SEX-DIFFERENTIATED PATTERNS OF SOCIAL FANTASY PLAY IN PRESCHOOLERS

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Abstract

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Social fantasy play has been found to be a correlate of certain cognitive and socio-emotional skills. Sex differences within this type of play are therefore important to explore since they may contribute to the process of sex-differentiated development of these skills. However, research in this area is generally contradictory and naturalistic data sparse. The present study attempted to clarify the nature of sex differences in social fantasy play and to examine two possible determinants of these sex differences, activity level preferences and sex-typing.

48 day-care children, 22 girls and 26 boys, between 45 and 58 months of age participated in a naturalistic study of sex differences in social fantasy play. Quantitative and qualitative measures of social fantasy play were analyzed via multivariate and univariate analyses of variance with two between group factors, sex and age. The boys were found to engage in social fantasy play more than girls did and boys generally initiated pretend sequences with object play, while girls did

so with identity transformations. The boys preferred character roles and made more substitutions of objects, whereas girls preferred familial roles and used objects as props more often. The males also played at greater speeds than the females in the study. A repeated measures analysis of the children's activity levels indicated that they generally demonstrated higher activity levels within their preferred identities. A correlational analysis of the relationship between sex-typing and social fantasy play components indicated that sex-typing extended to the fantasy play context only for feminine sex-typed children. The implications of these results for the development of cognitive and social skills were discussed.

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The preschool years are marked by a great expansion of motor, cognitive, and social skills. During this time (2-1/2 to 6 years), play is the major activity. A number of psychologists have consequently considered child's play to be essential in development (Piaget, 1951; Smilansky, 1968; Singer, 1976). Recently, studies of young children's play behavior have focused on the importance of one type of play referred to as pretend play, fantasy play, make-believe play or dramatic play. This interest in fantasy play was sparked by studies that found it to be a correlate of certain cognitive and socio-emotional skills during the preschool period (Smilansky, 1968; Garvey and Berndt, 1975; Saltz, Dixon, and Johnson, 1976; Singer, 1976; Golomb and Cornelius, 1977).

The hypothesis that fantasy play may be influential in the development of social and cognitive skills has its theoretical foundations in the work of cognitive developmentalists such as Piaget (1951), Vygotsky (1966), and Bruner (1973). These researchers have attributed considerable developmental importance to early symbolic activity. Piaget (1951) focused on descriptive aspects of the developmental stages of symbolic play and less so on its functional

value. He specified that symbolic play is a precursor to the development of games with rules and suggested that it plays an important role in the development of a mature social-cognitive outlook. Vygotsky (1966) emphasized the parallel emergence of verbal language and symbolic play, and stressed its role in language development and impulse control. Bruner (1973) argued that fantasy play provides the child with an opportunity to practice behavioral patterns. He proposedthat fantasy play provides the child with a situation in which there is freedom from risk and no goal orientation, but in which there is also considerable emotional involvement. This atmosphere within fantasy play is considered to facilitate creativity. A child is thus more likely to utilize objects in novel ways and to learn new behavioral combinations and their consequences. Bruner specified that fantasy play is instrumental in helping the preschooler acquire fluency in social rules and conventions. Fein (1976) also proposed that social fantasy play is instrumental in the mastery of social conventions and roles.

Empirical data exists which supports the hypothesized relationship between fantasy play and the development of social and cognitive skills. Saltz, Dixon and Johnson (1977) trained disadvantaged preschoolers in thematic-fantasy play (the enactment of themes such as domestic activities) and reported that this training led to an increase in the ability to interpret sequential events, better distinction of reality from fantasy, delay in impulsive behavior, and increased empathy with other children. Other investigators who utilized this fantasy play training approach have found that children who received fantasy play training, when compared to control groups, have shown post-test gains on

affective and cognitive perspective taking tasks (Rosen, 1974; Saltz and Johnson, 1974), a group cooperation task (Rosen, 1974), and a measure of group interaction (Smith and Syddall, 1978).

In particular, it has been social fantasy play (fantasy play with peers) which has been implicated as a vital channel for a preschooler's learning. Social fantasy play refers to play which involves symbolic transformations of the real life situation within the context of a social interaction (Connolly, Note 1). These transformations may involve the child's identity or objects in the child's environment (Garvey, 1977). In addition, social fantasy play also necessitates agreement among play partners with respect to the specific transformations involved. Social fantasy play has been considered to be an important factor in the development of social-cognitive skills and socially-cognitive behaviour (Smilansky, 1968; Garvey, 1977). According to this viewpoint, fantasy play in the context of a social interaction requires a number of complex social and cognitive skills. Smilansky (1968) suggested that sociodramatic play (play in the context of a pretend theme with other children) allowed the exercise of such social and cognitive skills as creativity, flexibility, empathy, abstraction, and cooperation. Thus, she suggested that social fantasy play may facilitate the refinement and development of these skills.

The rationale for distinguishing between social and non-social fantasy play was first suggested by Smilansky (1968). She conducted one of the most extensive studies, designed to increase the level of fantasy play in Israeli children of middle and lower socioeconomic status groups. She initially found that differences between the middle-class

and economically disadvantaged children were especially pronounced on her social role-playing measures and less so on her nonsocial fantasy play measures. Furthermore, training the disadvantaged children in social role-playing resulted in an increase in their verbal communication skills and positive affective behaviors. In another study with socially and economically disadvantaged children, Johnson (1976) reported that IQ measures and divergent thinking measures correlated with observational measures of social fantasy play but not solitary fantasy play. It therefore seems that it is social fantasy play which has a crucial role in the child's cognitive and socio-emotional development.

In summary, theorists generally agree on the vital role of social fantasy play in the child's social and cognitive development and suggest that the more social fantasy play a child engages in, the earlier these skills will be acquired. Furthermore, empirical evidence generally supports the argument that social fantasy play contributes to the growth of certain cognitive and socio-emotional skills.

The social content of young children's fantasy play has been one of its most striking features. Certain investigators have emphasized the relation of the roles children enact to the social roles and relationships of adults and children in the real world (Fein and Robertson, 1974). These investigators, such as El'Konin (1969), suggest that fantasy play is an important aspect of the process of socialization. They propose that fantasy play allows the child to acquire and practice the behaviors of certain people in the child's life.

Some of the earliest behavioral patterns which appear are sex-typed ones (Fein and Robertson, 1974). Sex-related preferences for certain toys and activities during play have been reported in children as young as age three (Maccoby and Jacklin, 1974). This finding is not a surprising one, since one would normally expect that boys' and girls' differential exposure to sex-role behavior patterns and their training in sex-appropriate behaviors to be reflected in their actual play behaviors.

Researchers who have observed preschool children during social fantasy play have noted that they typically do display "sex-appropriate" behaviors in this context as well. Little girls typically do what women do in our society, and little boys what men do. By age three, preschoolers display sex-related preferences for certain roles, as well as for certain toys and activities (Maccoby and Jacklin, 1974). If preschoolers are learning and practicing various cognitive and socio-emotional skills within their pretend play, then sex-differentiated fantasy play patterns might lead to divergence in the development of certain cognitive and social skills in boys and girls. The study of sex differences in patterns of social fantasy play is therefore necessary in order to understand this process of sex-differentiated development.

There is little consistent evidence concerning the nature of sex differences in the social fantasy play of preschoolers. Many researchers report no sex differences in the quantity of fantasy play (Rubin and Maioni, 1975; Connolly, Note 1). However, there have been a few contradictory findings such as that of Sanders and Harper (1976) who

found that boys tended to be involved in fantasy play more often than girls; and that of Brindley et.al. (1973) who reported a greater incidence in girls. These inconsistencies may be due to qualitative differences in the way these studies defined social fantasy play. A study which assesses a wide variety of qualitatively different types of pretending concurrently is needed.

One aspect of preschoolers' social fantasy play in which qualitative sex differences have been observed is the enactment of identities or roles. Maccoby and Jacklin (1974) and Tizard, Philps, and Plewis (1970) both reported that girls seem to concentrate on the enactment of identities or roles more than boys do during fantasy play. There is further evidence that girls enact a smaller variety of roles than boys but enact these roles in greater detail, whereas boys enact a greater variety of roles in less detail (Marshall 1961; Singer, 1973; Maccoby and Jacklin, 1974; Matthews, 1975). Sex differences in preferences for certain roles have also been recorded. It seems that the identities girls choose to enact are the traditional roles of women in our society, such as domestic and caretaking roles (Tizard, Philps, and Plewis, 1970; Singer, 1973; Matthews, 1977; Connolly, Note 1; Connolly, Doyle & Ceschin, in press). Boys, on the other hand, choose to enact roles of an occupational and fictional nature (e.g., fireman, policeman, Batman and Superman) to a greater extent. McLoyd (1981) reported that boys enacted fictional roles more than any other roles, occupational roles came second, and familial roles were enacted least of all. The girls' role preferences were the reverse of the boys'. The girls were noted to enact familial roles most of the time, followed with occupational roles and

fictional roles the least of all.

