
true for class B. The most frequently observed social play
behavior was group play (24.2%), followed by solitary play
(21.4%), and parallel play (12.7%). A similar pattern
emerged when percentages were computed separately by class
(see Table 2). For nonplay behaviors, peer conversations
had the highest percentage (26.3%) when compared to all play
and nonplay categories followed by onlooker (6.3%),
transition (5.0%), rough and tumble (2.1), unoccupied (2.1),
wandering (0.9%), reading (0.6%) and aggression (0.6%).
Again, a similar pattern emerged when percentages were
computed separately by class (see Table 2).

Class differences in children's play and nonplay behaviors

Multiple chi-square analyses were computed to determine
whether there were significant differences between class A
and class B in social play, cognitive play, and nonplay
behaviors during baseline (pre-intervention center #1).

Table 3 presents the comparison of social, cognitive,
and nonplay behavior by class during the pre-intervention
session. Class differences were found on only two measures,
that is, in children's exploratory and dramatic play
interactions at baseline. Significant differences were
found for exploratory play (x^2 (1) = 6.99, $p < .05$). Of

the exploratory play observed, 80% occurred in class A and 20% in class B. Results also indicated that there were significant class differences for dramatic play (x^2 (1) = 4.75, p ~ .05) with more frequent dramatic play being observed in class B (60.3%) than in class A (39.7%). These differences will be taken into account during the analyses of the three hypotheses. Thus, for the investigation of cognitive types of play behaviors separate analyses by class will be conducted and the results will be compared to the combined analysis of both classes. Only then can a decision be reached as to whether the classes can be combined or analyzed separately for cognitive types of play.

Age and sex differences by class

Chi-squares were computed to determine whether there were age and sex differences by class. Significant age differences were found for class (x^2 (1) = 557.13, p < .05) with more 4-year-olds in class B (73%) and more 5-year-olds in class A (80%). In addition, significant sex differences were found for class (x^2 (1) = 49.6, p <.05) with more females in class B (62%) and more males in class A (53.7%).

Age and sex differences in play and nonplay behaviors

To determine whether there were age and sex differences in children's play and nonplay interactions, chi-squares were computed. These analyses were conducted to explore age and sex differences in these domains in order to determine

Table 2

<u>Total frequencies and percentages of social, cognitive and</u>
<u>nonplay behaviors for class A and B, combined and separate.</u>

Variable	Class A+B	Class A	Class B
SOCIAL			
Solitary	21.4 (442)	21.1 (206)	21.8(236)
Parallel	12.7 (262)	13.1 (128)	12.4(134)
Group	24.2 (500)	23.4 (229)	25.0(271)
<u>Total</u>:	58.3(1204)	57.6 (563)	59.2(641)
COGNITIVE			
Functional	6.3 (129)	7.4 (72)	5.3 (57)
Constructive	6.3 (130)	6.3 (62)	6.3 (68)
Exploratory	4.4 (90)	4.9 (48)	3.9 (42)
Dramatic	41.5 (855)	39.0 (381)	43.7(474)
<u>Total</u>:	58.5 (1204)	57.6 (563)	59.2(641)
NONPLAY			
Unoccupied	2.1 (44)	2.0 (20)	2.2 (24)
Onlooker	6.4 (131)	6.4 (63)	6.3 (68)
Transition	5.0 (103)	4.1 (40)	5.8 (63)
Peer Conv.	26.3 (542)	28.2 (276)	24.5(266)
Rough/tumble*	2.1 (44)	2.8 (27)	1.6 (17)
Aggression	0.6 (12)	0.4 (4)	0.7 (8)
Wandering	0.9 (18)	0.5 (5)	1.2 (13)
Reading	0.6 (12)	0.7 (7)	0.5 (5)

Total: 44.0 (906)   47.1 (442)   42.8(464)

Note Within group percentages are presented first;
frequencies are listed in parentheses. Social and cognitive
play behaviors were coded simultaneously, thus (soc)% +
(nonplay)% ~ 100% and (cog)% + (nonplay)% ~ 100%.
* rough and tumble play was double-coded with cognitive play

Table 3

Percentage and number of observations of social, cognitive
and nonplay behaviors as a function of class (at baseline).

Variable	Class A	Class B
SOCIAL		
Solitary	50.0(39)	50.0(39)
Parallel	45.3(29)	54.7(35)
Group	46.1(35)	53.9(41)
COGNITIVE		
Functional	56.8(25)	43.2(19)
Constructive	64.3 (9)	35.7 (5)
Exploratory **	80.0(12)	20.0 (3)
Dramatic **	39.7(58)	60.3(88)
NONPLAY		
Unoccupied	35.0 (7)	65.0(13)
Onlooker	50.0(10)	50.0(10)
Transition	36.7(11)	63.3(19)
Peer Conv.	53.3(32)	46.7(28)
Rough/tumble*	66.7(12)	33.3 (6)
Aggression	40.0(2)	60.0 (3)
Wandering	25.0(2)	75.5 (6)

Note   Class A + Class B = 100%

*   rough/tumble was double-coded   ** $p < .05$

whether sex and age needed to be taken into account during the analyses of the three hypotheses. No significant age differences were found for social play (x^2 (2) = 2.21, ns) and cognitive play behaviors (x^2 (4) = 6.57, ns), however, significant age differences were found for nonplay behaviors (x^2 (7) = 21.4, p < .05) (see Table 4). Overall, 4-year-olds were found to engage in more nonplay behaviors than 5-year-olds. Specifically, 4-year-olds engaged in more wandering behaviors (83.3%) than 5-year-olds (16.7%). Four-year-olds also engaged in a higher percentage of onlooker behaviors (82.3%), reading (66.7%), unoccupied (65.9%), transition (64.7%), rough and tumble (63.6%), aggression (58.3%) and peer conversation (57.4%) than 5-year-olds.

Chi-squares were also computed to explore sex differences in children's play and nonplay behaviors. No sex differences were found for social play (x^2 (2) = 3.94, ns), however, significant sex differences were found for cognitive play (x^2 (4) = 18.48, p < .05). As shown in Table 5, males engaged in more frequent behavior than females in the following categories: functional play (72.1%), exploratory play (66.7%), constructive play (57.7%) and dramatic play (54.4%). Significant sex differences were also found for nonplay behaviors (x^2 (7) = 33.20, p < .05). Overall, males engaged in more nonplay behavior (66.1%) than females (33.9%). Specifically, males engaged in more frequent behavior than females in the following categories:

aggression (100%), rough and tumble (95.5%), onlooker (86.6%), wandering (83.3%), transition (68.1%), peer conversation (66.2%), unoccupied (63.6%), and reading (58.3%).

Dramatic play in intervention versus housekeeping centers

To investigate hypothesis #1 that there would be an increase in frequency of dramatic play in the intervention centers than in the pre and post-intervention centres (housekeeping centres #1 and #6), multiple chi-squares were computed to determine whether dramatic play occurred more frequently in the intervention centers (#2,#3,#4,#5) versus the pre and post intervention centers (#1,#6).

Since class differences had been found for dramatic play at baseline, class differences were again investigated for pre- and post-intervention centers and it was found that when the pre- and post-intervention centers were combined there were no significant differences for dramatic play by class (x^2 (1) = 1.75, ns). Next, dramatic play in the intervention centers was analyzed separately by class and no class differences were found (x^2 (1) = 2.78, ns). Thus, in all future analyses concerning intervention centers and combined pre/post data, class data were combined. Chi-squares revealed that there was a significant difference in dramatic play between intervention and pre/post centers (x^2 (1) = 5.09, p < .05), with dramatic play being more frequently observed in intervention centers (63.2%) than in

Table 4

Number of occurrences of nonplay behaviors by age

Variable	Four-Year-Olds	Five-Year-Olds
NONPLAY		
Unoccupied *	65.9 (29)	34.1 (15)
Onlooker *	74.8 (98)	25.2 (33)
Transition *	64.7 (73)	29.1 (30)
Peer Conversation *	57.4 (311)	42.6 (231)
Rough and Tumble *	63.6 (28)	36.4 (16)
Aggression *	58.3 (7)	41.7 (5)
Wandering *	83.3 (15)	16.7 (3)
Reading *	66.7 (8)	33.3 (4)

Note Percentages are presented first; number of occurrences are presented in parentheses. Percentage of 4 yr.olds + percentage of 5 yr. olds = 100%

* p · .05

Table 5

Sex differences in cognitive play and nonplay behaviors

Variable	Male	Female
COGNITIVE		
Functional *	74.3 (93)	27.9 (36)
Constructive *	57.7 (75)	42.3 (55)
Exploratory *	66.7 (60)	33.3 (30)
Dramatic *	54.4(465)	45.6(390)
Games *	100.0 (1)	0.0 (0)
NONPLAY		
Unoccupied *	63.6 (28)	36.4 (16)
Onlooker *	86.6 (79)	44.4 (52)
Transition *	68.1 (57)	34.9 (46)
Peer Conversation *	66.2(359)	33.8(183)
Rough and Tumble *	95.5 (42)	4.5 (2)
Aggression *	100.0 (12)	0.0 (0)
Wandering *	83.3 (15)	16.7 (3)
Reading *	58.3 (7)	41.7 (5)

Note Percentages are presented first; number of occurrences are presented in parentheses. (Percentage of males) + (percentage of females) = 100%

* $p < .05$

the pre and post-intervention centers combined (36.8%) (see Figure 1). Therefore, hypothesis #1, that dramatic play would be more frequently observed in intervention centers than pre/post centers was supported.

Chi-squares were also computed comparing the occurrence of dramatic play in pre- versus post-intervention centers and it was found that for both classes combined, dramatic play significantly increased at post-intervention (53.7%) when compared to pre-intervention (46.3%) (see Figure 2).

Solitary play in solitary-designed centers

To investigate hypothesis #2, that solitary play behaviors occurred more frequently in solitary-designed centers (#2,#4) than group-designed centers (#3,#5) chi-squares were computed. Since no class differences had been found for social play behaviors, data for both classes were combined in the investigation of this hypothesis. Results revealed significant differences for solitary play in solitary-designed versus group-designed centers (x^2 (1) = 20.47, p < .05). Hypothesis #2 was supported, in that more solitary play occurred in solitary-designed centers (62%) when compared to group designed centers (38.0%) (see Figure 3).

Group play in group-designed centers

To investigate hypothesis #3, that there would be an increase in the frequency of group play in the group-designed centers (centers #3, #5) as compared to the

Figure 1

Frequency of dramatic play in intervention versus pre and
post centers

Frequency

Legend
Class A + B
Class A
Class B

600
550
500
450
400
350
300
250
200
150
100
50

Pre/Post   Intervention
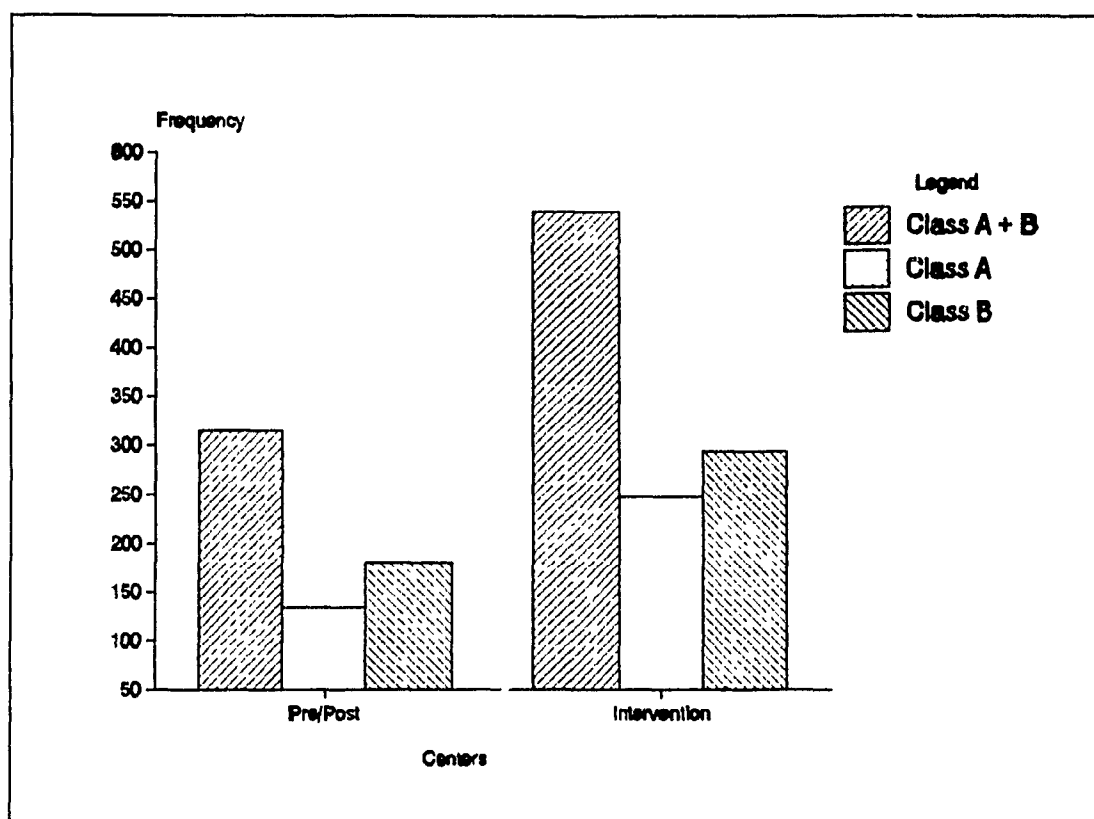
Centers

Figure 2

Frequency of dramatic play in pre- versus post- intervention
centers
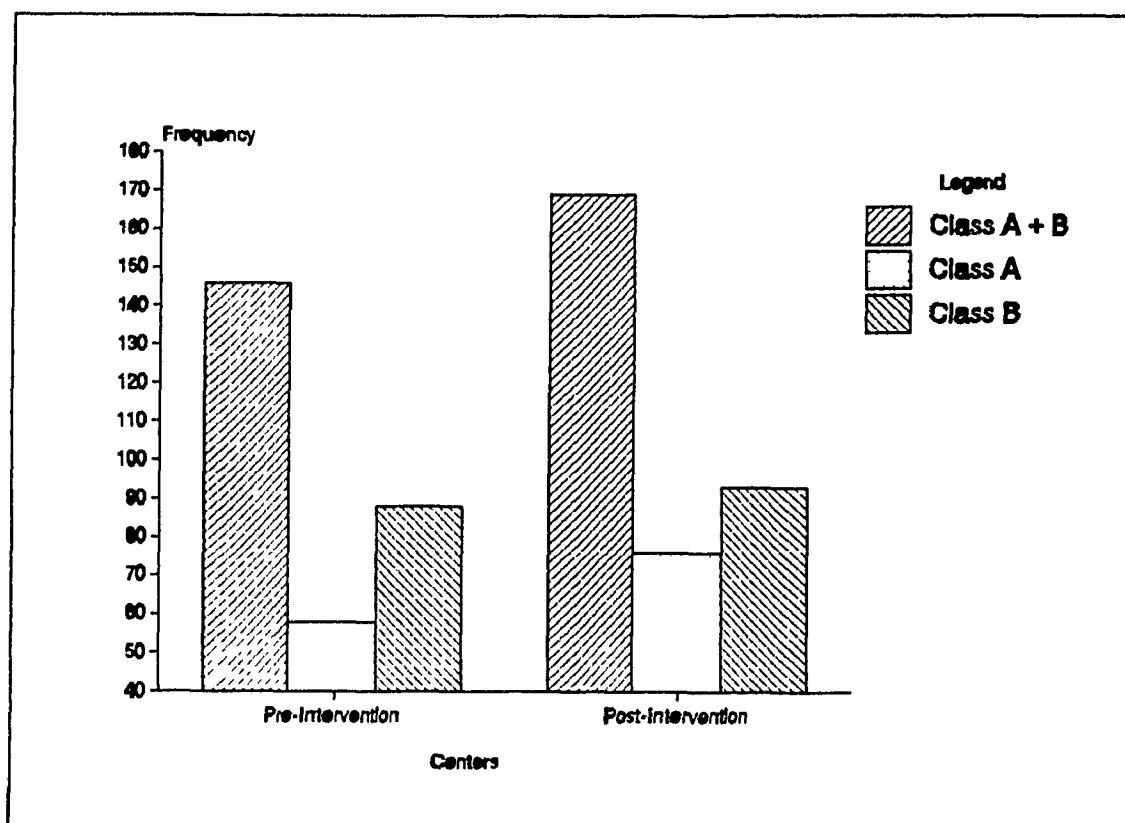
solitary-designed centers (centers #2, #4) chi-squares were employed. Results revealed that group play was observed more frequently in the group-designed centers than in solitary-designed centers (x^2 (2) = 9.94, $p < .05$), thus hypothesis #3 was also supported (see Figure 3). Group-designed centers promoted more group play (57.3%) when compared to solitary-designed centers (42.7%).