These results suggest that boys and girls may be acquiring and practicing different social styles and roles through their fantasy play during the preschool years. Furthermore, children seem to be limiting the roles and behavioral patterns they practice to "sex-appropriate" ones even at this early age. The reasons for these sex differences are unclear.

A second aspect of fantasy play, which has not received much attention, is the utilization of objects or toys. Boys have generally been found to be oriented toward play with objects more than girls (Maccoby and Jacklin, 1974). Other investigations of sex differences in object use have focused on how the children use the objects during fantasy play. Connolly (Note 1) and Connolly, Doyle and Ceschin, (in press) found that boys transform objects (that is, utilize objects "as if" they were something else) more often than girls. Matthews (1977) also reported that boys made more transformations of actual objects than girls, who used ideational modes (e.g., role transformations and insubstantial material attributions) to a greater extent. In a study of low-income, predominantly black children, McLoyd (1980) reported that triads of girls assimilated transformations of objects into their social fantasy play more easily than triads of boys. These contradictory findings may be due to the use of diverse samples of children or toys. When the literature is evaluated as a whole, the findings generally indicate that boys may prefer to use toys and objects in their fantasy play more than girls. However, many of these studies (Matthews, 1977; McLoyd, 1980) focused on the initiation of pretend sequences. A study

of object use during entire pretend sequences is needed to determine if these sex differences apply to entire pretend sequences.

The transformation of objects seems to be a vital component of fantasy play. Studies have indicated that object transformation is positively related to scores on divergent thinking tasks and creativity scores (Saltz, Dixon and Johnson, 1977). Since girls are transforming objects to a lesser extent than boys, girls may be practicing these cognitive skills to a lesser degree than boys. Moreover, the sex difference in transformation of objects may reflect specific differences in cognitive styles or just differences in the identities preferred by boys and girls. Since boys enact fictional roles to a greater extent, they may not have the toys related to these roles available and must therefore transform existing objects to their needs. Girls, on the other hand, who prefer familial roles may often have toys available to them in the classroom for incorporation into their fantasy play. One implication of this view is that the incorporation of objects may generally follow identity transformations in fantasy play. This implication can be empirically tested by an analysis of whether identity transformations initiate preschoolers' pretend sequences more often than object play.

In addition to sex differences in children's fantasy play, sex differences have been noted in their general play behaviors. For instance, boys have been reported to play in larger groups than girls (Smith, 1977). Boys have also been reported to engage in gross motor activity more often than girls during their play (Pulaski, 1970; Singer, 1973; Sanders and Harper, 1976). These differences in activity

preferences may be related to the fantasy play preferences of preschoolers. For example, boys' preference for gross motor activity and their higher activity level in general may be instrumental in determining what kinds of fantasy play roles they enact. Thus, activity level preferences may be determinants of role preferences in boys and girls. Equally possible is the suggestion that the roles boys and girls prefer to enact determines the physical activity differences observed. The investigation of these hypotheses necessitates the primary step of investigating whether any sex differences in physical activity levels during fantasy play exist, and whether any relationships exist between specific physical activity levels and specific fantasy play patterns.

To date, two studies examining boys' and girls' mobility within fantasy play sequences have been reported. In a study of solitary fantasy play, Pulaski (1970) found greater mobility in boys. Sanders and Harper (1976) reported that boys were more mobile (entered three different areas more frequently) during fantasy play than girls. However, these studies have used only one measure of activity level, such as distance covered. Activity level is a multi-faceted variable including mobility, speed, and type of movements. Systematic analyses of sex differences in activity level during social fantasy play have not been conducted as yet. Furthermore, an analysis of boys' and girls' activity levels during similar roles may reveal whether boys and girls have particular preferences for certain activity levels or whether any differences are due to preferences for particular roles.

The sex-typing of preschoolers has recently appeared as an important issue. Researchers in this area generally find that preschool children

are sex-typed in their play activities and tend to avoid opposite-sex-typed activities (Connor and Serbin, 1977). The activities these investigators studied included toy and game preferences, which were subsequently utilized as a measure of the sex-typing of preschoolers' play.

Young children's sex-typing has been considered important to development since the finding that children who are highly sex-typed may be at a disadvantage cognitively and emotionally. Certain investigators have suggested that girls' conformity to their prescribed sex roles may limit their cognitive development by restricting their exposure to certain experiences or learning situations (Serbin, 1980). There is some empirical evidence supporting this hypothesis. For example, highly sex-typed girls have been found to have lower IQ scores than less rigidly sex-typed children (Serbin, 1980). In addition, the concept of "androgyny", flexible behavior not restricted by sex-role prescription, has become an important one in recent years. Studies have suggested that androgynous individuals may have fewer mental health problems (Burchardt and Serbin, 1982).

The sex-typing that is observed in children's play behavior may logically be expected in their fantasy play as well. Therefore, highly sex-typed children may be expected to be sex-typed in their fantasy play as well, and thus to enact fewer roles, typically their "sex-appropriate" roles. Feminine sex-typed preschoolers should then enact traditional female roles (such as caretaker and other domestic roles) while masculine sex-typed preschoolers should prefer to enact other occupational and fictional roles.

The impetus for the present study has therefore resulted from a number of factors. First, there is a scarcity of naturalistic data on sex differences in social fantasy play in preschoolers, and the data that does exist tends to be contradictory. Furthermore, few studies have examined sex differences in social fantasy play within a developmental framework. The present study attempts to provide naturalistic data on the development of sex differences in the quantity and quality of social fantasy play during the preschool period. Research in the past has largely investigated object play or role enactment separately, and has thus defined fantasy play in diverse ways. In the present study, fantasy play was defined more broadly: the identities boys and girls chose to enact, the objects they incorporated into their fantasy play, and the physical activity levels maintained during fantasy play were assessed. In addition to sex differences in the identities preschoolers enact, their utilization of objects, and their physical activity levels, the relationship between activity levels and social fantasy play patterns was also evaluated. This analysis was conducted in order to determine whether there were any sex differences in the activity levels associated with particular identity transformations. A third area of investigation was the relationship between sex-typed activity preferences and social fantasy play patterns. This analysis involved another set of data, the children's preferred toys and play activity during free play, which was used as a measure of their sex-typing. The purpose of this analysis was to investigate if children's sex-typing is observable in their social pretend play as well.

Based on previous findings, a number of hypotheses regarding sex differences in preschool children's social pretend play were outlined.

Boys were expected to initiate more pretend sequences with object play whereas girls were expected to do so with identity transformations. Boys were also expected to enact occupational and fictional roles more often; while girls were expected to prefer familial roles. In their object use during social fantasy play, boys were expected to perform transformations of objects and to use imaginary objects more often than girls, since their preference for fictional roles would demand toys not typically available in day care centers. The girls were expected to utilize objects as props to a greater extent than boys since the toys necessary to enact their preferred roles are generally available. Boys were expected to be more mobile during fantasy play, that is, to display more gross motor activity, utilize a larger area, and play at a faster pace than girls. With respect to the sex-typing of the children, masculine sex-typed children (both male and female) were expected to enact more stereotypic male roles, to transform objects more often and to show higher physical activity levels. Feminine sex-typed preschoolers (both male and female) were expected to enact typical female roles in our society, transform objects less and to show lower physical activity levels.

No specific hypotheses were made about the relationship between each identity transformation and activity level. No specific hypotheses were made about sex differences in the initiation of social fantasy play sequences as well.

The methodology and results of these analyses are reported in several chapters. In the following chapter, an overview of the participating subjects and of the experimental design is outlined. In the next chapter, the developmental analyses of sex differences in the

social pretend play data are described and the relationship between sex-typing and social pretend play patterns reported. The final chapter is a summary and integration of all the results, followed with a discussion of the implications of these results.

METHOD

Subjects

Forty-eight children enrolled in an English day care centre located in the Greater Montreal area took part in this study. The children were separated into a younger (N=22) and an older group (N=26). The children had all been enrolled in the centre for a minimum of three months ($\bar{x}$ = 17.47 months). Most of the children were in the day care full-time (78.72%), while the rest attended no less than three days a week.

Demographic data were collected by means of school records. The results indicated that the children were from predominantly middle-class families. Most of the children came from two-parent families, were generally the youngest or the only child in the family. The majority of children were attending day care in their home language.

There were two classrooms, one for the younger children, and one for the older ones. Overall, the children ranged in age from 45 to 63 months, with a mean of 53.41 months. There were 12 boys and 14 girls in the younger class, and 14 boys and 8 girls in the older class.

The observational social fantasy play data of these boys and girls were utilized for the analyses of sex differences in social fantasy play, activity levels, and correlations of social fantasy play measures with masculine/feminine scores. The children were divided into four age groups: younger and older boys, and younger and older girls. The age groups were selected so that they would differ in mean age (48.0 vs. 58.2 months) and such that there were roughly proportional numbers of

males and females in each age group. Male: female ratios for the younger and older groups were 12:10 and 14:12, respectively. The mean ages, in months, of the younger girls and boys were 47.6 (s.d. = 2.17) and 48.4 (s.d. = 2.27), respectively. The mean ages, in months, of the older girls and boys were 57.9 (s.d. = 3.40) and 58.4 (s.d. = 2.50).

A subset of these children (N=40) were then randomly chosen for a repeated measures analysis of activity level differences during different identity transformations in order to have cells with equal number of subjects (n=10). The means ages, in months, of the younger girls and boys for this sample were 47.6 (s.d. = 2.17) and 48.3 (s.d. = 2.31). The mean ages, in months, of the older girls and boys were 58.0 (s.d. = 3.09) and 58.3 (s.d. = 2.31), respectively.

Procedure

The data were collected by a trained observer, unfamiliar with the hypotheses of the study, and the author. Observing and recording the social fantasy play and activities were practiced in another day care center until adequate inter-observer reliability was achieved. Inter-observer reliability checks were provided throughout the data collection phase for 18% of the observations.

For recording fantasy play between peers, the free play room was conceptualized as 4 areas of observation. Each area was a specific and discrete area designated for one type of play (i.e., the kitchen play area, blocks area, etc.). Most studies report that preschoolers only devote about 20-25% of their free play time to social fantasy play

(Tizard, Philps, and Plewis, 1970; Connolly, Note 1). Therefore, social fantasy play was observed and recorded by a scanning technique (See Connolly, Note 1) in order to maximize the amount of social fantasy play recorded. The scanning technique consisted of the simultaneous observation of all preschoolers within a designated area.

The preschoolers were observed twice each week during their 1-hour free play period. An average of 5 scans were conducted each observation day during free play. The social fantasy play of each preschooler was recorded on the Social Fantasy Play Checklist (see Appendix A). The following steps were taken in each scan. First, class attendance was recorded for that day in order to determine which children were potentially observable. Second, the observers proceeded to the first area of the room, wrote down the names of the children in that area, observed these children simultaneously for one minute during which they noted any occurrence of social fantasy play and, during social fantasy play, recorded whether an identity transformation or object use was observed first. Third, following the observation interval for each child who had been involved in social fantasy play, the predominant identity-type and/or object use, and the predominant activity level was recorded. For a description of the identity-types and object uses, as well as how social fantasy play was identified, see Appendix B.

As noted above, during each scan a record of whether a child engaged in social fantasy play was first seen enacting a role or playing with an object was made. Boys and girls have been reported to show different patterns, boys playing with toys during pretend sequences more often than girls, who focus on the enactment of roles. This variable was therefore estimated to determine whether these differences are also

reflected in how boys and girls enter into pretend sequences and in order to examine whether sex differences in the initiation of social fantasy play may account for observed sex differences within social fantasy play sequences.

The activity level of each child was recorded during social fantasy play episodes via three different measures: type of physical activity, speed, and distance. First, the type of activity was classified according to gross versus fine motor play. Gross motor activity included running, rough-and-tumble play, biking, acrobatics, crawling, and arm waving. Fine motor activity was classified as major use of the face and hands, gestures, pantomine or face-making. The predominant activity type--gross or fine motor--during the one-minute observation interval for each child was scored at the end of each observation interval.

The distance covered by the preschooler during his or her social fantasy play was also noted. This measure attempted to determine how mobile the child was during his or her play. This measure involved recording the observer's judgement of whether the child covered less than 3 feet, 3-8 feet, or more than 8 feet during the fantasy play sequences.

The third measure of activity level was an estimate of the speed of the play movements displayed by the preschoolers during their social fantasy play. Three categories--High activity level, Medium activity level, and Low activity level--were utilized. High physical activity involved running, jumping up and down on the spot, gesturing, and any other movement of the face, arms, hands, and legs that involved one complete movement per second. Medium activity level could be best

described as a normal pace of walking, crawling, or jumping at a slower pace than in the High activity level. Low activity level reflected instances in which the child walked or moved at a rate of 1 movement per 4 seconds. The predominant level of each of the above activity measures was estimated and recorded at the end of each observation interval as well.

This scanning procedure was repeated in each area of the room until all the areas had each been observed for one minute. One scan consisted of sequential observations of each area of the classroom. A total of 60 observations per child were targeted to be collected over a 4 month period.

By a separate simple procedure designed by Connor and Serbin (1977), activity preferences were recorded as a measure of each child's sex-typing. An activity preference check typically followed a fantasy play scan. However, there were circumstances when an activity preference scan could not be completed due to the end of free period. Activity preference checks involved observation intervals of 5 seconds for each child alternated with 5-second recording intervals. Each child in the classroom was observed, sequentially, until all children had been observed. During the recording intervals, observers noted the subject's name and the play activity s/he was involved in (e.g., lego, dolls,...). A child was said to be involved in an activity if s/he was either touching or standing near and looking at a particular toy during the observation interval. This activity was recorded on a special recording form with 34 activities and their associated numbers listed at the top of the form (see Appendix C). Each subject's activity was recorded an average of 5 times per free play period for a total of 60 observations for each child.

RESULTS

Reliability

Inter-rater reliabilities were computed on 18% of the intervals by dividing the number of agreements by the total number of agreements and disagreements. The mean percentage agreements were: 81% for the Identities, 93% for Object Use, 91% in determining whether Identities or Object Uses occurred first, 75% for the Activity Levels, 91% for the children recorded within an area, and 96% for the Toys and Activities the children were involved in. (See Table I for specific reliabilities).

Preliminary Data Reduction

Social Fantasy Play Scores. A child was sometimes noted to appear in two different areas within one scan. When this occurred, the data from the first area s/he was observed in was utilized. The frequency of occurrence of each identity-type, object use, type of play, and initial transformation was calculated for each child by summing across the 60 scans. Six children of the forty-eight did not have 60 observations (the range for these children was from 42-57 observations). These raw scores were adjusted by prorating each child's score. Since the missing data was a small percentage of the total data (2%), it was decided to prorate these children up to 60 observations. If a child had more than 60 observations, the extra observations were randomly deleted. Each child's scores thus represented frequencies based on 60 observations. The data on the speed and distance were of a different nature (scored according to three ordinal categories), and thus the mean of each of

Table I

Interrater Reliability Estimates for the Social Fantasy Play Measures and Activity Preference Data

Measure	Reliability
Identity Transformation	
Functional Identity	66.7%
Familial Identity	92.9%
Character Identity	91.1%
Object Uses	
Object as Prop	83.3%
Object as Substitute	80.7%
Initial Transformation	
Identity Transformation	83.3%
Object Transformation	77.8%
Activity Levels	
Gross Motor vs. Fine Motor Activity	80.3%
Speed	65.9%
Distance	78.4%
Activity Preference Data	96.0%

these measures was computed instead of raw frequencies.

Inspection of the scores indicated that some were of too low frequency for meaningful analyses. It was therefore decided to combine these scores by summing across conceptually related categories. Identity transformations were reduced to three categories: Functional, Familial, and Character (a combination of Stereotypic and Fictional). Object Uses were reduced to two categories: Use of Objects as Props and Substitutions (Transformed and Invented Objects). The frequency of occurrence of these combined identity-transformations and object use categories were then calculated.

Analyses of the qualitative differences in the children's social fantasy play would be affected by individual differences in the amount of social fantasy play. It was thus desirable to control this variable in the analyses. Use of the amount of social fantasy play as a covariate was an option. However, in preliminary analyses, significant interactions of amount of fantasy play and the independent variables of age and sex were found, indicating heterogeneity of slope of the regression lines within the sex and age groups. The use of amount of fantasy play as a covariate was thus inappropriate. In order to control the effects of differing amounts of fantasy play in the children, proportions were therefore calculated which represented the frequencies of each social fantasy play category for each child divided by the number of observations in which social fantasy play occurred.

The frequency of gross motor activity and the mean speed and distance during each of the three identity-transformation categories were also calculated. Some of the 40 children (N=15) did not show all identity transformations. These children received the cell mean of each

missing activity level measure as their score for the zero-frequency identity transformations. There were 9 zero-frequency scores for functional identities, 4 for familial identities and 8 for character identities.