Themes enacted in the pre/post versus intervention centers

Data were further explored to investigate any differences in the themes enacted in intervention versus pre/post-intervention centers. As shown in Table 6 and displayed in Figure 4 children most frequently engaged in role play that was theme-related and consistent with the theme of the center (i.e., domestic roles in the pre/post centers #1,#6, driver and domestic roles in the extended house centers #2,#3, and train conductor and passenger roles in the train centers #4,#5). Overall, within intervention centers 92% of all dramatic play was theme-related and 8% was theme-unrelated. Within pre/post centers 75% of all dramatic play interactions was theme-related and 25% was theme-unrelated. Significant differences in terms of themes enacted were found when novel and pre/post centers were compared (x^2 (7) = 63.81, $p < .05$). Specifically, more theme-related play (70.1%) was observed in intervention than in pre/post centers (29.9%). Additionally, pre/post centers were found to encourage more frequent theme-unrelated play

Figure 3

Frequencies of solitary and group play in solitary versus group designed centers
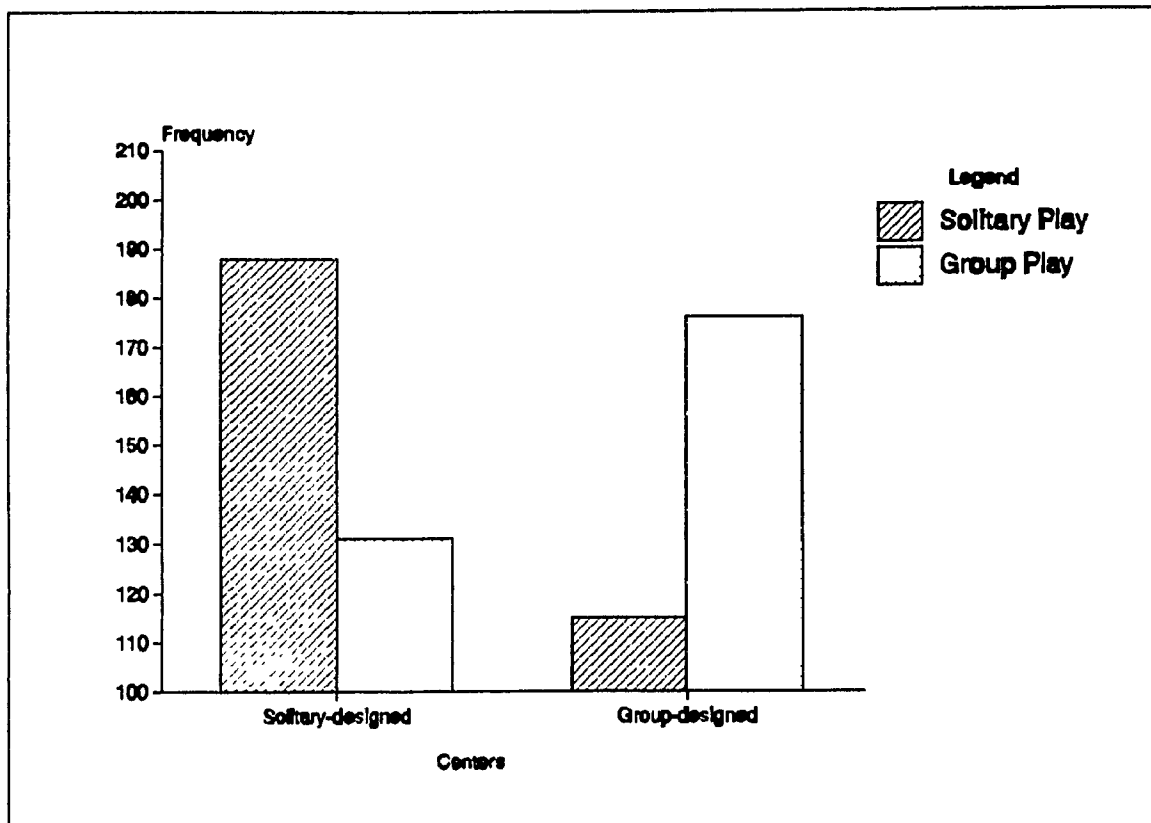
such as, object transformations (78.9%), violent themes using weapons (58.3%), sound effects (100%), animal themes (94.1%) and clown themes (100%) than intervention centers. By contrast, intervention centers were found to encourage more community worker themes (54.1%) and superhero themes (61.5%) than pre/post centers.

Type of toys and dramatic play

To explore the influence of toys on dramatic play, a chi-square analysis was computed and an overall significant difference was found for toys and frequency of dramatic play interactions (x^2 (8) = 114.54, p < .05). Specifically, during dramatic play, children were observed playing with kitchen equipment most frequently (32.3%), followed by car toys (15.7%), train toys (13.6%) and dress-up items (11.6%). The frequencies and percentages of dramatic play for the different toys utilized in this study are listed in Table 7.

Type of toys and roles enacted

Chi-squares were also computed to determine which toys children played with during specific types of role play. Overall, significant differences were found for toys as a function of theme (x^2 (56) = 95.06, p < .05) (see Table 8).

As shown in Figure 5, toys were used at a higher frequency during theme-related play than during theme-unrelated play. Specifically, as shown in Table 8 during theme-related play, kitchen items (29.9%), train items (15.8%), car items (15.3%), and dress-up items (10.6%) were

used most. In addition, during theme-unrelated play involving object transformations, kitchen items (52.6%), dolls (15.8%), dress-up items (15.8%), and car items (10.5%) were used most frequently. During the enactment of community worker themes, kitchen items (40.5%), car items (21.6%), and dress-up items (21.6%) were used most frequently. Additionally, superhero play involved the use of car items (46.2%), dress-up items (30.8%) and kitchen items (23.1%). Violent roles using weapons (theme-unrelated) resulted in the use of kitchen items (41.7%) and car items (3.3%). During the theme-unrelated dramatic play involving sound effects, kitchen items (100%) were used exclusively. Finally, animal themes were mostly observed through the use of dress-up items (35.3%), kitchen items (29.4%) and car items (35.3%).

Age and sex differences in the use of toys and themes

Chi-squares were employed to determine whether there were age differences in a) children's use of toys, and b) the types of themes enacted (see Table 9). No significant differences were found for age and use of toys (x^2 (8) = 9.52, ns), however, a significant difference was found for the types of roles the children enacted (x^2 (7) = 15.51, $p <$ .05). object transformation (68.4%), community worker roles (67.6%), theme-related play (66.2%), and sound effects (100%) than 5-year-olds By contrast, 5-year-olds engaged in a higher percentage of clown themes (100%), animal themes

Table 6

Number of observations of types of themes in intervention

versus pre/post centers

Themes	Intervention (#2,#3,#4,#5)	Pre and Post (#1,#6)
Theme-related play		
(House, car, train)	70.1(489)	29.9(209)
Theme-unrelated play		
Object Transformation *	21.1 (4)	78.9 (15)
Community Workers *	54.1 (20)	45.9 (17)
Superheroes *	61.5 (8)	38.5 (5)
Weapons *	41.7 (10)	58.3 (14)
Sound Effects *	0.0 (0)	100.0 (2)
Animals *	5.9 (1)	94.1 (16)
Clown *	0.0 (0)	100.0 (1)

Note Percentages are presented first; number of occurrences

are listed in parentheses; intervention + pre/post = 100%

* $p < .05$

Figure 4

Frequency of themes in intervention versus pre/post centers
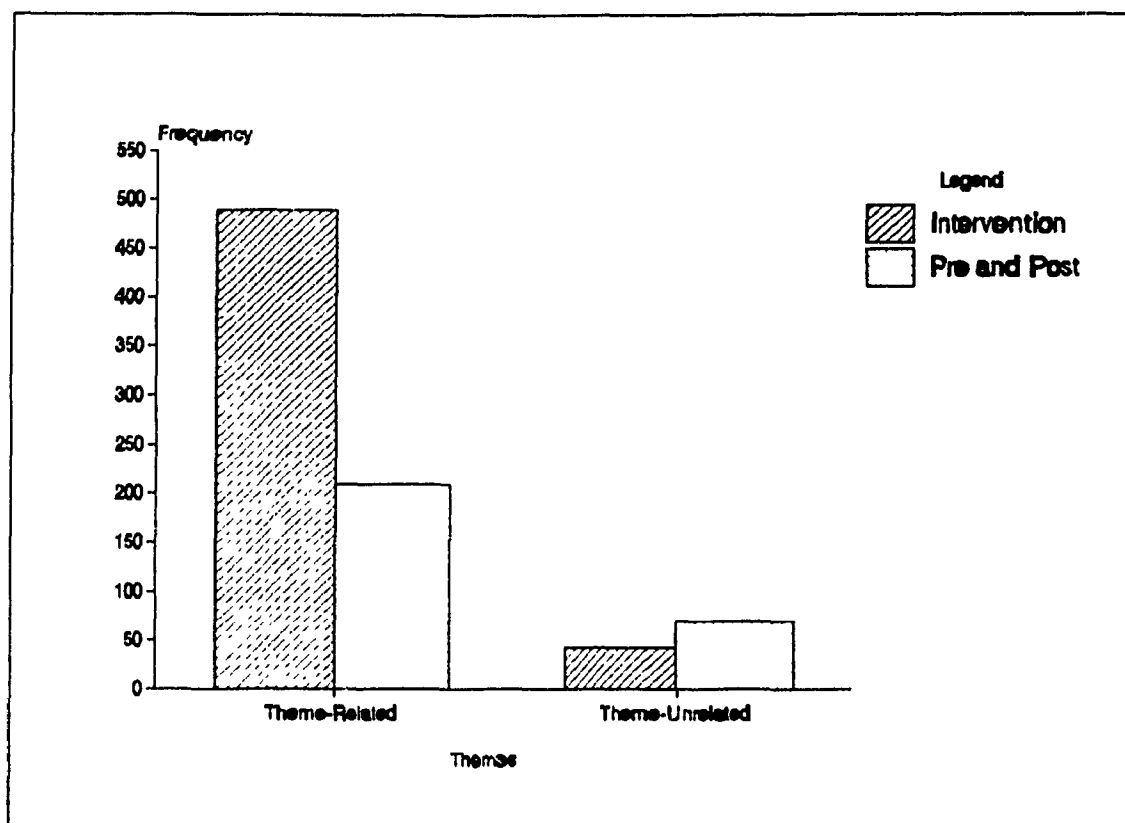
Table 7

Observations of dramatic play as a function of type of toy

Types of Toys	Dramatic Play
No Toys	1.8 (15)
Dolls	7.1 (61)
Kitchen Equipment *	32.3 (276)
Dress up *	11.6 (99)
Car *	15.7 (134)
Train *	13.6 (116)
Office Equipment	4.1 (35)
Waiting Area	5.3 (45)
Miscellaneous	8.7 (74)
Total:	100.2 (855)

Note   Percentages are presented first; number of observations are listed in parentheses.

* $p < .05$

Table 8

<u>Percent of observations of type of theme as a function of</u>

<u>toys</u>

Type of Theme	Types of Toys							
	T1	T2	T3	T4	T5	T6	T7	T8

Theme-related

House/car/train	6.3	*29.9	*10.6	*15.3	*15.8	4.9	6.3	9.3

Theme-unrelated

Object trans.	*15.8	*52.6	*15.8	*10.5	0.0	0.0	0.0	5.3
Commun. Work.	0.0	*40.5	*18.9	*21.6	5.4	0.0	0.0	8.1
Superheroes	0.0	*23.1	*30.8	*46.2	0.0	0.0	0.0	0.0
Weapons	8.3	*41.7	8.3	*33.3	4.2	0.0	0.0	0.0
Sound Effects	0.0	*100.0	0.0	0.0	0.0	0.0	0.0	0.0
Animals	5.9	*29.4	*35.3	*23.5	0.0	0.0	0.0	5.9

Types of Toys:

T1 = Dolls
T2 = Kitchen Items
T3 = Dress Up
T4 = Car
T5 = Train
T6 = Office Items
T7 = Waiting Area
T8 = Miscellaneous

T1+T2+T3+T4+T5+T6+T7+T8 = 100%

* $p < .05$

Figure 5

Theme-related and theme-unrelated play and frequency of toys
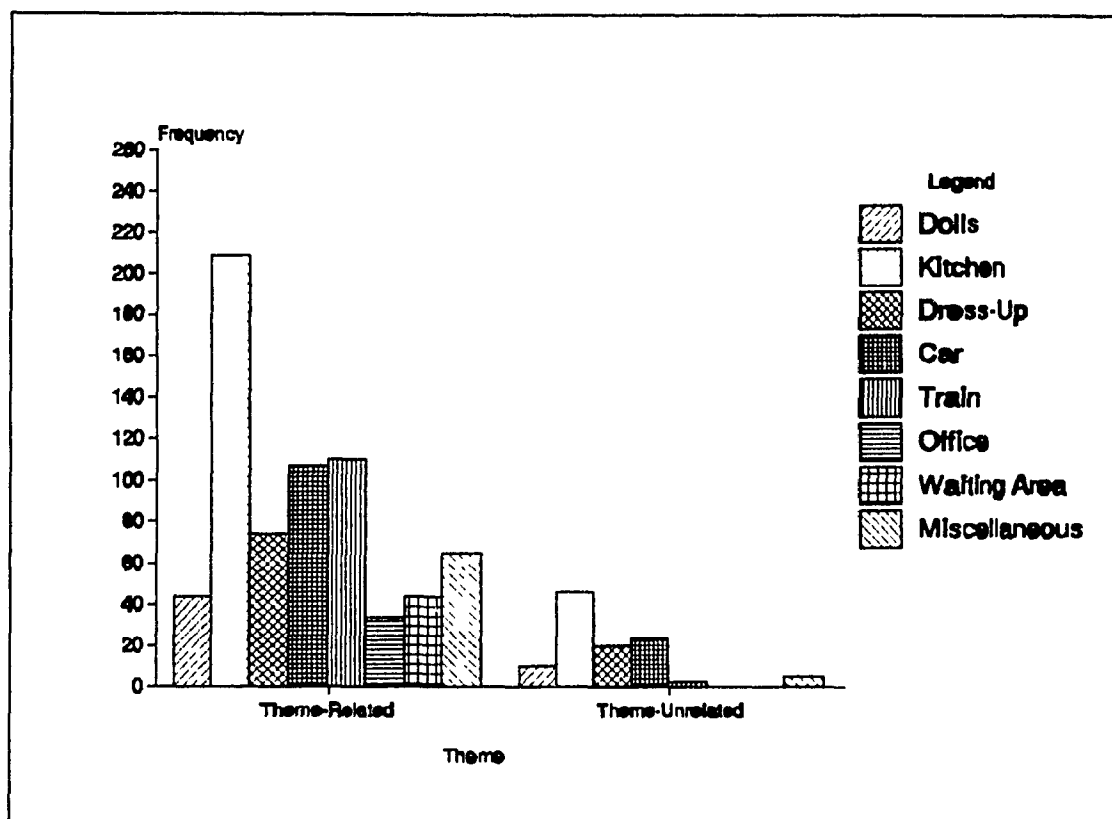
than 4-year-olds.