Sex-Typing Scores. The data collected about each child's preferences for certain toys and activities were also summed across the 60 observations. The percentage of occurrence for each toy or activity over the 60 observations was calculated for each child. The percentages of each activity were then subjected to T-tests in order to determine which activities significantly differed between the boys and girls. Ten activities which differed in the frequency of occurrence between the sexes were then labelled as male or female preferred. The male - preferred activities were: large blocks, small blocks, cars and trucks, lego, and a "blocks and numbers" toy. The female - preferred activities were: painting, drawing, sink and kitchen play, pegs and pegboard, and dolls and bed and dress-up. The percent occurrence of these activities for each child were then transformed into masculine - and feminine - activity - preferences scores by means of a fortran program called ANDROGYNY (For details see Connor and Serbin, 1977). This program assigns each child a Z - score for each designated male or female activity. The program sums these Z - scores to form masculine and feminine play scales. The Z - scores are assigned separately for males and females to obtain similar distributions of masculine and feminine scale scores for each sex. These masculine and feminine scores were then utilized in further analyses.

Description of Analysis of Social Fantasy Play

For the descriptive aspect of the study, separate analyses were employed to assess differences in the overall amount of social fantasy play, differences in the initial transformation mode (identity or object first), differences in the three identity transformation categories (functional, familial and character), differences in the two object use categories (prop and substitute), and overall differences in each of the three activity level categories (gross motor activity, speed and distance). Since the comparisons of the identity categories and object use categories both involved multiple dependent measures, multivariate analyses of variance were typically employed. Univariate analyses of variance were conducted for the comparisons of the activity levels, of the initial transformation mode and of the amount of social fantasy play. Two between group factors, sex and age (younger vs. older) were included in each univariate and multivariate analysis. Age was included in order to determine the influence of this variable on any obtained sex differences. Only if the overall multivariate F was significant in the multivariate anlayses of variance, were subsequent univariate results interpreted.

Amount of Social Fantasy Play

A two-factor univariate analysis of variance for the total amount

of social fantasy play was conducted to investigate sex and age differences. This ANOVA revealed a significant sex effect, F (1,44) =11.764, p .001. The analysis of variance table is shown in Appendix D. The results indicated that the boys were involved in social fantasy play sequences significantly more often than the girls (x=18.93 versus 11.00). These means are shown in Table 2. Neither the age effect nor the interaction effect were significant, F (1,44)=.427 and F (1,44)=.555, respectively.

Initial Transformations

In order to determine if pretend sequences were typically initiated by identity transformations or object uses, the grand mean of the proportion of initial transformations that were identity-related was tested so as to determine if it was significantly different from p = .50. The mean proportion of initial transformations being identity-related was not significantly different from .50, T_{47} = 1.43, p .15, indicating that children did not differ significantly in the rate at which they initiated pretend sequences with identity transformations or object uses.

A two-factor univariate analysis of variance of the proportion of initial transformations being identity-related ones was calculated in order to determine sex and age differences in how preschoolers initiated pretend sequences. A significant sex effect was obtained, F (1,44) = 55.752, p .001. The analysis of variance table is shown in Appendix D. The results indicated that females showed identity transformations at the initiation of social fantasy play a significantly greater proportion of the time than boys (x = .65 versus .29). These means appear in

Table 2

Means of the Social Fantasy Play Measures for Males and Females

	Males		Females	
	M	(SD)	M	(SD)
Total Amount of Social Fantasy Play	18.93[a]	(9.11)	11.00	(6.09)
Initial Transformation				
Identity First	.29	(.14)	.65	(.20)
Identity Transformations (Total)	.49[b]	(.14)	.71	(.19)
Functional	.15	(.14)	.12	(.13)
Familial	.13	(.11)	.46	(.21)
Character	.21	(.13)	.14	(.14)
Object Use (Total)	.88	(.09)	.80	(.17)
Prop	.19	(.15)	.37	(.18)
Substitute	.69	(.17)	.43	(.19)
Activity Levels				
Gross Motor	.60	(.13)	.58	(.19)
Speed	2.12[c]	(.23)	1.85	(.24)
Distance	1.50	(.18)	1.63	(.38)

a This number represents the mean frequency of social fantasy play episodes

b The following figures represent the mean proportion of occurrence of each variable

c The figures for speed and distance denote the mean speed or distance during social fantasy play

Table 2. Since the proportion of initial transformations being related to object uses was equal to the proportion of initial transformations of an identity nature subtracted from one, the results also indicated that boys showed more transformations of objects at the initiation of social fantasy play than girls.

Both the age effect and the interaction effect were not significant, although the interaction effect approached significance, $\underline{F}$ (1,44) = 3.457, $p<.10$. The sex x age group interaction indicated a trend for the boys to show a decrease in the proportion of initial identity transformations with age and an increase in the proportion of initial object uses with age. The girls demonstrated a reverse trend - a slight increase in the proportion of initial identity transformations and a decrease in the proportion of initial object uses with age. The means of each age group, separate for boys and girls, are shown in Table 3.

Identity Transformations

A two-factor multivariate analysis of variance for the identity transformations was calculated in order to determine if any sex and age differences existed in this variable as well as whether there were any sex- and age- differentiated preferences for certain roles for the three identity transformation categories. This MANOVA showed a significant multivariate effect for sex, $\underline{F}$ (3,42) = 18.027, $p < .001$ (See Appendix D).

Table 3

Means of the Social Fantasy Play Measures for Each Age Group, Calculated Separately for Males and Females

	Males				Females			
	Younger		Older		Younger		Older	
Total Amount of Social Fantasy Play	20.59[a]	(8.74)[b]	17.50	(9.50)	10.80	(5.77)	11.16	(6.60)
Initial Transformation								
Identity First	.35	(.11)	.24	(.14)	.61	(.23)	.68	(.17)
Identity Transformations (Total)	.54	(.13)	.45	(.13)	.71	(.22)	.72	(.17)
Functional	.17	(.17)	.13	(.11)	.17	(.16)	.07	(.09)
Familial	.14	(.09)	.12	(.12)	.39	(.14)	.52	(.24)
Character	.23	(.11)	.20	(.14)	.15	(.11)	.13	(.17)
Object Use (Total)	.85	(.06)	.90	(.10)	.77	(.20)	.82	(.14)
Prop	.24	(.16)	.15	(.13)	.37	(.17)	.36	(.19)
Substitute	.61	(.15)	.75	(.17)	.40	(.19)	.46	(.20)
Activity Levels								
Gross Motor	.62	(.12)	.59	(.14)	.55	(.15)	.60	(.23)
Speed	2.05[c]	(.23)	2.18	(.22)	1.83	(.21)	1.86	(.26)
Distance	1.54	(.20)	1.47	(.17)	1.68	(.48)	1.58	(.29)

[a] The figures for amount of social fantasy play represent the mean frequency of occurrence, all other means are in proportions except for speed and distance.

[b] The numbers in parentheses represent standard deviations

[c] The figures for speed and distances represent the mean speed and distance during social fantasy play, ranging from 1 to 3

Inspection of the means (See Table 2) indicated that girls demonstrated a greater proportion of identity transformations than boys. The univariate analyses of variance indicated that the girls demonstrated a significantly greater proportion of familial identity transformations than boys. A trend in the opposite direction was noted for character identity transformations, $\underline{F}$ (1,44) = 3.436, $p < .10$. The means for these categories for each sex are shown in Table 2. The multivariate age effect and the interaction effect were both not significant, $\underline{F}$ (3,42) = 1.418 and $\underline{F}$ (3,42) = 1.216, respectively.

Object Use

Sex and age differences in the amount of object play and in how the children incorporated objects into their pretend sequences were investigated by means of a two-factor multivariate analysis of variance for the two object use categories. This MANOVA showed a significant multivariate sex effect, $\underline{F}$ (2,43) = 12.070, $p < .001$. The multivariate analysis of variance summary table is shown in Appendix D. Inspection of the means (See Table 2) indicated that boys utilized objects more often than girls in social fantasy play. The univariate analyses of variance revealed that the girls showed greater use of objects as props, $\underline{F}$ (1,44) = 14.438, $p < .001$, while boys demonstrated more substitutions of objects, F (1,44) = 24.533, $p < .001$. The means for boys and girls are shown in Table 2. The multivariate effects for age and for the sex x age interaction were not significant, F (2,43) = 2.065 and F (2,43) = .356, respectively.