Sex differences in children's use of toys and types of theme enacted were also analyzed by chi-square analyses. Significant sex differences were found for types of toys used (x^2 (8) = 45.47, p < .05). Specifically, as shown in Table 10, males used more car items (72.6%), train items (66.4%), waiting area items (59.6%), office items (58.5%), dress-up (58.5%), miscellaneous (55.7%), and kitchen items (55.1%) than females. By contrast, females used dolls more frequently (46.2%) than males. Sex differences were also found for the types of themes males and females enacted (x^2 (7) = 33.26, p < .05). Males and females did not differ in the enactment of domestic roles and other theme-related roles (i.e., roles related to the themes of the intervention centers such as mechanic, train conductor), however, males did display a higher percentage of sound effects (100%), clown themes (100%), superhero play (92.3%), violent themes using weapons (91.7%), object transformations (73.7%) and community worker themes (67.6%) than females. By contrast, females engaged in more animal themes (52.9%) than males (see Table 9).

Table 9

Types of themes as a function of age and sex

Theme	4-Year-Olds	5-Year-Olds		Males	Females
Theme-related					
House/car/train	66.2(462)*	33.8(236)		50.6(353)	49.4(345)
Theme-unrelated					
Object Transf.	68.4 (13)*	31.6 (6)		73.7 (14)*	26.3(5)
Commun. Work.	67.6 (25)*	32.4 (12)		67.6 (25)*	32.4(12)
Superheroes	46.2 (6)*	53.8 (7)		92.3 (12)*	7.7(1)
Weapons	41.7 (10)*	58.3 (14)		91.7 (22)*	8.3(2)
Sound Effects	100.0 (2)*	0.0 (0)		100.0 (2)*	0.0(0)
Animal	41.2 (7)*	58.8 (10)		47.1 (8)*	52.9(9)
Clown	0.0 (0)*	100.0 (1)		100.0 (1)*	0.0(0)

Note Percentages are presented first; number of occurrences
are presented in parentheses.

* $p < .05$

Table 10

Use of toys as a function of sex

Toys	Males	Females
Dolls *	46.2 (55)	53.8 (64)
Kitchen Items *	55.1(304)	44.9(248)
Dress Up *	58.5(145)	41.5(103)
Car *	72.6(223)	27.4 (84)
Train *	66.4(176)	33.6 (89)
Office Items *	58.5 (93)	41.5 (66)
Waiting Area *	59.6 (59)	40.4 (40)
Miscellaneous *	55.7 (88)	44.3 (70)

Note: Percentages are presented first; frequencies are listed in parentheses. Male occurrences + female occurrences = 100%

* $p < .05$

DISCUSSION

The main focus of this study was the influence of the design (solitary versus group design) of the dramatic play center on children's social play interactions (solitary versus group play). A second major focus was the impact of the implementation of dramatic play centers (extended house and train station) on children's dramatic play. Before presenting the above findings, preliminary analyses investigating class, age and sex differences will be discussed to explore whether these differences influenced the investigation of the hypotheses. Further exploration of the data in terms of theme-enactment in the pre/post versus intervention centers, the influence of types of toys on children's dramatic play, and sex and age differences in children's use of toys and enactment of themes will be presented.

Class differences in children's play and nonplay behaviors

Class comparisons revealed significant differences in exploratory and dramatic play at baseline. That is, class A was found to have a higher percentage of exploratory play and a lower percentage of dramatic play than class B at baseline. Descriptive data revealed that class A was comprised of ten boys and five girls with a mean age of 59.9 months and class B was comprised of 8 boys and 8 girls with a mean age of 54.0 months. The difference in mean age between the two classes was found to be significant.

Developmental research has documented that dramatic play increases with age from 3- to 5- years-old (Rubin & Krasnor, 1980). However, the present finding that class A (mean age = 59.9 months) engaged in less dramatic play than class B (mean age = 54.0 months) does not support the literature that dramatic play increases with age. As discussed next there may be other factors which contributed to these findings.

One reason for the difference in the frequency of dramatic play between the two classes may be the differing amount of experience the children had in the dramatic play center prior to the implementation of this study. Anecdotal records revealed that the dramatic play center was only available to class A children every second day or at most every day for one freeplay period, whereas class B children played in this area every day during both freeplay sessions. Thus, the children in class A had less experience or time in this play area, prior to the implementation of study, than children in class B and this may account for the increase in exploratory play and decrease in dramatic play in class A at baseline. Christie et al. (1988) suggest that longer periods of time are necessary for children to engage in higher levels of dramatic play; before the enactment of a story or real life events children may need "(a) to recruit other players, (b) assign roles, (c) designate the make-believe identities of objects, and (d) agree on a storyline

to be dramatized" (p.4). To test this argument, Christie et al, (1988) observed the play of 4- and 5-year-olds in two classrooms during 15 and 30 minute play periods using Rubin's social-cognitive play scale. A higher percentage of mature play (i.e., group-dramatic play) was observed during 30-minute play periods than 15-minute freeplay periods. The Christie et al. (1988) study supports the present findings that class A had less play time in the dramatic play area prior to baseline and engaged in less dramatic play (during baseline) than class B who had more play time.

In terms of the present findings regarding differences in exploratory play, previous literature (Rabinovitz, Moely, Finkel & McClinton, 1975; Hutt, 1971) has also shown that children explore novel toys before playing with them; moreover, the more complex a toy the longer children will engage in exploration and the less they will play with it. According to Kritchevsky et al. (1969), the dramatic play area is a complex center because it has three or more materials juxtaposed (e.g., dress-up clothes, cooking props, kitchen furniture, dolls) and therefore, holds children's interest longer than simple play areas such as a puzzle center. Thus, children in class A may have engaged in more exploratory play than children in class B at baseline, because of their need to explore the toys in such a complex center before playing with them.

In conclusion, although class differences in

exploratory and dramatic play were apparent at baseline, these differences were not evident during the implementation of the novel centers or at post-implementation. In fact, even when the pre- and post-implementation data were combined to investigate hypothesis #3 no significant class differences were found. Therefore, it was decided that these differences at baseline did not influence the implementation and post outcomes of this study and data were combined to allow for a better sample size and greater statistical power.

Age and sex differences in children's social and cognitive play behaviors.

Data were further explored for age and sex differences as influences on the children's social and cognitive play behaviors. No significant age and sex differences were found in children's social play behaviors, therefore, age and sex were not taken into account in the investigation of hypothesis #2 and #3, which dealt with the children's solitary and group play behaviors in solitary- versus group-designed centers.

Although no significant age differences were found in terms of children's cognitive play behaviors, significant sex differences were evident in children's cognitive play behaviors. Males were found to engage in a higher frequency of cognitive play including dramatic play than females. This finding reveals yet another reason why the two classes

differed in terms of dramatic play at baseline. The higher number of males in class A than in class B may have also contributed to the higher frequency of dramatic play in class A than in class B at baseline. However, this class difference was not evident during the implementation and post sessions suggesting that when males and females had equal time and experience in the dramatic play center, sex differences were eliminated.

The impact of novel centers on children's dramatic play

A major finding in the present study was the increase in frequency of dramatic play in the implementation centers compared to the pre and post housekeeping centers (hypothesis #1). This finding supports the curriculum literature which states that dramatic play props should be changed frequently and that a wide range of novel settings (e.g., airport, doctor's office) accompanied with theme-related experiences may enhance children's active involvement in their play (Beatty, 1984; Hendrick, 1988). Previous studies have also indicated that introducing novel dramatic play settings in the early childhood classroom may enhance children's involvement in their play (Woodard, 1984; Wood, 1982) and facilitate their social and cognitive play interactions (Howe et al., in press).

In particular, Howe et al. (in press) investigated the impact of novel dramatic play centers on children's social and cognitive play behaviors, and found that higher levels

of cognitive (dramatic) play were observed during the implementation of the novel centers than at the post housekeeping center. The present study also found higher levels of cognitive (dramatic) play in the implementation centers than the pre and post centers, thus supporting previous literature (Howe et. al., in press; Wood, 1982).

In another study, Woodard (1984) implemented a variety of theme centers (e.g., drugstore, hair salon, veterinarian's office) in an university laboratory nursery, over a period of several semesters, while maintaining the permanent housekeeping corner. Children were provided with fairly realistic, theme-related, durable, homemade props and experiences related to the theme such as fieldtrips, books, discussions were also introduced. Although, systematic observations on children's play were not conducted, the experimenters noted that the children initially looked to the teachers for suggestions and explanations but with time became more experienced, needed less guidance and became more involved in their play. The present study also used homemade props which were durable, realistic and theme-related. The theme of the dramatic play centers (car center, train center) coincided with the theme of the curriculum (transportation) and therefore the children were also provided with other experiences such as discussions, books, art activities, songs related to the theme. Unfortunately, the teacher's role in the present study was

one of observer (this allowed for the observation of children's natural play without direct teacher intervention) and one could not determine whether the children would seek the teacher's help as in Woodard's study.

In another study, Wood (1982) suggested that the home center be kept in operation even when other dramatic play areas (such as doctor's office, post office) were planned, because children should have opportunities to engage in familiar, meaningful roles. Integrating the home center with other themes may also allow children to begin to understand the relationship between home and other community activities. Wood set up dramatic play areas (e.g., house, doctor's office, store) in a gymnasium and was able to combine two or more dramatic play centers at one time. The theme of these centers corresponded to the theme of their weekly social studies curriculum. However, in the typical early childhood classroom, it is impractical to have more than one dramatic play area at a time because of space constraints and the need to provide children with a variety of materials such as blocks, art, books and puzzles. In the present study the only possible way to integrate the house center with other themes was to design the extended housekeeping centers, which included car areas with tools. These centers provided the children with an opportunity to engage in a variety of roles, such as family roles, mechanic or taxi driver. Overall, the extended housekeeping centers

and the train centers promoted more dramatic play than the
pre and post housekeeping centers, thus, supporting prior
research (Wood, 1982).

The influence of the physical design on children's social play

The main focus of this study was the influence of the
physical design (solitary- versus group-design) on
children's social play behaviors (hypotheses #2 and #3).
Solitary-designed centers promoted significantly more
solitary play than group-designed centers; group-designed
centers were found to promote more group play, thus
hypotheses #2 and #3 were supported. The design of the
dramatic play centers was manipulated so as to provide
children with the opportunity to play together (group play)
or alone (solitary play). This was accomplished through
spatial arrangements and design of equipment. For example,
the extended housekeeping corner in solitary design included
a table with one chair in the kitchen corner, a single-
seating arrangement in the car, one tool box and one spunge
to wash dishes. The goal of the center was to promote
solitary play, and it was found that children were primarily
observed to engage in solitary play in this center.
Clearly, single-seating arrangements facilitated fewer face-
to-face interactions and, although some children did engage
in group play, the center was designed in such a way as to
encourage children to engage in solitary play rather than

group play. By contrast, group-designed centers provided a better opportunity for children to engage in group play interactions. For example, the group-designed train center included double-seating for train conductors and passengers, two tool boxes, two binoculars and an office for selling tickets. This equipment encouraged face-to-face interactions and communication between the children. Thus, more group play was observed in this center. In conclusion, the findings of the present study have made it possible to investigate recommendations of childhood experts and to study further the influence of the design of the dramatic play center on children's social and cognitive play behaviors.

The present findings support the literature that the spatial arrangements and resources available influence the social interactions among children (Hartup, 1983). Most research has focused on how the physical setup (i.e., complexity, variety, amount to do per child, teacher's manner toward the children) of an early childhood classroom can determine the quality of the program and, in turn, the social interactions of the children. For example, Kritchevsky et al. (1969) suggested that dramatic play centers should be complex, that is, contain three or more materials juxtaposed, such as furniture, dress-up clothes, dolls and cooking props. However, it was not clear how the materials should be arranged in order to maximize children's

social interactions and to achieve curriculum goals (i.e.,
acquisition of social skills). Other curriculum experts
such as the NAEYC (1986) recommend that complex dramatic
play props for playing work, family roles and animals be
included in the dramatic play area. The present study
further supported recommendations that a variety of play
props, such as, vehicles, dress-up clothes and tools offered
the children the opportunity to engage in a variety of
pretend roles (i.e., taxi driver, train conductor,
policeman). In addition, it was revealed that the physical
design of the materials (solitary or group) also influenced
children's social play interactions.

The influence of the design of the dramatic play center
was also suggested to be an important factor by Howe et al.
(in press). Since the focus of the Howe et al. study (in
press) was not the manipulation of the design of the
dramatic play center, systematic conclusions could not be
made on this variable. However, the suggestion that the
design of the dramatic play center may influence children's
play was based on anecdotal records and recommendations were
made for further study. Thus, in conclusion, the present
study supported some of these recommendations by
manipulating the design of the dramatic play center and
findings were as hypothesized.

Theme-related play in pre/post and intervention centers

Pre/post centers and intervention centers were compared

in terms of dramatic play themes. Overall, findings
revealed that theme-related play was more frequently
observed than role play unrelated to the theme of the
centers. Obviously, the play materials provided the
children with predetermined roles such as, family roles,
mechanic (in the extended house centers), train conductors,
passengers and ticket sellers (in tne train centers). This
supports Droege and Howes' (1991) findings that high
structure areas "provide toys that are miniature
representations of real-life counterparts that imply
specific themes and functions in true-to-life situations"
(p. 4). Although theme-related dramatic play, may influence
children's role play and encourage more imitative rather
than creative dramatic play (i.e., transformations of
objects or situations), Droege et al. (1991) also reported
sex differences. Specifically, girls engaged in six times
more family themes in the house center than any other area
and boys only engaged in imitative home play in this area
and in no other area. In addition, this area was found to
assist children in dealing with stressful situations in
their personal lives. Therefore, theme-related dramatic
play areas can be of benefit to children who need to enact
everyday situations to cope with life experiences and
express their feelings associated with these events.

It should be noted that high structure toys may not
provide children with an opportunity to use their

imaginations to their greatest pocential. Previous studies have documented that 2-year-olds require realistic props to engage in dramatic play, whereas children older than 3-years-old may not need realistic props to engage in dramatic play (Elder & Pederson, 1978; Fein, 1975). The props in the present study were realistic in that they were designed to promote certain theme-related play behaviors (e.g., train conductor, ticket seller). Kitchen equipment was associated with the most dramatic play interactions followed by car, train and dress-up props. This finding supports the claim that realistic props can encourage more dramatic play, however, it is unlikely that such props will allow for higher levels (more creative) of pretend play.

If one of the goals of the curriculum is to allow children to enact their everyday experiences, theme-related toys will provide them with this opportunity. Otherwise, materials of moderate degree of realism (e.g., dress-up clothes, vehicles) are more likely to produce higher levels of pretend play than materials of high (e.g., train) or low (e.g., blocks) degree of realism. Specifically, play with moderately structured materials was more varied and inventive than play with high or low degree of realism (Pulaski, 1973). In terms of age differences, pretend play with object substitution was found to begin at 19 months and increased through the preschool and elementary school years; children older than 3 years of age were less dependant on

high structured toys (Copple, Cocking & Matthew, 1980; Elder & Pederson 1978; Golomb, 1977; Overton & Jackson, 1973). Therefore, providing children with an all-purpose vehicle (e.g., a box with a control panel) may facilitate more imaginative play. Children can decide to play bus driver, race car driver, air pilot or astronaut, depending on their interests and ability to use their imaginations.

It should be pointed out that the present study did not allow for an analysis of children's language, making it impossible to study high versus low levels of pretend play (more creative versus less creative role play). Possibly, even when children engaged in theme-related play they may have extended their play to include more creative uses of the materials. However, only the theme and the occurrence or absence of pretend play were recorded. Thus, questions still remain regarding the use of toys of high versus low realism. Perhaps, a combination of both, or more ideally toys of moderate realism may prove to accommodate the needs and interests of most children.

The impact of toys on children's dramatic play

Types of toys were explored further to determine whether some toys were associated with a higher frequency of dramatic play than others. Kitchen equipment was found to be associated with the most dramatic play followed by car toys, train toys, and dress-up items. In previous research, the typical dramatic play center has been the traditional

housekeeping center and doll area; this center has been found to promote the most complex social (group) and cognitive (dramatic) interactions when compared to other areas, such as, art, block, book and sandplay (Christie & Johnsen, 1989; Quay et al., 1986; Shure, 1963; Tyler, 1975). However, the types of toys in the dramatic play area may differ from classroom to classroom, especially when the dramatic play area is altered to correspond to the curriculum theme. Limited research exists on the impact of toys in the dramatic play area on children's play. For example, Howe et al. (in press) found that dramatic play was more frequently observed in some centers (i.e., pizzeria, bakery, hospital, and housekeeping center) than in others (i.e., pharmacy, pirate ship), however an analysis of the types of toys in each of these centers was not conducted. Thus, it was not possible to determine which toys in each of these centers contributed to the high frequency of dramatic play.

In the present study the significant finding that the kitchen equipment, car, train and dress-up items promoted more dramatic play than the dolls, office equipment, waiting area and miscellaneous items suggests that the children engaged in dramatic play more with some toys more than others. One common characteristic of these toys (kitchen equipment, car, train and dress-up items) was their level of complexity. These toys can accommodate a larger number of

children, can be manipulated and transformed and offered children the opportunity to engage in a variety of roles. That is, the cutlery in the kitchen could be used as tools, the kitchen area could become a restaurant, the car could be a taxi or police car, the train could lead to a visit to grandma's or a trip to Toronto and the dress-up items allowed one to take on a role of mother, father, train conductor or taxi driver. By contrast, the toys which offered less opportunity for manipulation were the dolls, office items, waiting area and miscellaneous items. That is, the dolls usually took on the identity of babies, the office center lent itself to the buying and selling of tickets, the waiting area allowed for the reading and looking at maps and brochures, and finally, miscellaneous items such as binoculars, telephones and flashlights were used for their appropriate functions. This finding can be supported by previous literature which suggests that open as opposed to closed equipment can be manipulated in a variety of ways allowing for more exploration and creative play (Prescott, 1984). In addition, Kritchevsky et al. (1969) suggested that more complex materials hold the children's interest longer and allowed children to have a wider array of choices. Thus, when setting up a dramatic play center the available toys should be complex by lending themselves to easy manipulation and a variety of uses.

Age and sex differences in children's use of toys and role-
enactment

A significant finding for age and types of roles was
evident, with 4-year-olds engaging in more object
transformations, community worker themes, sound effects and
theme-related play (i.e., domestic roles in house, train
conductor and passenger roles in train) than 5-year-olds. In
contrast, 5-year-olds engaged in more clown, animal,
superhero and violent themes. This finding supports
previous literature which has demonstrated that 5-year-olds
engaged in more fantasy roles or fictional roles which were
removed from reality and their everyday experiences (Garvey
& Berndt, 1977; Matthew, 1977). By contrast, 3-year-olds
engaged in more imitative, relational or domestic roles.
Since only 4- and 5-year-olds were observed in the present
study, it was difficult to determine whether in fact, object
transformations, community workers and sound effects were
less mature roles. Although, Garvey and Berndt (1977)
compared 3- and 5-year-olds, there is little information
regarding the role-enactment of 4-year-olds in relation to
3- and 5-year-olds. The reason for this is probably because
the development of role-enactment is an ongoing process
which is influenced by everday experiences and continues to
evolve constantly. Garvey (1990) also pointed out, that it
was not that younger children adopted family roles and that
older children adopted fantasy (e.g., fairy) and character

(e.g., policeman) roles to the exclusion of family roles, but rather that the quality of interactions in these roles changed over time. For example, older children replaced the baby role with child, parents took on more roles (cooking, working, driving) and, in general, domestic roles were drawn in far more detail than that of younger children. It should also be noted that, although there may be some developmental patterns in terms of role adoptions, the influence of the toys and the theme of the center may be a stronger influence, especially since in the present study, the most frequently observed themes were those of the center.

Another interesting finding was that use of toys and role-enactment differed by sex. Males were found to use more car, train, waiting area, office, dress-up, miscellaneous, and kitchen items than females, who played with dolls more frequently than males. This finding was consistent with previous studies indicating that females played with dolls more (Clark et al. 1969; Coates, Lord & Jakabovics, 1975; Cramer & Hogan, 1975; Parten, 1933; Shure 1963) and males played with vehicles more frequently (Beeson & Williams, 1979; Clark et al., 1969; Parten, 1933; Rubin, 1977; Tizard, Philps, & Plewis, 1976). However, the present finding was also inconsistent with some studies which suggested that females play with housekeeping items more than males (Clark et al., 1969; Gershner & Moore, 1985; Parten, 1933). Perhaps this may be not a fair comparison

because the children in the present study were all invited
to play in the dramatic play center, whereas, in previous
studies the dramatic play center was one among many centers
(block, sandplay, book center, vehicles etc.) in which
children could choose to play. Nevertheless, the present
findings suggested that males can be persuaded to play in
the dramatic play area, especially, when more male-preferred
toys (i.e., cars, trains) are integrated into this area.

Although, males and females did not differ in the
enactment of domestic roles and other theme-related roles
(mechanic, train conductor), they did differ in theme-
unrelated play; males were found to engage in more sound
effects, clown themes, superhero play, violent themes,
object transformations and community worker themes than
females who engaged in more animal themes than males. This
is consistent with previous literature which suggests that
males were more likely than females to generate pretend
themes completely unrelated to the props in the center and
to generate more creative themes for their pretend play
(Black, 1989). In addition, males have also been found to
prefer superhero themes (e.g., HeMan, Superman) and females
to portray more familial characters (Connolly, 1980; Cramer
& Hogan, 1975; McLoyd, 1980; Pulaski, 1973). Moreover,
research has also indicated that males engage in more rough-
and-tumble play and dramatic play involving violent roles
than females (Aldis, 1975; Di Pietro, 1981; McGrew, 1972;

Neill, 1976; Smith & Connolly, 1972). It is interesting to note that even though males in this study did take on violent and superhero roles they engaged in such play only 10% of the time, whereas females took on these roles only 1% of the time. Apparently, when children are offered a variety of nonviolent toys and themes the occurrence of such play is minimal.

Limitations of the study

Although, the present study offers new insights into the importance of ecological influences (i.e., design of space and equipment) of the dramatic play center on children's social and cognitive play, the findings cannot be generalized to the population at large for a number of reasons. First, the sample size of 31 children was small and may not be representative of all preschool-aged children. Second, the differences between the classrooms, at baseline, also adds a bias to the interpretation of the findings. Even though the classrooms appeared to follow the same curriculum, they differed in the availability of the dramatic play center during freeplay. Initially, the children in class A had less experience in the dramatic play center and this could have further influenced the findings in the implementation centers. However, after having been exposed to the novel centers for equal periods of time, class differences were no longer evident. Third, teacher and parent attitudes towards the importance of play may have

influenced the outcomes of this study. Although parents and teachers appeared to be very supportive of this study, it is impossible to say whether they encouraged dramatic play at home and in the classroom. In the future, perhaps, a questionnaire could be distributed to parents and teachers asking them their beliefs about play and their roles as facilitators of dramatic play. This would give one a better picture of the children's natural environment.

Finally, this study focused on quantitative measures (i.e., frequency of play and nonplay behaviors), although, some qualitative information regarding classroom setting and theme-enactment was recorded. It became apparent that the most frequent nonplay behavior was peer conversations which involved the verbal exchange between two or more children while not engaged in a role. Many of these exchanges involved the recruit of players, the negotiation of roles, and the planning of the dramatic play script. More detailed information about the nature of these conversations would make the interpretations of the findings richer and more meaningful.

Nevertheless, the findings of the present study were generally consistent with previous literature and supported the hypotheses, even with such a small sample; this suggests that the ecological influences of physical design of toys and types of toys available for children can greatly influence children's play.

Future Direction in Research

The present study focused on the influence of the design of the equipment in the dramatic play center; future studies should also take into account the complexity of the dramatic play center by controlling for the number and variety of materials available. This will allow for a clearer comparison between dramatic play centers and more generalizable conclusions regarding the influence of toys on children's pretend play interactions.

Pretend play is such a complex behavior that it cannot be studied in its entirety through time-sampling observations. Audio and/or video-recording of children's language may allow for a more thorough investigation of dramatic play, that is, entry into play, negotiation of roles, and maintenance of play. Recently, Doyle and Connolly (1989) investigated children's "out of play" negotiations and found that negotiations and pretend play enactment were positively correlated and that they both were good predictors of social competence. Therefore, it appears crucial that children's talk be carefully examined to ensure that peer negotiations be considered an important component of dramatic play.

Individual differences also need to be taken into account in the investigation of pretend play to understand better why some children are avid dramatic players and others are not. This may allow for a closer examination of

negotiation skills including resolution of conflicts, leadership roles, and the use of dramatic play for the acquisition of social skills.

In addition, the investigation of theme-related versus more creative fantasy play (i.e., object transformation, enactment of themes from a fairy tale) can allow for a deeper understanding of pretend play. There may be many factors influencing such play interactions and by studying such interactions in greater detail (i.e., through children's verbal and nonverbal communication), by noting the ecological conditions and children's cognitive, social, emotional and physical abilities one may draw better associations between these factors.

The teacher's role in the dramatic play center needs to be further clarified. How much intervention is required to make this center beneficial to children's development of pretend play skills? Should the teacher take a more active or passive role in this center and under what circumstances?

Implications for educators

The present study offers some practical suggestions for teachers of young children. Firstly, it can be recommended that the dramatic play center be readily available to children every day during freeplay to allow children enough time and experience to recruit other players, plan their scripts, and develop their roles; initially, class A children had less time in the dramatic play center and

engaged in less dramatic play than class B children who were exposed to this center everyday, twice a day. Secondly, this center should be changed regularly in theme and equipment to correspond to the curriculum goals and to meet the needs and interests of the children. Special attention should be paid to the design of such equipment in terms of facilitating or inhibiting social interaction. If one of the goals of the program is the development of social interactions, then the equipment should be designed in such a way so as to provide children with the opportunity to interact socially. For example, by setting up double-seating arrangements in a vehicle center the children will have a better opportunity to communicate verbally and nonverbally with other children. Thus, this type of set-up would facilitate more group type of play than solitary-designed centers where the opportunity for communication is limited. The theme of the dramatic play center should be inviting to both males and females and should correspond to the theme of the program to allow children to experience the theme through different media (e.g., songs, art, fieldtrips, books) and allow for a more meaningful use of the dramatic play center. Thirdly, developmental and individual differences should be taken into account in the design of equipment and types of toys available to ensure that the set-up corresponds to the children's interests and abilities. Finally, the teacher's role could be an active

one, whether it be in the designing of the center, the
active participation in children's play or the observation
of children's dramatic play interactions.

Conclusions

The dramatic play center in the early childhood
classroom is important for the development and acquisition
of children's social skills (i.e., cooperative behaviors,
negotiations of roles, resolution of conflicts and
expression of feelings) and imaginative play interactions.
Moreover, the design of equipment and types of toys
available in this center can serve to promote or inhibit
such skills. Therefore, the teacher's role is to identify
curriculum goals (i.e., social, emotional, cognitive,
physical) which meet the interests and abilities of the
children for example, males, females, those from different
cultures and ages.

The present study identified some ecological influences
of the dramatic play center on children's play. That is,
the implementation of different themes (e.g., train station)
served to encourage more frequent dramatic play in this
center than in the traditional housekeeping centers. In
addition, the design of equipment (solitary or group)
influenced children's social interactions (i.e., more group
play in group-designed centers and more solitary play in
solitary-designed centers). The high-structured toys in
this study stimulated dramatic play that was theme-related

as opposed to more creative imaginative play involving transformation of objects and situations. Future studies should extend the investigation of dramatic play to include a more thorough study of children's negotiations and enactment of roles through a more detailed examination of children's verbal and nonverbal interactions. This may enable educators to attain a clearer understanding of their roles as facilitators of dramatic play.

References

Aldis, O. (1975). Play fighting. New York: Academic Press.

Ariel, S., & Sever, I. (1980). Play in the desert and play in the town: On play activities of Bedouin Arab children. In H. B. Schwartzman (Ed.), Play and culture. New York: Leisure Press.