Activity Levels

Preliminary analyses suggested that the activity level measures were not sufficiently correlated to employ a multivariate analysis. Separate ANOVAS's were thus calculated for each of the three activity levels, gross motor, speed, and distance, in order to investigate the existence of sex and age related differences.

For the total amount of gross motor activity the main effect of sex, F (1,44) = .342, the main effect of age, F (1,44) = .005, and their interaction effect, F (1,44) = .861 were not significant. (See Appendix D).

For the mean speed during social fantasy play there was a significant sex effect, F (1,44) =16.703, $p < .001$. The analysis of variance summary table is shown in Appendix D. The results indicated that the boys demonstrated greater speeds than girls. These means are shown in Table 2. The effects of age and of the sex x age group interaction were not significant, F (1,44) = 1.800 and F (1,44) = .515, respectively.

For the mean distance during social fantasy play, there were no significant differences for sex, F (1,44) = 2.056, age, F (1,44) = .953, or the sex x age interaction, F (1,44) = .036 (See Appendix D).

Description of Analysis of The Relationship Between Social Fantasy Play and Activity Level Measures

In order to evaluate the importance of activity level as a possible determinant of sex differences in identity preferences, the relationships

between activity levels (as measured by proportion of gross motor activity, mean speed, and mean distance within each identity-type) and types of identity transformations were analyzed by means of three univariate repeated measures analyses of variance. Each of the three activity measures was analyzed in a repeated measures ANOVA with two between group factors, sex and age, and identities included as a within group factor. Identities was treated as a within factor to permit comparisons of activity levels among the three identity-types. The between group effects replicated the results already discussed and are not accurate since they are based on equal weighting of unequal frequencies of each identity. The between group results will therefore not be discussed here.

Gross Motor Activity

A significant sex x identities interaction was found, $F(2,72)=3.276$, $p<.05$, for the repeated measures analysis of variance for proportion of gross motor activity. This finding indicated that boys and girls demonstrated different amounts of gross motor activity within each identity type. The means for these measures are illustrated in Table 4. Post hoc Scheffé tests, with the correction proposed by Cicchetti (1972), indicated no significant sex differences in the proportion of gross motor activity within any identity - type nor any differences between identities within sex. There were no significant effects for the age x identities or the sex x age x identities interactions, F (2,72) = 1.100 and .362, respectively.

There was a trend for the main effect of identities, F (2,72) = 2.457, $p<.10$. This finding suggests that there were differences in

Table 4

Mean Values and Standard Deviations of the Activity Levels, Calculated Separately for Each Identity Category

Measure	Boys		Girls	
	M	(SD)	M	(SD)
Gross Motor Activity				
Functional Identity	.78[a]	(.24)	.85	(.15)
Familial Identity	.81	(.22)	.68	(.22)
Character Identity	.67	(.25)	.70	(.24)
Speed				
Functional Identity	2.23[b]	(.68)	1.05	(1.09)
Familial Identity	1.66	(.93)	1.94	(.43)
Character Identity	1.89	(.62)	.62	(.64)
Distance				
Functional Identity	1.59	(.74)	.90	(.93)
Familial Identity	1.43	(.91)	1.70	(.41)
Character Identity	1.33	(.55)	.58	(.61)

a The numbers for gross motor activity represent proportions
b The numbers for speed and distance represent mean speed and mean distance

amount of gross motor activity among the identity types (See Table 4).

Speed

The analysis of variance of the within factor, identities, revealed a significant sex x identities interaction, F (2,72)=15.244, $p<.001$, for mean speed. The mean values of these measures are shown in Table 4. Post hoc Scheffé tests with the Cicchetti (1972) correction revealed that when the mean speed of each identity was examined separately in boys and girls, boys were found to show greater speed than girls during functional and character roles. Boys demonstrated roughly equal speeds in all three identity-types, whereas girls showed greater speed in familial roles than the other two roles. There was a trend for the age x identities interaction, F (2,72) = 2.381, $p<.10$, indicated.

Distance

The analysis of variance including identities as a within group factor revealed a significant main effect of identities, F (2,72) = 13.208, $p < .001$ for mean distances. When the means were compared via post hoc Scheffé tests to determine where the differences lay, familial roles showed greater distance than character roles. No other effects were significant (See Appendix D). However, the sex x identities interaction demonstrated a trend, F (2,72) = 2.489, $p < .10$, for girls to show greater distance during familial roles than functional and character roles, while boys showed similar distances in all

identities. Furthermore, there was a trend indicating boys showed greater distances than girls in functonal and character roles.

Description of Analysis of Sex-Typing and Social Fantasy Play

In order to determine the role of sex-typing in social fantasy play preferences, the relationship between sex typing and social fantasy play was examined via a bivariate correlation analysis. The masculine scores and the feminine scores were each correlated to the ten social fantasy play measures. Age was included as a control variable since it was expected to be correlated with one or both sets of variables. Age was therefore partialled out in order to ensure that the obtained correlations between the sex-typing scores and social fantasy play measures were independent of the effect of age.

Relationship Between Sex-Typing and Social Fantasy Play

The means and standard deviations of the variables, separate for the boys and girls, are shown in Tables 5 and 6. The resulting partial correlations (controlled for age) are shown in Tables 7 and 8.

These results indicate that masculine sex typing in boys is negatively correlated with speed ($r = -.54$, $p<.01$). Feminine sex typing in boys is associated with the enactment of familial identities ($r = .49$, $p<.05$) and fewer object substitutions ($r = -.49$, $p < .01$). In the girls, feminine sex typing is positively correlated with amount of social fantasy play ($r = .80$, $p < .001$) and fewer object substitutions ($r = -.48$, $p < .05$).

Table 5

Means of the Sex-Typing, Social Fantasy Play, and Control Measures for the Boys

	M	SD
Sex-Typing Measures		
Masculine Score	-0.00	2.36
Feminine Score	.01	1.80
Social Pretend Play Measures		
Amount Social Fantasy Play	18.92	9.11
Functional Identity	.15	.14
Familial Identity	.13	.11
Character Identity	.21	.15
Object as Prop	.19	.15
Object as Substitute	.69	.17
Identity Transformation First	.29	.14
Gross Motor Activity	.60	.13
Speed	2.12	.23
Distance	1.50	.18
Control Measure		
Age	53.77	5.57

Table 6

Means of the Sex-Typing, Social Fantasy Play, and Control Measures for the Girls

	M	SD
Sex-Typing Measures		
Masculine Score	-.00	2.25
Feminine Score	.16	1.57
Social Pretend Play Measures		
Amount Social Fantasy Play	11.00	6.09
Functional Identity	.12	.13
Familial Identity	.46	.21
Character Identity	.14	.14
Object as Prop	.37	.18
Object as Substitute	.43	.19
Identity Transformation First	.65	.20
Gross Motor Activity	.58	.19
Speed	.85	.24
Distance	1.68	.38
Control Measure		
Age	53.23	5.98

Table 7

Correlations Between Sex-Typing and Social Fantasy Play For Boys, Controlling for Age

Measures	Masculine Score	Feminine Score	Age
Amount Social Fantasy Play	-.09	.21	-.17
Functional Identity	-.12	.04	-.09
Familial Identity	.07	.49*	-.21
Character Identity	.04	-.18	-.14
Object as Prop	-.01	.34	-.35
Object as Substitute	.00	-.49**	.48*
Identity First	.13	.30	-.44*
Gross Motor Activity	.07	-.07	-.23
Speed	-.54**	.28	.21
Distance	.25	.02	-.19
Age	.41*	-.50**	

* $p < .05$
** $p < .01$

Table 8

Correlations Between Sex-Typing and Social Fantasy Play For Girls, Controlling for Age

Measures	Masculine Score	Feminine Score	Age
Amount Social Fantasy Play	-.40	.80***	-.19
Functional Identity	-.26	.12	-.35
Familial Identity	.08	.05	.43*
Character Identity	-.07	.39	-.33
Object as Prop	-.02	.15	-.12
Object as Substitute	.14	-.48*	.22
Identity First	-.03	.39	-.13
Gross Motor Activity	.38	.18	.07
Speed	.02	.00	-.04
Distance	.14	.31	-.14
Age	.03	-.02	

* $p < .05$
*** $p < .001$

DISCUSSION

The present study was designed to determine the nature and possible determinants of sex differences in quantitative and qualitative measures of social fantasy play during the preschool years. The relationship between social fantasy play and sex-typing (as measured by toy preferences) and the relationship between social fantasy play components and activity levels were assessed in order to evaluate the value of sex-typing and activity levels as possible determinants of these sex differences.

With respect to the identification of sex differences in social fantasy play, both quantitative and qualitative differences were found. Boys engaged in more social fantasy play than girls in both age groups. This finding supports that of Sanders and Harper (1976), but is somewhat inconsistent with findings by Rubin and Maioni (1975), Connolly (Note 1), and Connolly, Doyle and Ceschin (in press) where no significant sex differences in amount of fantasy play were found. The present study, however, recorded a greater number of observations as well as an equal number of total observations for each child, which may have facilitated the identification of existing sex differences. An equally plausible explanation for some of these inconsistencies in findings may be the selection of toys available in the day care centers studied in the various projects. Since toy structure has been found to be an important determinant of boys' and girls' fantasy play (McLoyd, 1981), these findings may be due to differences in the toys available in each center. A comparison of toys available to the children in the various studies would be helpful in clarifying this issue.

When differences in the frequency of object use and identity

transformation were analyzed, striking sex differences were found. The boys demonstrated more use of objects during social fantasy play episodes than the girls did, while girls showed more identity transformations than boys. This finding extends to the fantasy play context previous research on children's play behaviors which indicates that boys play with objects more often than girls do (Maccoby and Jacklin, 1974).

Although overall children initiated pretend sequences equally often with identity transformations as with object play, boys and girls differed in what they initially focused on during social fantasy play. The initial transformations observed in girls were more often identity-related, while the boys more often initially focused on object play. This difference in how the boys and girls initiated pretend sequences showed a tendency of being differentially related to age for boys and girls. Older boys, more often than younger boys, tended to initiate pretend sequences with object play while older girls tended more often than younger girls to initiate pretend sequences with identities. These sex differentiated age trends were only tendencies in the data, however they suggest that the differences in how boys and girls initiate pretend sequences may become greater as children approach the age of five. However, a more conclusive test of this hypothesis would be the analysis of sex and age differences in initial transformations during social fantasy play sequences that included both identity and object transformations. This type of analysis would not be confounded by the sex differences in overall frequency of object use and identity transformation and would therefore be a stronger test of the hypothesized sex differences in initial transformations.

The finding that boys initiated pretend sequences more often with object use than with identity transformations casts some doubt on the hypothesis that differences in boys' and girls' object play are due to sex-differentiated preferences for certain roles. As stated previously, this hypothesis states that the girls' preference for familial roles may lead to a greater use of objects as props because toys associated with this role are usually available. Boys, on the other hand, prefer character roles and toys associated with these roles are often not available, therefore necessitating the substitution of objects. An implication of this hypothesis is that identity transformations precede object play in pretend sequences for both sexes. However, the present study suggests that on the average pretend sequences are initiated as often by object play as identity transformations and that the mode of entering fantasy play for boys is through objects rather than through identities.

The sex differences in amount of object use, amount of identity transformations and initial transformations may be products of the socialization process. Maccoby and Jacklin (1974) have proposed that boys are geared toward the utilization of objects in their environment more than girls, while girls are geared toward an interpersonal orientation more than boys are. Therefore, the boys' and girls' differential emphasis on identities and object use during social fantasy play may well be a reflection of more generalized orientations in boys and girls.

The boys and girls demonstrated divergent preferences for particular roles and object uses as well. Boys preferred enacting a variety of roles of a fictional or occupational nature and used more substitutions of objects during their play. The girls preferred

familial roles and used replica toys as props to a greater extent than the boys. These findings confirm previous studies in this area. When the use of objects was examined within each sex, the boys were noted to show a strong preference for substitution of objects over the use of objects as props. The girls, however, showed approximately equal use of objects as props or in a substitute manner.

The sex differences in the quantity and quality of social fantasy play observed in the present study were stable throughout the age groups. In contrast to previous studies by Connolly (Note 1) and Connolly, Doyle and Ceschin (in press) but consistent with McLoyd (1980), no age-related changes were found. This absence of developmental trends may be due partly to the small age range of the children studied. In the present study, the children's ages ranged form 45 to 63 months, whereas the study by Connolly (Note 1) included children between 36 and 69 months of age. The age differences found in the Connolly study indicate that perhaps it is the 3 - 4 year old children who differ from the 4 - 6 year old children, and that 4 - 6 year old children are relatively homogenous in terms of their social fantasy play abilities. McLoyd (1980) suggests that age-related changes in social fantasy play occur at an earlier age than studied in his and the present project. In summary, then, sex was a more critical factor than age in determining the individual differences in the children's social fantasy play.

The sex differences in boys' and girls' role preferences confirm the findings of previous studies (McLoyd, 1980, Smith, 1977; Connolly et. al., in press). The implications of such sex differences have received much attention. Certain authors have differentiated the roles children enact into two categories: anticipatory and fantastical roles

(McLoyd, 1981). Anticipatory roles refer to roles the child might realistically adopt or encounter in later life, while fantastical roles are roles which are fictional in nature. Since girls demonstrated anticipatory roles (of a familial nature) to a greater extent, whereas boys demonstrated fictional roles to a greater extent, it has been hypothesized that the role enactment of the girls better serves to prepare them for adulthood than the role enactment of the boys.

Alternatively, Maccoby (1959) has remarked that the child acquires the male and female sex-typed behaviors that he or she plays at or exercises during play, thus making social fantasy play a medium for socialization. The present data suggest that little girls are generally focusing on familial roles and practicing domestic and caregiving skills. Girls therefore may be limiting themselves to the acquisition of the traditional roles of women in society, while boys practice being a variety of occupational and fictional characters during fantasy play. However, either hypothesis suggests that social fantasy play is indeed a channel for children's socialization; thus these sex differences may have implications for future role preferences in boys and girls.

Existing literature generally suggests that the use of objects in a non-realistic manner is a more mature form of object play (Lowe, 1975; Overton and Jackson, 1975). If so, in the present study then boys demonstrated more mature forms of object use during spontaneous social fantasy play than girls did. In the past, this difference has been explained by one of two hypotheses. One hypothesis is that this sex difference reflects a greater cognitive flexibility in boys. A second hypothesis is that boys and girls may be equally flexible in using objects as substitutes, but boys may demonstrate more object

substitutions because they do not have available the toys necessary for the enactment of their preferred themes (e.g., guns or spaceships). The girls, however, prefer familial roles and replica toys associated with these roles are available in the day-care. The girls thus may not need to substitute objects or invent objects in order to enact their pretend roles or themes as the boys do. The present data indicate that boys generally initiate pretend sequences with object play rather than identity transformations, thus casting doubt on the toy availability hypothesis. An analysis of boys' and girls' object use when playing with replica toys that permit preferred themes for both sexes would be helpful in clarifying this issue of toy availability versus maturity. An examination of differences in the type of object uses boys and girls demonstrate during each identity type will also help clarify the issue of whether observed sex differences in object substitutions are a function of role preferences and toy availability versus maturity. If boys and girls differ in the amount of substitutions during all three types of identity transformations, then a stronger case can be made for the maturity hypothesis.

Activity levels during boys' and girls' social fantasy play were compared in order to determine if sex-differentiated fantasy play might be partially attributable to activity level differences. The only overall sex difference obtained was in mean speed. The boys generally played at greater speeds than the girls. This finding is consistent with those of Pulaski (1970) and Maccoby and Jacklin (1974). The findings that boys and girls differ in their speed during social fantasy play, but not in the amount of gross motor activity or distance, are interpretable via Maccoby and Jacklin's (1974) remark that although boys

show more "bursts of strenuous activity", girls and boys are otherwise not different in the activity levels they play at (i.e., distance covered). The boys' overall greater speed during social fantasy play may therefore be a reflection of these "bursts" of activity during play in general.

When the activity levels within each type of identity transformation were examined, either significance or trends for the identities main effects and the sex by identities interactions were found. In general, the boys played at higher speeds than girls when enacting character and functional roles.

There was a trend in the data suggesting that boys were somewhat more mobile (demonstrated greater distances) than girls during character and functional roles. Inspection of the mean speed and distance for the boys and girls within each identity type indicated that the only identity type in which the girls demonstrated greater amounts of speed and distance than boys was with familial roles. However, these differences were not statistically significant and thus only suggestive.

There were no differences in the boys' activity levels across the three types of roles. When the activity levels of the girls across the three types of roles were examined, they demonstrated greater speed and more mobility when enacting familial roles. To summarize, the girls tended to play at a faster pace and in a larger area during their preferred roles (familial identities). Boys, however, showed no differences in their activity levels across the three identities. When the sex differences in activity levels were closely analyzed, certain trends in the data suggested that they may be a result of the boys'

greater speed and mobility than the girls' during character and functional roles. Therefore, it may be that sex differences in speed and distance were in favour of preferred roles for both boys and girls. Initially, it was hypothesized that boys may prefer character roles because these roles, per se, were associated with greater activity levels. However, the present findings suggest that this viewpoint may not be correct. Character roles were not associated with greater activity levels than familial or functional roles when enacted by boys. Furthermore, when engaged in by girls, functional and character roles were associated with lower activity levels than were familial roles. It does not seem plausible, therefore, that sex differences in activity level determine sex differences in identity transformations. In fact, far fewer sex differences in activity level than in social fantasy play were found.