Bakeman, R., & Brownlee, J. (1980). The strategic use of parallel play: A sequential analysis. Child Development, 51, 873-878.

Beeson, B., & Williams, R. (1985). The persistence of sex differences in the play of young children. In J. L. Frost and S. Sunderlin (Eds.), When children play. Wheaton, MD.: Association for Childhood Education International.

Black, B. (1989). Interactive pretense. Merrill Palmer Quarterly, 35, 379-397.

Bruner, J. S. (1972). The nature and uses of immaturity. American Psychologist, 27, 687-708.

Burns, S. M., & Brainerd, C. J. (1979). Effects of constructive and dramatic play on perspective-taking in very young children. Developmental Psychology, 15, 512-521.

Christie, J. F., & Johnsen, E. P. (1987). Preschool play. In J. H. Block & N. R. King (Eds.), School play: A source book. New York: Garland.

Clark, A., Wyon, S., & Richards, M. (1969). Free-play in nursery school children. Journal of Child Psychology and Psychiatry, 10, 205-216.

Clarke-Stewart, A., & Fein, G. (1983). Early childhood programs. In P. H. Mussen (Ed.), Handbook of child psychology, Vol. II. New York: Wiley.

Coates, S., Lord, & Jakabovics. (1975). Field Dependence, Social-Non Social Play and Sex Differences in Preschool Children. Perceptual and Motor Skills, 40, 185-202.

Connolly, J. A. (1981). The relationship between social pretend play and competence in preschoolers: Correlational and experimental studies. Unpublished doctoral dissertation, Concordia University.

Connolly, J. J. & Doyle, A.B. (1984). Relations of social fantasy play to social competence in preschoolers. Developmental Psychology, 20, 797-806.

Copple, C. E., Cocking, R. R., & Matthews, W. S. (1980). Awareness in object suitability in symbolic play. In P. H. Mussen (Ed.), Handbook of Child Psychology: Vol. IV, New York: Wiley.

Cramer, P., & Hogan, K. A. (1975). Sex differences in verbal and play fantasy. Developmental Psychology, 11, 145-154.

Curry, N. E., & Arnaud, S. H. (1984). Play in
developmental preschool settings. In T. D. Yawkey & A.
D. Pellegrini (Eds.), Child's Play: Developmental and
Applied. Hillsdale N. J.: Lawrence Erlbaum.

Di Pietro, J. (1981). Rough and tumble play: A function of
gender. Developmental Psychology, 17, 50-58.

Doyle, A. B., Connolly, J., & Rivest, L. P. (1980). The
effect of playmate familiarity on the social
interactions of young children. Child Development,
51, 217-223.

Droege, K. L., & Howes, C. (1991). The effect of toy
structure and center location preschooler's pretend
play. Paper presented at the meeting of the Society
for Research in Child Development, Seattle, WA.

Eifermann, R. R. (1971). Social play in childhood. In R.
E. Herron & B. Sutton-Smith (Eds.), Child's play.
New York: Wiley.

Elder, J., & Pederson, D. (1978). Preschool children's use
of objects in symbolic play. Child Development, 49,
500-504.

Erickson, E. H. (1963). Childhood and society. New York:
Norton.

Fein, G. G. (1979). Play and the acquisition of symbols.
In L. Katz (Ed.), Current topics in early childhood
education. Norwood, N.J.: Ablex.

Fein, G. G. (1981). Pretend play in childhood: An integrative review. Child Development, 52, 1095-1118.

Feitelson, W., & Ross, G. S. (1973). The neglected factor-play. Human Development, 16, 202-223.

Fenson, L., & Ramsay, D. (1980). Decentration and integration of the child's play in the second year. Child Development, 51, 171-178.

Fernie, D. E. (1983). The promotion of play in the indoor play environment. In J. L. Frost & S. Sunderlin (Eds.), When children play. Wheaton, MD.: Association for Childhood Education International.

Fink, R. S. (1976). Role of imaginative play in cognitive development. Psychological Reports, 39, 895-906.

Freud, S. (1959). Creative writers and daydreaming. In J. Strackey (Ed.), The standard edition of the complete psychological works of Sigmund Freud (Vol. IX). London: Hogarth.

Freyberg, J. (1973). Increasing the imaginative play of urban disadvantaged kindergarten children through systematic training. In J. L. Singer (Ed.), The child's world of make-believe. New York: Academic Press.

Garvey, C. (1940). Play. Cambridge, Mass.: Harvard University.

Garvey, C. (1977). Play. Cambridge, Mass.: Harvard University.

Garvey, C., & Berndt, R. (1977). Organization of pretend play. In P. H. Mussen (Ed.). Handbook of Child Psychology: Vol.IV, New York: Wiley.

Gershner, V., & Moore, L. (1985). Girl play: Sex segregation in friendships and play patterns of preschool girls. In J. L. Frost and S. Sunderlin (Eds.), When children play. Wheaton, MD: Association for Childhood Education International.

Golomb, C. (1977). Symbolic play. The role of substitutions in pretense and puzzle games. British Journal of Educational Psychology, 47, 175-186.

Griffing, P. (1983). Encouraging dramatic play in early childhood. Young Children, 1, 13-20.

Hartup, W. W. The peer system. In E. M. Hetherington (Ed.), Carmichael's manual of child psychology: Social development. New York: Wiley.

Hartup, W. (1983). Peer Relations. In P. H. Musser (Ed.), Handbook of Child Psychology: Volume IV, New York: Wiley.

Hendrick, J. (1988). The whole child: New trends in early education. Toronto: Mosby.

Hetherington, E. M., Cox, M., & Cox, R. (1979). Play and social interaction in children following divorce. Journal of Social Issues, 35, 26-49.

Howe, H., & Moller, L., & Chambers, B. (in press). The influence of student-designed dramatic play centers on children's play.

Hutt, C. (1966). Exploration and play. In P. H. Mussen (Ed.), Handbook of Child Psychology: Volume IV, New York: Wiley.

Hutt, C., & Vaizey, M. J. (1966). Differential effects of group density on socia behavior. In P. H. Mussen (Ed.), Handbook of Child Psychology: Volume IV, New York: Wiley.

Konner, M. J. (1972). Aspects of developmental ethology of foraging people. In N. Blurton-Jones (ed.), Ethological studies of child behavior. Cambridge, England: Cambridge University Press.

Kritchevsky, S, Prescott. E., & Walling, L. (1969). Planning environments for young children: Physical space. Washington, DC: NAEYC.

Lovinger, S. L. (1974). Sociodramatic play and language development in preschool disadvantaged children. Psychology in the Schools, 11, 313-320.

Mackinnon, D. (1962). The nature and nurture of creative talent American Psychologist, 7, 484-495.

Matthews, W. S. (1977). Modes of transformation in the initiation of fantasy play. Developmental Psychology, 13, 212-216.

McGrew, W. C. (1972). An ethological study of children's behavior. In P. H. Mussen (Ed.), Handbook of Child Psychology: Vol. IV. London: Academic Press.

McDowell, M. S. (1937). Frequency of choice of play materials by preschool children. Child Development, 8.

McLoyd, V. C. (1980). Verbally expressed modes of transformation in the fantasy play of black preschool children. Child Development, 51, 1133-1139.

Moore, N., Everton C., & Brophy, J. (1974). Solitary play: Some functional reconsiderations. Developmental Psychology, 10, 830-834.

National Association for the Education of Young Children. (1986). Developmentally appropriate practice in early childhood programs serving children from birth to age 8.

Neill, S. R. (1976). Aggressive and non-aggressive fighting in twelve to thirteen-year-old preadolescent boys. In P. H. Mussen (Ed.), Handbook of Child Psychology: Vol.IV. London: Academic Press.

Nicolich, L. (1977). Beyond sensorimotor intelligence: Assessment of symbolic maturity through analysis of pretend play. Merrill-Palmer Quarterly, 23, 89-99.

Orlick, T. D. (1981). Cooperative play socialization among preschool children. Journal of Individual Psychology, 37, 54-63.

Overton, W., & Jackson, J. (1973). The representation of imagined objects in action sequences. Child Development, 44, 309-314.

Parten, M. B. (1932). Social participation among preschool children. Journal of Abnormal Psychology, 27, 243-269.

Piaget, J. (1962). Play, dreams and imitation in childhood. New York: Free Press.

Prescott, E. (1984). When you think about spaces. Beginnings, 3-5.

Prescott, E. (1981). Relations between physical setting and adult/child behavior in day care. In S. Kilmer (Ed.), Advances in early education and day care, Vol. II, Connecticut: Jai Press Inc.

Pulaski, M. A. (1973). Toys and imaginative play. In J. L. Singer (Ed.), The child's world of make-believe. New York: Academic Press.

Quay, L., Weaver, J., & Neel, J. (1986). The effects of play materials on positive and negative behaviors in preschool boys and girls. Child Study Journal, 16(1), 67-76.

Quilitch, R., & Risley, T. (1973). The effects of play materials on social play. Journal of Applied Behavior Analysis, 6, 573-578.

Rabinovitz, F. M., Moely, B. E., Finkel, & McClinton, S. (1975). The effects of toy novelty and social interaction on the exploratory behavior of preschool children. Child Development, 46, 286-289.

Rosen, C. E. (1974). The effects of sociodramatic play on problem solving behavior among culturally disadvantaged children. Child Development, 45, 920-927.

Rubenstein, J., & Howes, C. (1976). The effects of peers on toddlers' interaction with mother and toys. Child Development, 47, 597-605.

Rubin, K. H. (1977). The social and cognitive value of preschool toys and activities. Canadian Journal of Behavioral Science, 9, 382-385.

Rubin, K. H. (1985). Socially withdrawn children: At risk population? In B. H. Schneider, & J. E. Ledingham (Eds.). Children's peer relations: Issues in application intervention. New York: Springer.

Rubin, K. H., & Krasnor, L. R. (1980). Changes in the play behaviors of preschoolers: A short-term longitudinal investigation. Canadian Journal of Behavioral Science, 12, 278-282.

Rubin, K. H., Fein, G. G., & Vandenberg, B. (1983). Play. In P. H. Mussen (Ed.), Handbook of Child Psychology, Vol. IV, (pp. 694-775). New York: Wiley.

Rubin, K. H., & Maioni, T. L. (1975). Play preference and
its relationship to egocentrism, popularity and
classification skills in preschoolers. Merrill-Palmer
Quarterly, 21, 171- 179.

Rubin, K. H., Maioni, T. L., & Hornung, M. (1976).
Freeplay behaviors in middle and lower class
preschoolers: Parten and Piaget revisited. Child
Development, 47, 414-419.

Rubin, K. H., & Mills, R. (1988). The many faces of social
isolation in childhood. Journal of Clinical and
Consulting Psychology, 56, 916-924.

Rubin, K. H., Watson, K., & Jambor, T. (1978). Free play
behaviors in preschool and kindergarten children.
Child Development, 49, 534-536.

Saltz, E., Dixon, D., & Johnson, J. (1977). Training
disadvantaged preschoolers on various fantasy
activities: Effects on cognitive functioning and
impulse control. Child Development, 48, 367-380.

Saltz, E., & Johnson, J. (1974). Training for
thematic-fantasy play in culturally disadvantaged
children: Preliminary results. Journal of Educational
Psychology, 66, 623-630.

Schwartzman, H. B. (1984). Imaginative play: Deficit or
difference? In T. D. Yawkey & A. D. Pellegrini,
Child's Play: Developmental and Applied. Hillsdale,
NJ: Lawrence Erlbaum.

Serbin, L., Tonick, I., & Sternglanz, S. (1977). Shaping cooperative cross-sex play. Child Development, 48, 924-929.

Shure, M. (1963). Psychological ecology of a nursery school. Child Development, 34, 979-992.

Smilansky, S. (1968). The effects of sociodramatic play on disadvantaged preschool children. New York: Wiley.

Smith, P. K., & Connolly, K. J. (1976). Social and aggressive behavior in preschool children as a function of crowding. Social Science Information, 16, 601-620.

Smith, P. K., Daglish, M., & Herzmark, G. A. (1981). A comparison of fantasy play tutoring and skills tutoring in nursery classes. International Journal of Behavioral Development, 4, 421-441.

Smith, P. K., & Sydall, S. (1978). Play and non-play tutoring in preschool children: Is it play or tutoring which matters? British Journal of Educational Psychology, 48, 315-325.

Sutton-Smith, B. (1967). The role of play in cognitive development. Young Children, 22, 361-370.

Tizard, B., Philps, J., & Plewis, I. (1976). Play measures and their relation to age, sex and IQ. Journal of Child Psychology and Psychiatry, 17, 251-264.

Tyler, P. (1976). <u>An ecological study of freeplay in a preschool classroom</u>. Paper presented at the 83rd Annual Convention of the American Psychological Association, Chicago.

Vygotsky, L. (1967). Play and its role in the mental development of the child. <u>Soviet Psychology</u>, <u>5</u>, 6-18.

Vygotsky, L. S. (1976). Play and its role in the mental development of the child. In J. S. Bruner, G. Jolly, & K. Sylva (Eds.), <u>Play</u>. New York: Basic Books.

Wolfgang, C. (1985). Preschool children's preferences for gender-stereotyped play materials. In J. L. Frost & S. Sunderlin (Eds.), <u>When children play</u>. Wheaton, MD.: Association for Childhood Education International.

Woodard, C. Y. (1984). Guidelines for facilitating sociodramatic play. <u>Childhood Education</u>, <u>60</u>, 172-177.

Appendix A

Letter of Parental Consent

January 30, 1991

Dear _____

This letter is to verify that I am a graduate student at Concordia University working on my Master's thesis in Child Study with Dr. Nina Howe. We are interested in finding out how children play in the dramatic or pretend play area of the classroom when a variety of new play materials are introduced.

Over a period of seven weeks, I will be in your child's classroom two afternoons each week (during freeplay) to introduce a variety of play props in the dramatic play center (i.e., house corner) and to observe how the children are attracted to these new toys. By observing the children's play with the new materials, I hope to determine how play materials influence children's play. This information will be useful for educators who wish to create more stimulating and fun play centers for young children. It is important that the children are observed in their natural setting and that the teachers and children continue with their ongoing activities and routines.

The observations will be recorded in written notes and the children may sometimes be videotaped to record their play. The children will be photographed in order for me to

identify individual children. The identity of the preschool and children will be confidential and anonymous. Only anonymous group findings will be used in the written report of the thesis.

Your permission is required to include_____ in this study. If you have any concerns or questions, please feel free to contact me at 288-3691 or Dr. Nina Howe at 848-2008. Please return the permission slip to your child's teacher. Thank you very much for your cooperation. Sincerely,

Harriet Petrakos

_____

____ I give permission for my child to be included in the study.

____ I do not give permission for my child to be included in the study.

Child's Name:_____

Parent's Signature:_____

Date:_____

Appendix B

Description and Sketch of Center #1 - Class A

CENTER #1 - CLASS A

(a) <u>Theme</u>: Traditional Housekeeping Center (Pre)

(b) <u>Props</u>: kitchen area - refrigerator, stove, cupboards

(dishes, cutlery, food),

chairs (3)

doll area   - dolls, cribs, blankets.

dress up area - clothes, shoes, hats

Furniture arrangement and equipment design: This center is designed to allow children to interact with each other. There is ample space for children to walk around. There are two chairs placed around a table in the kitchen corner as well as a doll and dress-up area where children can play together.