The correlational analysis of the boys' and girls' sex-typing revealed that feminine sex-typing was clearly related to certain social fantasy play styles in both boys and girls, whereas masculine sex-typing was not. Feminine sex-typed girls were involved in more social fantasy play sequences and made fewer object substitutions. Feminine sex-typed boys enacted familial roles and made fewer object substitutions. Although feminine sex-typing is partly consistent with recorded sex differences (e.g., girls prefer familial roles and utilize objects as props to a greater extent than as substitutions) there are certain discrepancies. The positive correlations of feminine sex-typing with social fantasy play and character roles suggests that sex differences in social fantasy play may only be partly due to sex-typing.

Children who show a preference for feminine activities in general,

then, also showed definite preferences for certain fantasy play styles, whereas the masculine sex-typed children did not demonstrate any such preferences within social fantasy play. This finding suggests that the sex-typing of "feminine" children generalized, to a certain extent, to the social fantasy play context, while the sex-typing of masculine children did not. A possible implication of these findings is that the feminine sex-role may involve a more specific set of behaviors, activities, and roles than masculine sex-roles. The masculine sex role may be much broader in terms of activities and roles, thus resulting in the present lack of correlations with specific roles or object uses. Further research investigating the variety of roles and themes associated with masculine and feminine sex-typing is needed to clarify the relationship of sex-typing and social fantasy play.

In summary, the present study revealed significant sex difference in the quantity and quality of social fantasy play. The boys and girls differed in the roles they enacted, the way they used objects, the speed they played at, and their mobility during social fantasy play.

Existing research has focused on the relationship between amount of social fantasy play and creativity, cognitive skills, and social competence. Marshall (1961) and Rubin and Maioni (1975) have found correlations between the incidence of fantasy play and peer-group popularity. Fantasy play training has been found to be positively related to creativity (Dansky, 1980; Feitelson and Ross, 1973), language and memory skills (Lovinger, 1973; Saltz, Dixon and Johnson, 1977), the attainment of conservation skills (Golomb and Corneluis, 1977), affective and cognitive perspective-taking (Rosen, 1974; Saltz and

Johnson, 1974), and cooperation (Rosen, 1974). Given that social fantasy play has been found to be a vital channel for the preschool child's social and cognitive skill acquisition, then sex differences in preschool children' social fantasy play may result in divergence in the boys' and girls' social and cognitive development. However, in order to determine if sex differences in social fantasy play contribute to sex-differentiated patterns of cognitive and social skills development, an analysis of which of the specific social fantasy play components is responsible for this relationship is needed. This type of analysis is critical in order to determine if it is the sex-differentiated content of social fantasy play which is the critical factor in this relationship or not.

Connolly, Doyle, and Ceschin (In Press) investigated the relationships between specific social fantasy play components and social competence. Although the fantasy play components associated with social competence were generally the non-sex-differentiated components, two sex-differentiated components, character identity use and susbtitution of objects, were found to be significantly correlated with social competence. These results suggest the importance of encouraging girls to enact character roles and to substitute objects in their social fantasy play.

Another issue which needs clarification is the nature of the sex differences in object uses. Future research should attempt to clarify whether boys and girls play with specific toys in a similar manner. This issue may be investigated by an analysis of boys' and girls' object uses when playing with replica toys that permit preferred themes for both sexes. In this manner, the issue of whether sex differences in

object use is due to identity preference and toy availability may be clarified.

Sex-typing was measured and analyzed in order to determine if preschool children's sex-typing was related to sex differences in social fantasy play. Results indicated that feminine sex-typing was related to a few social fantasy play styles, whereas masculine sex-typing was not. These results suggest that sex differences in social fantasy play are, at most, only partly due to sex-typing, and that other factors underlie sex differences in fantasy play. A second possible determinant of sex differences in social fantasy play, activity levels, was also analyzed. Results indicated that certain roles were not, per se, associated with greater activity levels. Furthermore, far fewer sex differences in activity level than social fantasy play were found. It therefore did not seem plausible that sex differences in activity level determined sex differences in identity transformations.

Further study of sex differences in social fantasy play, and their implications for cognitive and socio-emotional development are needed to extend the findings of the present study.

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APPENDIX A

SOCIAL FANTASY PLAY CHECKLIST

SOCIAL FANTASY PLAY CHECKLIST

DATE: _____ CLASS: _____ OBSERVER: _____

AREA: _____ RELIABILITY: _____

** SPECIFY** NAME PARTICULAR IDENTITY AND OBJECT USED

	NAME								
IDENTITIES	FUNCTIONAL								
	FAMILIAL								
	STEREOTYPIC								
	FICTIONAL								
OBJECTS	PROPS								
	TRANSFORMED								
	INVENTED								
FIRST ACTIVITY	OBJECT								
	IDENTITY								
	GROSS (G) OR FINE (F) SPECIFY								
	SPEED HI-MED-LO								
	DISTANCE <3, 3-8, >8ft								
	# CHILDREN PLAYING WITH (AND SEX)								

APPENDIX B

IDENTIFICATION AND DESCRIPTION OF SOCIAL FANTASY PLAY *

1. IDENTIFICATION OF THE OCCURRENCE OF SOCIAL FANTASY PLAY

The present study focused on social fantasy play only, and not solitary fantasy play. Social fantasy play was defined as the intersection between fantasy play (as defined above) and social interactions (defined as an initiation-response sequence completed within 5 seconds)(Garvey, 1975). The interaction could be verbal or nonverbal. Social fantasy play was, therefore, fantasy play with peers; and thus operationally defined as the transformation of an identity or object which was held in common by two or more children, and in which there was some physical or verbal interaction (Garvey, 1975).

Fantasy play was defined as any play activity involving the transformation of the child's identity, of an object, or of a setting or action plan. Pretend transformations involved the attribution of properties to objects, people, or settings which they did not actually possess. These transformations may range from the animation of a toy (e.g., making a car go "vroom") to a more complex situation involving various role identities. (Building with lego and specifying "I'm making a spaceship" was not considered pretend play; the child had to be animating the toy or refering to a transformation of his/her own identity to score fantasy play. If the child said a block was a cookie, however, this was considered as a transformation of the block and thus was scored as pretend play).

The pretend transformation could be communicated in various ways. The most obvious method was by the child's explicit mention of the particular transformation of his/her identity, of another child's identity, or of an object. For example, a child may say "I'm the

mother, you're the baby". Another verbal form of communicating a pretend transformation was by the negation of the pretend transformation. In this situation, the child could specifically state that a particular transformation was terminated, deny the existence of an imaginary object, or reaffirm the real nature of a situation or object.

Pretend transformations could also be communicated by the very enactment of a role identity. For example, a pretend role could be indicated by any overt representation such as a physical gesture (e.g., hand-waving as if directing traffic), specific acts (e.g., ironing, cooking, driving), vocal quality and content of speech (e.g., scolding, whining), and attitudes (e.g., anger), which is utilized by the child as a characteristic of the adopted role. Enactment included the animation of toys and the ongoing dialogue during the pretend sequence.

The appropriate toy use of replica objects, such as dolls, irons, cars, and toy dishes, could not be considered fantasy play by itself. However, if the appropriate use of such replica toys appeared in conjunction with an assumed identity, then this object use would be scored as fantasy play. If the use of such replica toys occurred alone, then there had to be an accompanying animation of the toy (such as making car noises while playing with a toy car) for fantasy play to be scored.

The occurrence of fantasy play was also communicated by preparatory behaviors occurring just prior to a pretend sequence. Such preparatory behaviors included invitations to play. If the invited child responded in a positive manner and then proceeded to behave in a "fantasy play" manner, fantasy play was scored. However, if the invited child refused,

fantasy play was not scored for the first child since only social fantasy play was scored. The clarification and discussion of roles was also a cue to social fantasy play.

2. THE FANTASY PLAY COMPONENTS

Fantasy play involved the transformation of an identity or of an object or setting. Identities were classified into 4 categories while object transformations were categorized into 3 types. The predominant category or type of transformation was scored during each observation interval for each child. Following is the description of the categories and types of identity and object transformations.

1) Identities -- A child may indicate that s/he has adopted another identity by referring to the assumed role verbally or by referring to another child's complementary role. (For example, a child may say to another child, "Don't cry baby" while patting the child on the head; thus indicating both identities). The assumed role may also be indicated by the manner of speech, movement, use of objects, or by attitudes. There are four identity-types and the predominant one during the observation interval was scored.

Functional Identities are not specifically mentioned by the child. These identities are the agent-receiver type roles occurring within action sequences. The role behaviors are defined by the action itself. Examples are the functional roles of "diner" and "server" in a Dining action sequence. A functional role was scored when the child did not indicate or mention any further role elaboration other than the activity itself. Another example of functional roles is the "chaser"

and the "chased". These complementary roles were scored when one child was chasing another (in the spirit of fun) without any elaboration of an assumed identity other than the chasing behavior. A functional role was thus scored when the pretend identity could not be labelled as a particular role, but only in terms of the ongoing action.

Familial Identities are the roles derived from the family, such as mother, father, husband, wife, baby, sister, brother, grandparent, and pet. These identities are either referred to explicitly by name or by the various forms of enactment (such as speech, content-- saying 'goo-goo' to a baby or scolding a child). If a functional and familial role coincided (such as Server and Mother), the familial role was scored.

Stereotypic Identities are distinguished by occupation, habitual action, attitude or attribute. Examples include a doctor, nurse, fireman, bride, policeman, and mechanic. These identities are roles or characters that the child has encountered in everyday life. Stereotypic identities were scored only if they were specifically referred to by name.

Fictional Identities are roles with proper names which come from storybooks, comic books, or T.V. Examples include Batman, Buck Rogers, Star Wars, Superman, and Santa Claus. These roles are usually referred to by name, and involve some supernatural or extraordinary characteristics. If the children did not verbally refer to the fictional identity, it was not scored under this category.

2) Object Use -- Objects may be used as part of an action sequence

or in addition to an assumed identity. Objects were scored in conjunction with identities or alone as the focus of the pretend play sequence. For example, the animation of a doll was considered pretend and was thus scored.

A child may use an object as a prop, as in the situation of using replica toys in an appropriate manner. For example, the child may pretend to iron with a toy iron. When this use of replica toys occured within the context of an assumed identity, it was scored along with the identity. However, if this use of replica toys occured alone, pretend play was scored only if there was an accompanying animation (as in the situation of making a toy car make motor sounds).

An object may also be utilized in an "as if" fashion. That is, the child can utilize an object as a substitute for something else and assign that object the properties or functions of that other object. A transformed object is therefore treated as if it has properties or functions other than those it actually possesses. Examples of transformed objects are the use of a pot as a hat, the use of a block as a cookie, and the use of a stick as a gun.

Objects may also be invented. For example, a child may refer to an object that is not physically present, and may act as if it were actually present. Examples of such imaginary objects include the use of one's hand as a gun, or pretend cookies on a plate.

Generally, only one identity and one object use, the predominant ones, were scored during the 1-minute observation intervals.

* This manual was taken and adapted from Connolly, Note 1.

APPENDIX C

ACTIVITY SCANNING RECORD SHEET FOR THE SEX-TYPING MEASURE

ACTIVITY LIST

1. Large Blocks
2. Small Blocks
3. Clay & Playdough
4. Puzzles
5. Sandbox
6. Painting
7. Drawing
8. Cutting, Pasting, Stapling
9. Dolls
10. Sink, Stove & Pots
11. Board Games
12. Books
13. Small cars & trucks
14. Lego
15. Pegs & Pegboard
16. Record Player
17. Dressup
18. Blackboard
19. Mirror
20. High Chair
21. Bed
22. Helmets
23. Etch-a-Sketch
24. Abacus
25. Phone
26. Beads
27. Stacking Ring
28. F.P. Schoolhouse
29. F.P. Camper
30. F.P. Clubhouse
31. Other
32. Nothing
33. Talking to Child
34. Talking to Adult

OBSERVER: _____ DATE: _____

CLASS: _____ REL OBSERVATIONS: _____

NAME	1	2	3	4	5	6	7	8

APPENDIX D

Univariate and Multivariate Analyses of Variance Summary Tables: Effects of Sex and Age on Social Fantasy Play and Activity Levels

APPENDIX D

Univariate Analysis of Variance Summary Table: Effects of Sex and Age on Total Amount of Social Fantasy Play

Effect	MS	F (1,44)
Sex	748.732	11.764 ***
Age	27.096	.427
Sex X Age	35.258	.555
W. cell	63.477	

*** $p < .001$

APPENDIX D

Univariate Analysis of Variance Summary Table: Effects of Sex and Age on the Identity Transformation Initiating Social Fantasy Play

Effect	MS	F (1,44)
Sex	1.490	55.752 ***
Age	.009	.342
Sex X Age	.092	3.457
W. cell	.027	

*** $p < .001$

APPENDIX D

Multivariate Analysis of Variance Summary Table: Effects of Sex and Age on Types of Identity Transformations

Sex

Multivariate F (3,42) = 18.027 ***

Univariate F (1,44)	Hypothesis MS	Error MS	F
Functional Identity	.010	.017	.562
Familial Identity	1.296	.025	51.898***
Character Identity	.066	.019	3.436

Age

Multivariate F (3,42) = 1.418

Univariate F (1,44)	Hypothesis MS	Error MS	F
Functional Identity	.057	.017	3.287
Familial Identity	.022	.025	.897
Character Identity	.007	.019	.336

Sex X Age

Multivariate F (3,42) = 1.216

Univariate F (1,44)	Hypothesis MS	Error MS	F
Functional Identity	.008	.017	.446
Familial Identity	.064	.025	2.553
Character Identity	.000	.019	.026

*** $p < .001$

APPENDIX D

Multivariate Analysis of Variance Summary Table: Effects of Sex and Age on Types of Object Use.

Sex

Multivariate F (2,43) = 12.070 ***

Univariate F (1,44)	Hypothesis MS	Error MS	F
Prop	.378	.026	14.438***
Substitute	.774	.032	24.533***

Age

Multivariate F (2,43) = 2.065

Univariate F (1,44)	Hypothesis MS	Error MS	F
Prop	.035	.026	1.321
Substitute	.128	.032	4.068*

Sex X Age

Multivariate F (2,43) = .356

Univariate F (1,44)	Hypothesis MS	Error MS	F
Prop	.018	.026	.698
Substitute	.016	.032	.511

* $p < .05$
*** $p < .001$

APPENDIX D

Univariate Analysis of Variance Summary Table: Effects of Sex and Age on Proportion of Gross Motor Activity

Effect	MS	F (1,44)
Sex	.009	.342
Age	.0001	.005
Sex X Age	.023	.861
W. cell	.027	

APPENDIX D

Univariate Analysis of Variance Summary Table: Effects of Sex and Age on Mean Speed During Social Fantasy Play

Effect	MS	F (1,44)
Sex	.904	16.703***
Age	.0971	1.780
Sex X Age	.028	.515
W. cell	.054	

*** $p < .001$

APPENDIX D

Univariate Analysis of Variance Summary Table: Effects of Sex and Age on Mean Distance During Social Fantasy Play

Effect	MS	F (1,44)
Sex	.179	2.056
Age	.0831	.953
Sex X Age	.003	.036
W. cell	.089	

APPENDIX D

Repeated Measures Analysis of Variance Summary Table for Gross Motor Activity

Between Effect	MS	F (1,36)
Sex	.003	.092
Age	.016	.426
Sex X Age	.022	.601
Subj. w. groups	.037	

Within Effect	MS	F (2,72)
Identities	.128	2.457
Sex X Identities	.170	3.276*
Age X Identities	.057	1.100
Sex X Age X Identities	.019	.362
Identities X Subj. w. groups	.052	

* $p < .05$

APPENDIX D

Repeated Measures Analysis of Variance Summary Table for Speed

Between Effect	MS	F (1,36)
Sex	11.246	26.659***
Age	.294	.698
Sex X Age	.029	.069
Subj. w. groups	.422	

Within Effect	MS	F (2,72)
Identities	4.271	23.058***
Sex X Identities	2.823	15.244***
Age X Identities	.441	2.381
Sex X Age X Identities	.041	.219
Identities X Subj. w. groups	.185	

*** $p < .001$

APPENDIX D

Repeated Measures Analysis of Variance Summary Table for Distance

Between Effect	MS	F (1,36)
Sex	2.626	11.444**
Age	.470	2.046
Sex X Age	.0839	.366
Subj. w. groups	.230	

Within Effect	MS	F (2,72)
Identities	4.102	13.208***
Sex X Identities	.773	2.489
Age X Identities	.403	1.299
Sex X Age X Identities	.044	.142
Identities X Subj. w. groups	.311	

** $p < .01$
*** $p < .001$