(PRE) HOUSEKEEPING CENTER - CLASS A

STORAGE

SINK

TABLE

REFRIG.

STOVE

DOLLS

DRESS UP

WINDOW

DRAMATIC PLAY CENTER

ART

BLOCKS

TABLE TOYS

BOOKS

SHELVES

Appendix C

Description and Sketch of Center #1 - Class B

CENTER #1 - CLASS B

(a) <u>Theme</u>: Traditional Housekeeping Center   (Pre)

(b) <u>Props</u>: kitchen area - refrigerator, stove, cupboards

(dishes, cutlery,

chairs (2)

doll area   - dolls, cribs, blankets.

dress up area - clothes, shoes, hats

Furniture arrangement and equipment design: This center is

designed to allow children to interact with

each other. There is ample space for children

to walk around. There are two chairs placed

around a table in the kitchen corner as well

as a doll and dress-up area where children can

play together.

(PRE)HOUSEKEEPING CENTER - CLASS B

SINK

TABLE

REFRIG.

DOLLS

DRESS UP

STOVE

DRAMATIC PLAY CENTER

WINDOW

BLOCKS

ART

TABLE TOYS

BIRD CAGE

PUZZLES

BOOKS

SHELVES

SHELVES
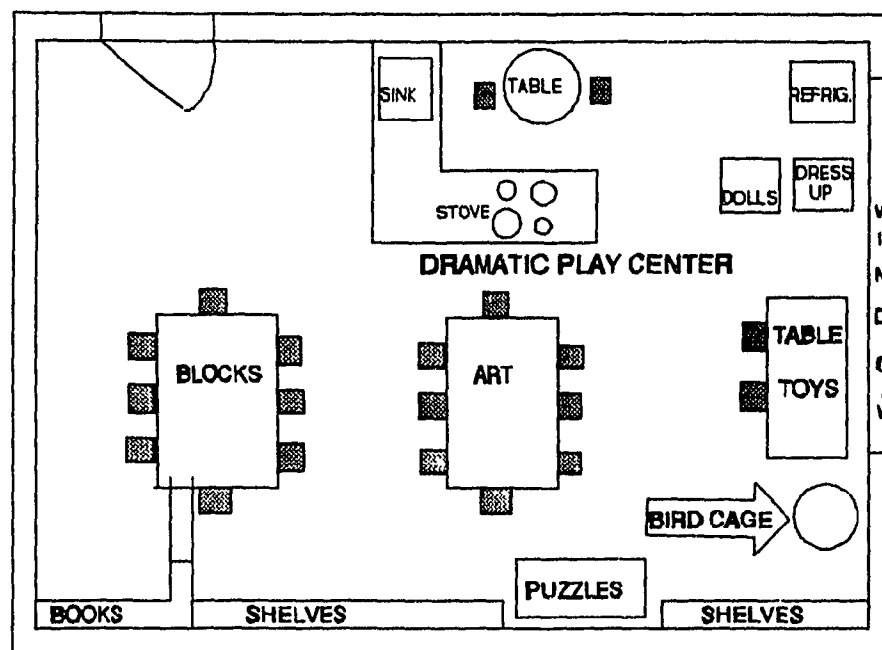
Appendix D

Description and Sketch of Center #2 - Class A

CENTER #2 - CLASS A

(a) <u>Theme</u>: Extended Housekeeping Center (Solitary)

(b) <u>Props</u> : kitchen area - stove, refrigerator,

cupboards (food, dishes,

cutlery), dress-up clothes

dolls, table, chair

car area   - car (single-seating, one

steering wheel), one tool box

Furniture arrangement and equipment design: The

arrangement and design of the equipment is

individually-oriented (i.e., single seating in

the car, one tool box, and a single chair in

the kitchen table).

EXTENDED HOUSE(SOLITARY) - CLASS A

STORAGE

DOLLS

TABLE

REFRIG

CAR

STOVE

TOOLBOX

DRESS UP

SINK

WINDOW

DRAMATIC PLAY CENTER

ART

BLOCKS

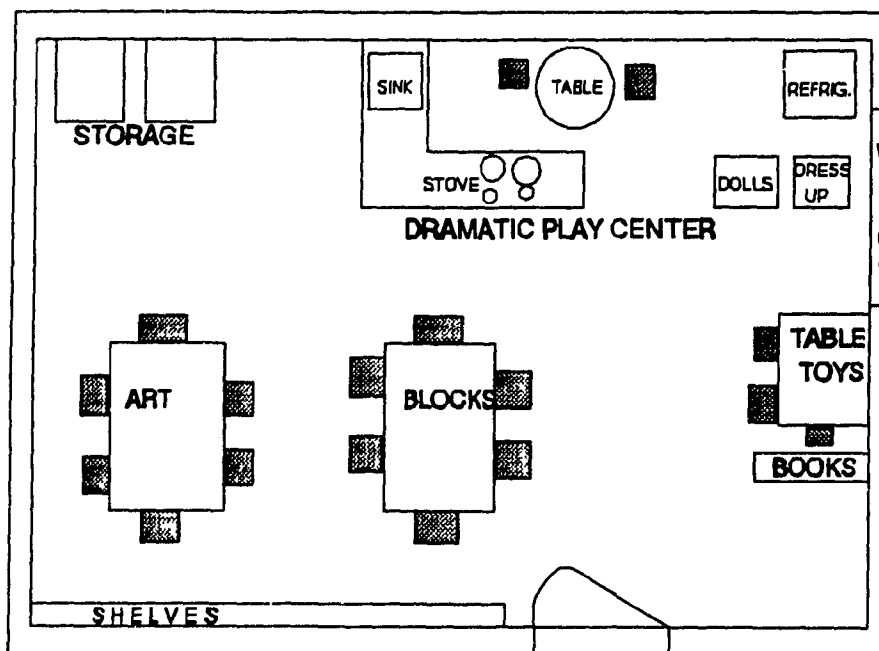TABLE TOYS

BOOKS

SHELVES

Appendix E

Description and Sketch of Center # 2 - Class B

CENTER #2 - CLASS B

(a) <u>Theme</u>: Extended Housekeeping Center (Solitary)

(b) <u>Props</u> : kitchen area - stove, refrigerator, cupboards

(food, dishes, cutlery),

dress-up clothes dolls, table,

chair

car area   - car (single-seating, one

steering wheel), one tool box

Furniture arrangement and equipment design: The

arrangement and design of the equipment is

individually-oriented (i.e., single seating

in the car, one tool box, and a single chair

in the kitchen table).

EXTENDED HOUSE (SOLITARY) - CLASS B

CAR

DOLLS

TABLE

REFR

TOOLBOX

W
I
N
D
O
W

STOVE

DRESS UP

DRAMATIC PLAY CENTER

SINK

BLOCKS

ART

TABLE

TOYS

BIRD CAGE

PUZZLES

BOOKS

SHELVES

SHELVES

Appendix F

Description and Sketch of Center #3 - Class A

CENTER #3 - CLASS A

(a) <u>Theme</u>: Extended Housekeeping Center (Group)

(b) <u>Props</u>: kitchen area - refrigerator, stove, cupboards

(dishes, cutlery, food),

dress-up clothes, dolls, table,

chairs (2)

office area - table, three chairs, telephone,

rubber stamp, pencil and paper,

envelopes

Furniture arrangement and equipment design: The furniture

is arranged so that the children can have

face-to-face interactions (e.g., three chairs

are placed around the table, kitchen table

contains two chairs facing each other), thus

promoting group interactions. The car is

designed with double seating arrangements to

allow group interactions among the children.

EXTENDED HOUSE (GROUP) - CLASS A

STORAGE

DOLLS

TABLE

REFRIG

CAR

STOVE

TOOLBOX (2)

DRESS UP

SINK | SINK

WINDOW

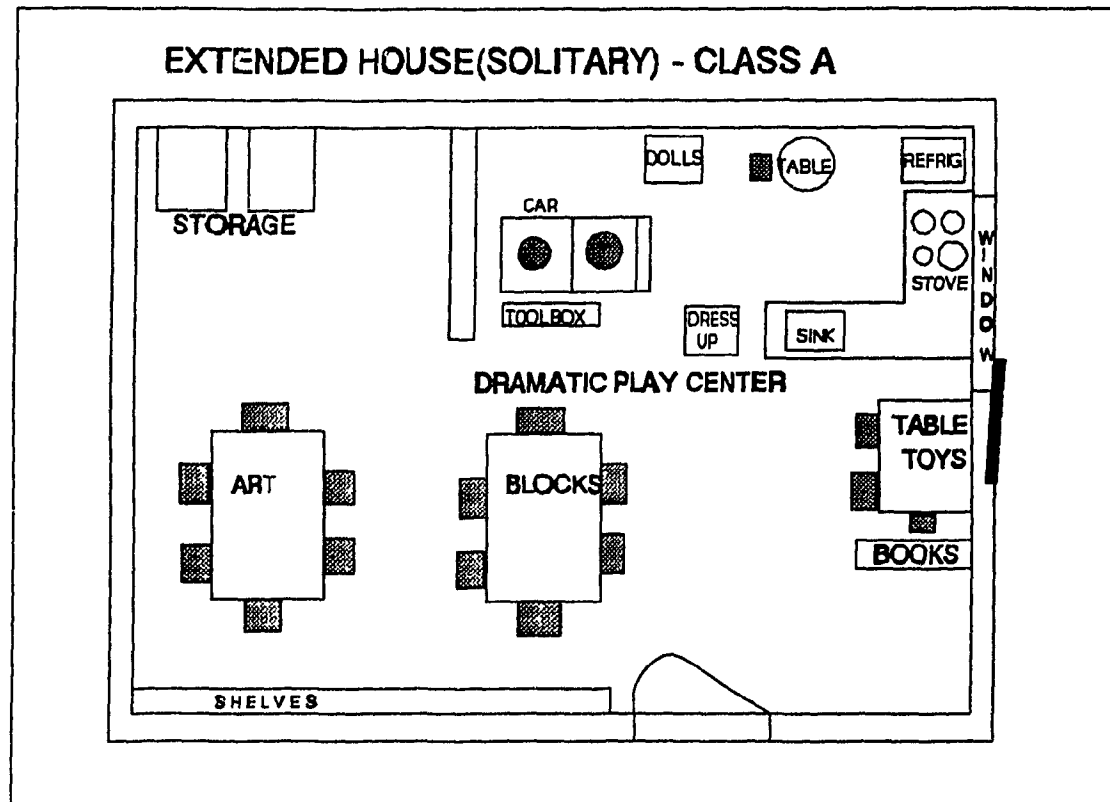**DRAMATIC PLAY CENTER**

ART

BLOCKS

TABLE TOYS

BOOKS

SHELVES
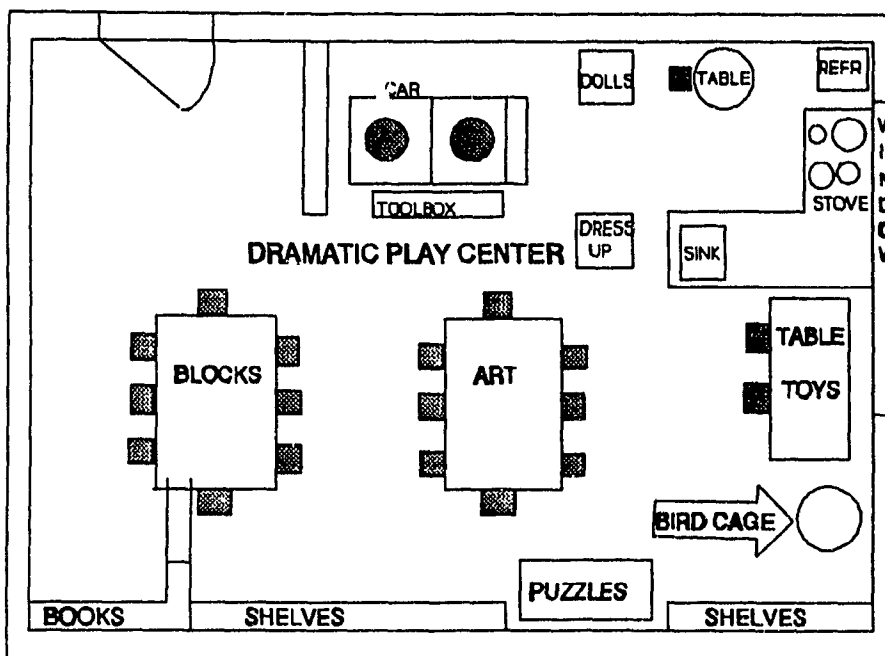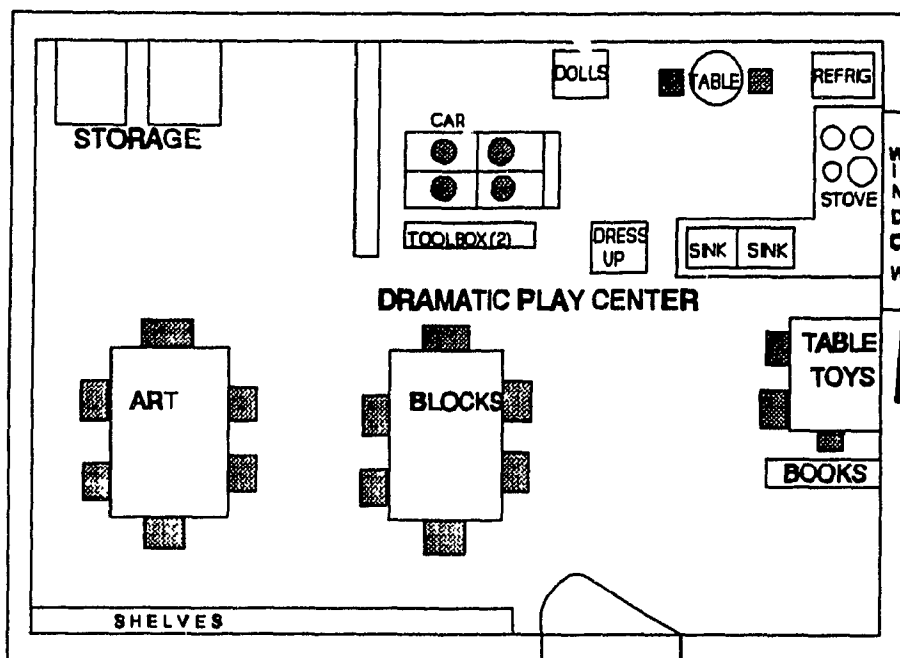
Appendix G

Description and Sketch of Center #3 - Class B

CENTER #3 - CLASS B

(a) Theme: Extended Housekeeping Center (Group)

(b) Props: kitchen area - refrigerator, stove, cupboards

(dishes, cutlery, food),

dress-up clothes, dolls, table,

chairs (2)

office area - table, three chairs, telephone,

rubber stamp, pencil and paper,

envelopes

Furniture arrangement and equipment design: The furniture

is arranged so that the children can have

face-to-face interactions (e.g., three chairs

are placed around the table, kitchen table

contains two chairs facing each other), thus

promoting group interactions. The car is

designed with double seating arrangements to

allow group interactions among the children.

125

EXTENDED HOUSE (GROUP) - CLASS B

DRAMATIC PLAY CENTER

CAR

TOOLBOX (2)

DOLLS

TABLE

REFR

WINDOW

STOVE

DRESS UP

SINK SINK

BLOCKS

ART

TABLE TOYS

BIRD CAGE

BOOKS

SHELVES

PUZZLES

SHELVES
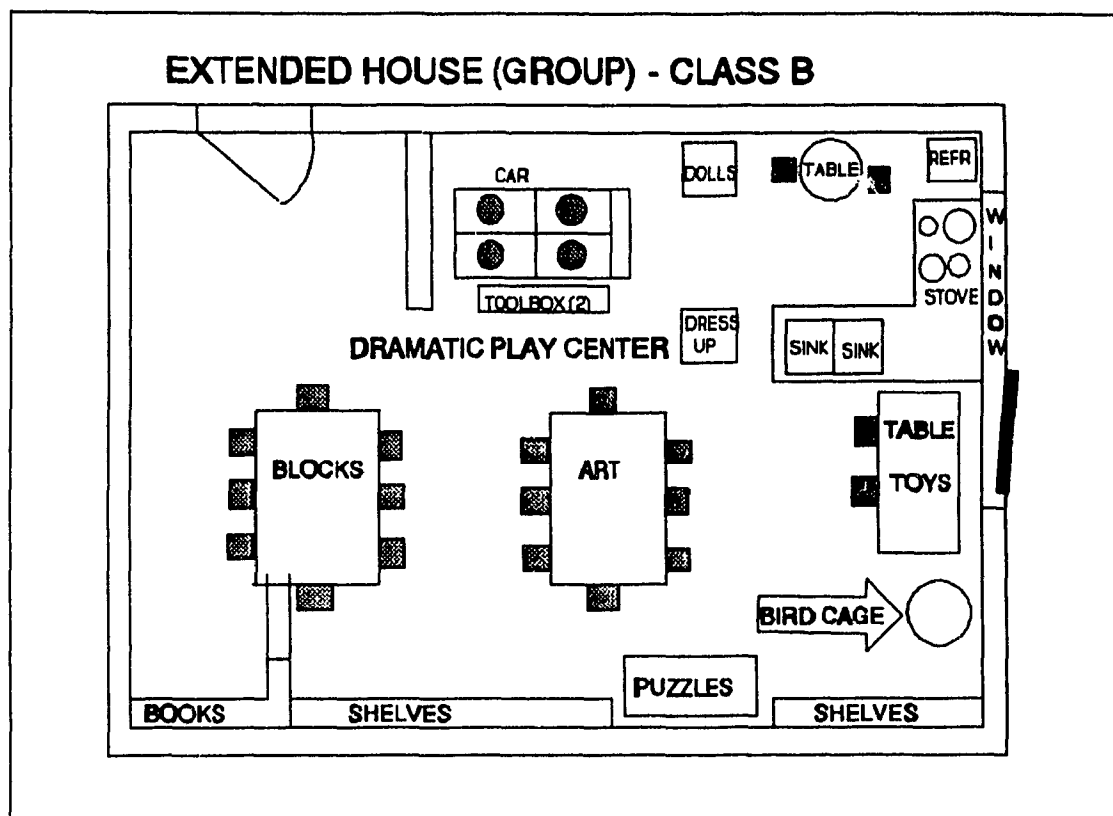
Appendix H

Description and Sketch of Center #4 - Class A

CENTER #4 - CLASS A

(a) **Theme**:   Train Station (Solitary)

(b) **Props**:   ticket machine - a box containing tickets that

can be torn off

train   - train (single seating),

one control handle,

waiting area   - suitcases (2), maps, books,

dress-up clothes

miscellaneous - binoculars (1), flashlight

Furniture arrangement and design of equipment: This

center is designed t‿ promote solitary

activity (e.g., a ticket machine instead of a

ticket office, single-seating

arrangement in the train).

TRAIN STATION (SOLITARY) - CLASS A

SCENERY MURAL

STORAGE

TRAIN

TRAIN TRACKS

TUNNEL MURAL

RAIL. CROSSING

TICKETS

MISC

MAPS BOOKS

LUGG.

DRESS UP

WINDOW

DRAMATIC PLAY CENTER

ART

BLOCKS

TABLE TOYS

BOOKS

SHELVES
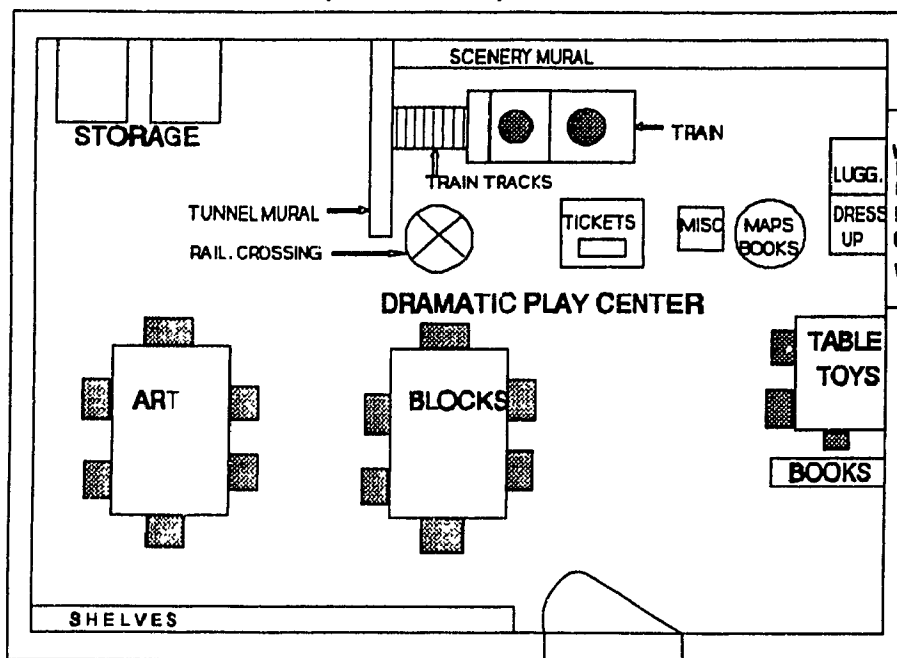
Appendix I

Description and Sketch of Center #4 - Class B

CENTER #4 - CLASS B

(a) **Theme**:   Train Station (Solitary)

(b) **Props**:   ticket machine - a box containing tickets that
                                  can be torn off

             train   - train (single seating), one
                                  control handle,

             waiting area   - suitcases (2), books,
                                  dress-up clothes, maps

             miscellaneous - flashlight (1), binoculars (1)

Furniture arrangement and design of equipment: This

center is designed to promote solitary

activity (e.g., a ticket machine instead of a

ticket office, single-seating arrangement in

the train).

TRAIN STATION (SOLITARY) - CLASS B

SCENERY MURAL

TRAIN

TUNNEL MURAL

RAIL. CROSSING

TICKETS

MISC.

MAPS BOOKS

LUGG.

DRESS UP

W I N D O W

DRAMATIC PLAY CENTER

BLOCKS

ART

TABLE

TOYS

BIRD CAGE

PUZZLES

BOOKS | SHELVES | SHELVES

Appendix J

Description and Sketch of Center #5 - Class A

CENTER #5 - CLASS A

(a) <u>Theme</u>: Train Station (Group)

(b) <u>Props</u>: office   - cash register, tickets, pencil
and paper, rubber stamps, two
telephones, one table, two
chairs

          train   - double seating, two control
handles

          waiting area - suitcases (2), dress-up
clothes, maps, books

          miscellaneous - flashlights (2),
binoculars (2)

Furniture arrangement and design of equipment: This
center is designed to promote face-to-face
interactions among the children (e.g., chairs
arranged in the office so that the children
face each other, double-seating in
train, thus facilitating group interactions.

TRAIN STATION (GROUP) - CLASS A

SCENERY MURAL

STORAGE

TRAIN

TICKET OFFICE

TRAIN TRACKS

TUNNEL MURAL

RAIL. CROSSING

MISC

MAPS BOOKS

LUGG.

WINDOW

DRESS UP

DRAMATIC PLAY CENTER

ART

BLOCKS

TABLE TOYS

BOOKS

SHELVES

Appendix K

Description and Sketch of Center #5 - Class B

CENTER #5 - CLASS B

(a) <u>Theme</u>: Train Station (Group)

(b) <u>Props</u>: office   - cash register, tickets, pencil

and paper, rubber stamps, two
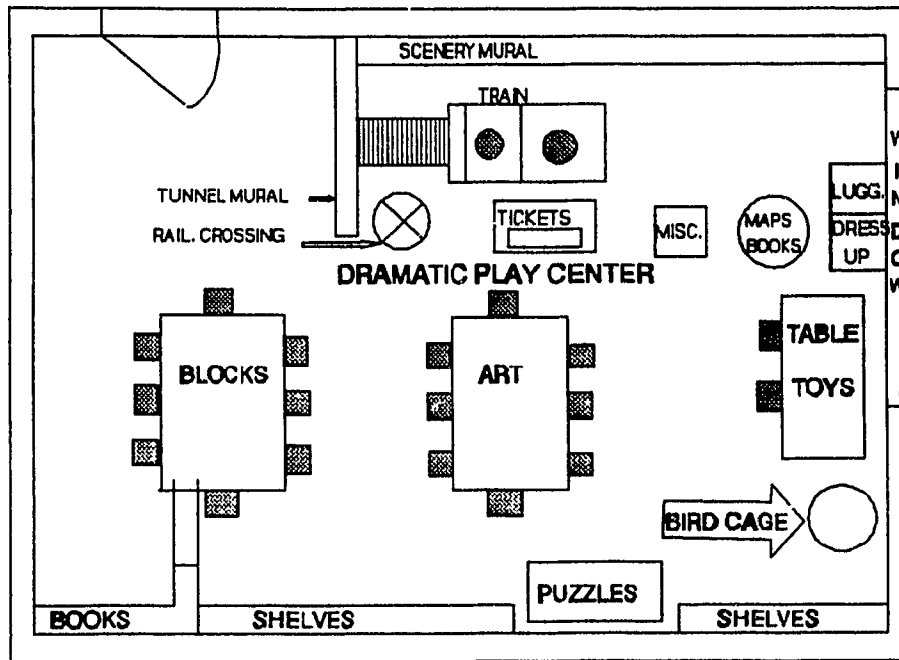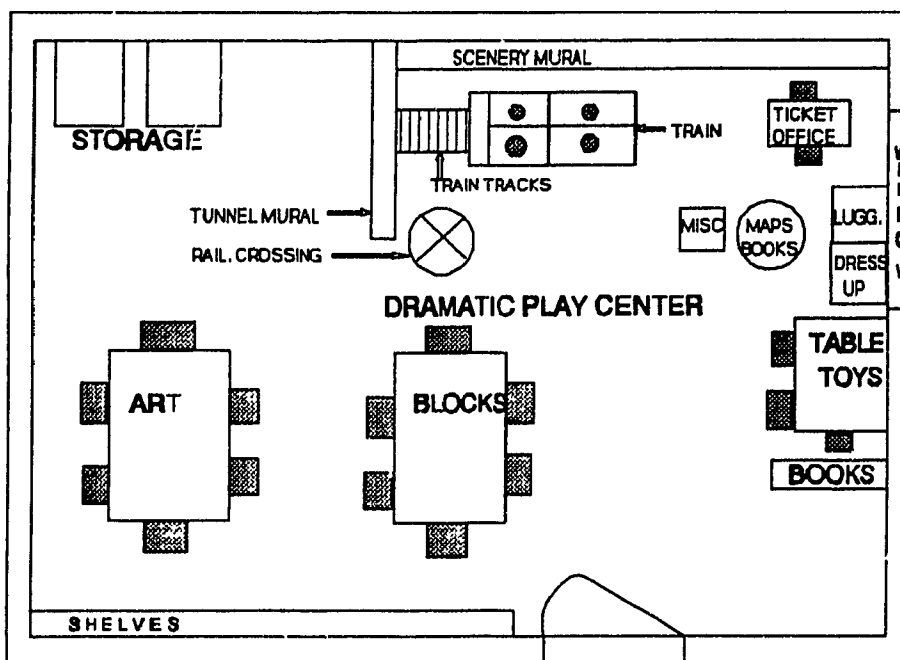
telephones, one table, two

chairs

train   - double seating, two control

handles

waiting area - suitcases (2), dress-up

clothes, maps, books

miscellaneous - flashlights (2),

binoculars (2)

Furniture arrangement and design of equipment: This

center is designed to promote face-to-face

interactions among the children (e.g., chairs

arranged in the office so that the children

face each other, double-seating in

train, thus facilitating group interactions.

TRAIN STATION (GROUP) - CLASS B

SCENERY MURAL

TRAIN

TICKET OFFICE

TUNNEL MURAL

RAIL. CROSSING

MISC.

MAPS BOOKS

LUGG.

DRESS UP

W I N D O W

DRAMATIC PLAY CENTER

BLOCKS

ART

TABLE TOYS

BIRD CAGE

PUZZLES

BOOKS

SHELVES

SHELVES
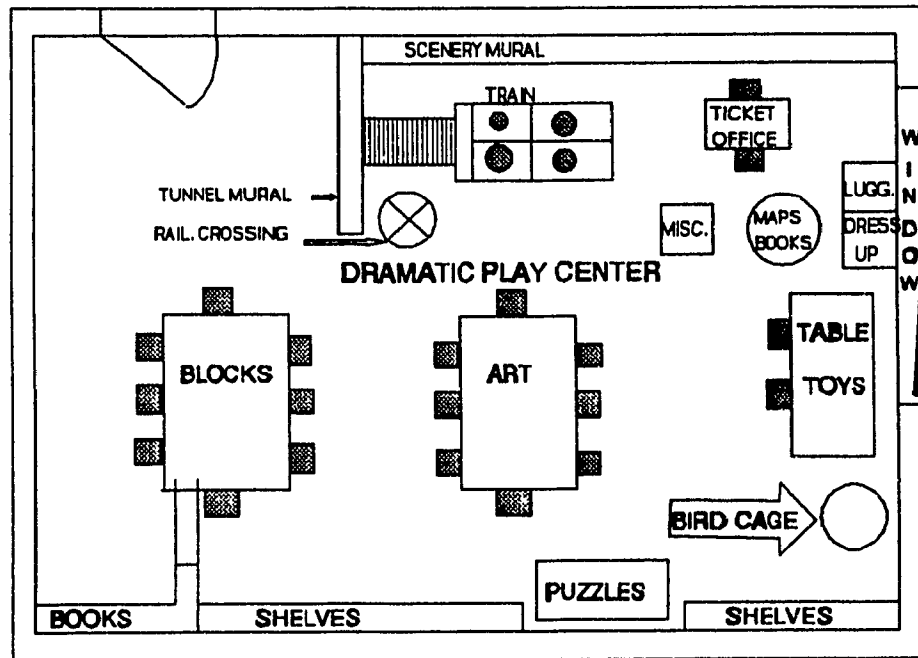
Appendix L

Photographs of Dramatic Play Centers
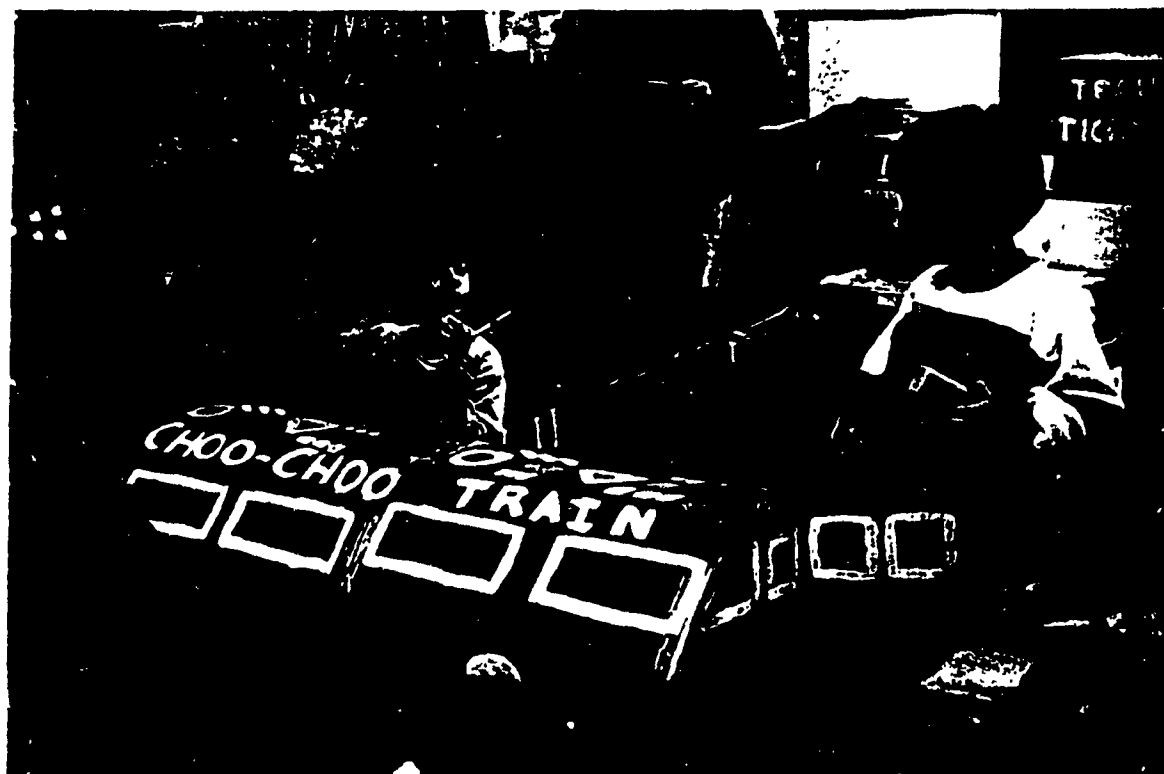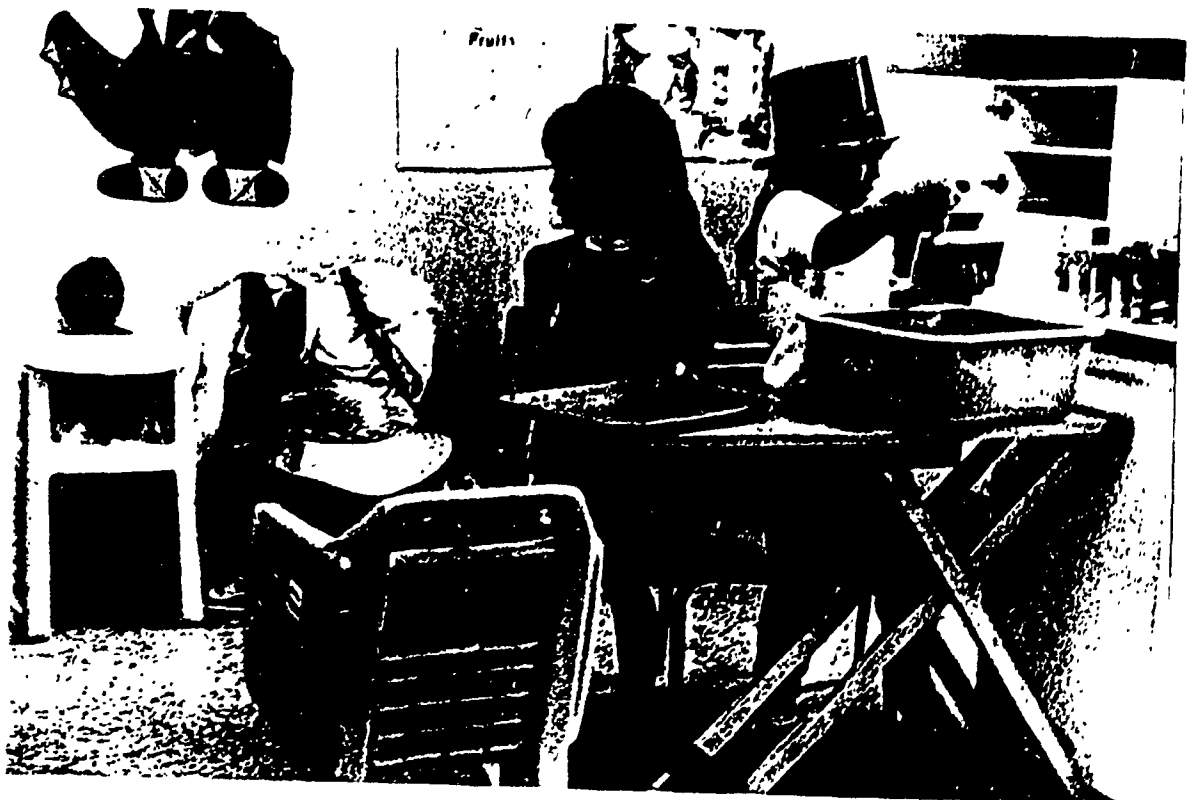
Appendix M

Rubin's Observation Pretend Scale (1985)

The Development of the Scale

Early observational investigations of children's free play preferences often focused upon the formulation of social participation hierarchies. Thus, in a now classic study, Parten (1932) discovered that social participation among preschoolers increased with the child's age. Parten defined six sequential social participation categories: unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, and cooperative play. Preschoolers' modal play preference from 2 1/2 to 3 1/2 years was parallel play, and from 3 1/2 to 4 1/2 years was associative play.

A second major early source of information concerning children's play behaviours stemmed from Piaget's (1962) classification of three successive stages according to the degree to which play remains purely sensorimotor or has some bearing on thought itself. Smilansky (1968) elaborated upon the original Piaget categories and labelled 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 to satisfy the child's personal wishes and needs; and (d) games-with-rules --the acceptance of prearranged rules and the adjustment to these rules. The four types of play are thought of as developing in a relatively fixed sequence with

functional play appearing ontogenetically first in infancy and games-with-rules last (during concrete operations).

The observational scale described in this manual represents an attempt to relate the two long-standing play hierarchies, the one social, (Parten, 1932), the other cognitive, (Piaget, 1962). In recent studies, the scale has proven useful in determining (a) age and sex differences in play; (b) SES differences in play; (c) effects of ecological setting of play; (d) individual differences in play; and (e) the social contexts within which the various forms of cognitive play are distributed. An abbreviated and selective bibliographical list of studies in which the play scale has been used at the University of Waterloo as well as at other universities is included in this manual.

Definitions of Play and Non-Play Categories

When coding a child's behavior the first decision the observer must make is whether the behaviour is play or non-play. The coding sheet is divided into play and non-play categories. The cognitive play categories (functional, constructive, dramatic and games-with-rules) are nested within the social play categories (solitary, parallel and group). Two non-play behaviours, exploratory and reading, are also nested within the three social play categories. Thus there are 18 possible nested behaviours

(solitary-functional, solitary-constructive etc.). The remaining non-play categories are unoccupied behaviour, onlooker behaviour, conversation with teacher or peers, transitional and aggressive behaviour.

1. Social Play

When coding the social play of the focal child it is important to note (1) the proximity of the focal child to any other children in the area, and (2) the attentiveness of the focal child to his/her playmates.

(A) <u>Solitary Play</u>: The child plays apart from other children at a distance greater than three feet. S/he is usually playing with toys that are different from those other children are using. The child is centered on his/her own activity and pays little or no attention to any children in the area. If the child is playing in a small area the three-foot rule is often not applicable. In such cases the observer must rely upon the relative attentiveness of the child to others in his/her social milieu.

(B) <u>Parallel Play</u>: The child plays independently; however the activity often, though not necessarily, brings him/her within three feet of others children. If the child is very attentive to others while playing independently, parallel play is coded regardless of the distance between the focal child and the other children. S/he is often playing with toys that are similar to those which the children around him/her are using. The child usually seems

to be somewhat aware of and attentive to his/her playmates, and frequently engages in "parallel speech" (i.e., verbalizing his/her own thoughts for the benefit of the other children). In short, the child plays beside or in the company of other children but does not play with his/her companions .

(C) Group Play: The child plays with other children and there is a common goal or purpose to the activity. They may be following one another in a functional or rough--and-tumble type of activity, or they may be organized for making some material product, striving to attain some competitive goal, dramatizing situations of adult or group life, or playing formal games. Whatever the activity, the goals are definitely group-centered.

2. Cognitive Play In order to code the cognitive play level of a given activity the observer must first decide upon the child's intent or purpose as s/he engages in that activity.

(A) Functional Play: This is an activity which is done simply for the enjoyment of the physical sensation it creates. Generally speaking, the child engages in simple motor activities (e.g., repetitive motor movements with or without objects). Specific examples are climbing on gym equipment; pouring water from one container to another; jumping on and off a chair; making faces; singing or dancing for non-dramatic reasons; ringing bells and buzzers, etc.

(B) Constructive Play: Constructive play can be

defined as the manipulation of objects for the purpose of constructing or creating something. Examples of constructive play are drawing, building with blocks or and doing jigsaw puzzles.

(C) <u>Dramatic</u> <u>Play</u>: Any element of pretense play is coded as dramatic. The child may take on a role of someone else, or may be engaged in a pretend activity (e.g., pouring pretend water into a cup-and then "drinking" it). S/he may also attribute life to an inanimate object (e.g., making a doll talk).

(D) <u>Games-with-rules</u>: The child accepts prearranged rules, adjusts to them and controls his/her actions and reactions within the given limits. These rules may be long-standing, time-honoured rules, or they may have been decided upon by the child and/or his/her playmates) prior to the onset of the game. There must be an element of competition either between the focal child and other children, or with him/herself.

3. Non-Play Behaviours

The following behaviours are those which are not coded as play.

(A) <u>Exploratory</u>: Exploratory behaviour is defined as focused examination of an object for the purpose of obtaining visual information about its specific physical properties. The child may be examining an object in his/her hand or may be looking at something across the room. Also,

if a child is listening to a noise or listening for something his/her behaviour is coded as exploratory. As previously mentioned, this behaviour has been nested within the social play categories because it can occur in solitary, parallel or group situations.

(B) Reading: Generally, reading is coded when a child is reading or leafing through a book, or is being read to by a teacher or other person. However, this category has also been expanded to include listening to a record or tape recording and counting objects (for example, countir · the number of pictures on a wall or the number of cards in a deck. Because reading activities can potentially fall under any of the three social levels (solitary, parallel or group), it has been nested within the social play categories.

(C)Unoccupied Behaviour: There is a marked absence of focus or intent when a child is unoccupied. Generally, there are two types of unoccupied behaviors: (1) the child is staring blankly into space; or (2) the child is wandering with no specific purpose, only slightly interested, if at all, in ongoing activities. If the child is engaging in a functional activity (e.g., twisting hair or fiddling with an object but is not attending to the activity, then the child is coded as being unoccupied. If the child's mind is on the functional activity, the behaviour would be coded as functional.

(D) <u>Onlooker Behaviour</u>: When onlooking, the child watches the activities of others but does not enter into an activity. S/he may also offer comments, or laugh with the other children, but does not become involved in the actual activity.

(E) <u>Transition</u>: Transition is coded when a child is setting up a new activity, moving from one activity to another, or tidying up an activity. Examples are walking across the room to watch an activity or to get a drink of water, setting up a game, or searching for a desired object.

(F) <u>Active Conversation</u>: Conversation involves the verbal transfer of information to another person. Parallel and private-speech do not fall under this category as neither represent attempts at communication. Conversation is coded when a child is being spoken to by another child and is actively listening in order to respond or follow directions, and is also coded when more than one child shares laughter (eye contact must be made). However, a child who is listening to someone else's conversation but is not specifically being spoken to is coded as engaging in onlooker behaviour instead of conversation.

Conversation with a peer is differentiated from conversation with a teacher or adult by putting a checkmark in the appropriate coding space.

(G) <u>Aggression</u>: Aggression refers to non-playful

physical contact with another child. It is almost always agonistic in nature. Included are hitting, kicking, grabbing, threatening, etc.

(H) Rough-and-Tumble: This is a specialized type of functional or dramatic play which involves playful or mock fighting, running around in a non-organized fashion, or playful physical contact (e.g., tickling). After coding the behaviour as either functional or dramatic play, the observer should indicate the rough-and-tumble nature of the play by noting "RT" on the corresponding line at the right-hand side of the coding sheet.

Selecting the Dominant Behaviour

During each 10-sec interval, only one behaviour is coded. If more than one behaviour occurs during a 10-sec interval, the longest lasting behaviour is coded. If the behaviours are of the same length, the observer "codes up" (i.e., s/he codes the most mature social and/or cognitive category).

The hierarchy for "coding up" is as follows.

1. Any Group behaviour supersedes all other behaviours.

   Group games > group-drama > group-construction > group-reading > group-exploration > group-functional

2. Conversation

3. Parallel play

Within parallel play the same cognitive play hierarchy as in 1 is used (e.g., games > drama ...)

4. Solitary

   Within solitary play the same cognitive play hierarchy as in 1 is used (e.g., drama ⋗ construction ...)

5. Onlooker

6. Unoccupied

7. Transitional

Aggression and rough-and-tumble play are not included in the above described hierarchy. They are both coded every time they occur. If _aggression_ lasts longer than any other behaviour in a 10-sec interval, then _only_ aggression is coded. However, if it lasts less than another behaviour, _both_ aggression _and_ the other behaviour is coded.

Rough-and-tumble play can only be coded in combination with either functional or dramatic play.

Appendix N

Recording Sheet for Observations

Dramatic play set-up:_____Class:_____

Date:_____   Observer(s):_____

T1=toy1 T2=toy2   A/B=class   1/2=day C/N=consistent or novel

ID	AGE	SEX	# M	# F	T 1	T 2	Non Play	Soc	Cog	C / N	The -me	A / B	1 / 2