THE UNIVERSITY OF CALGARY

# SEX-DIFFERENTIATED PARENT-CHILD INTERACTIONS IN A SAMPLE WITH ONE-YEAR-OLD OPPOSITE-SEX TWINS

by

Gary A. Campagnola

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SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Sex-Differentiated Parent-Child Interactions in a Sample with One-Year-Old Opposite-Sex Twins", submitted by Gary A. Campagnola in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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## ABSTRACT

Children begin to consistently demonstrate sex-differentiated behaviour at about 12 months of age. By age 2 some of these behaviours are firmly entrenched, especially with respect to play activities, and many sex-differentiated behaviours persist into adulthood. Attempts to explain the origins of these differences have evoked theories from biology, cognition, and socialization, all with limited success. The purpose of this study was to explore interactions between parents and same age children of the opposite sex to determine if parents exhibit behaviours which would encourage sex-differentiated behaviours in their children.

Sixteen families with one-year-old opposite sex twins participated in the study. The subjects were videotaped in their homes in a semi-structured play situation, first with the children alone and then with mother and father separately. The parents were also asked to complete a Child Behaviour Questionnaire which asked them to rate a list of behaviours as appropriate for boys or girls. The three play segments were then coded, the questionnaire scored, and the data analyzed for sex differences in child behaviours, sex differences in parent behaviours, sex differences in stereotypical attitudes, and for relationships between attitudes and parent and child behaviour.

With respect to child behaviour the results indicated that the children directed significantly more Attachment behaviours to mother than to father. There was a nonsignificant tendency for boys to play more with neutral toys than

girls and for girls to play more with feminine toys than boys in all situations. With respect to the parent behaviours both parents prohibited boys more than girls, fathers encouraged feminine toy play more in daughters than in sons, and mothers encouraged neutral toy play more in sons than in daughters.

With respect to stereotypical attitudes, from the results of the Child Behaviour Questionnaire, fathers scored significantly higher than mothers but the attitude scores were not correlated with either parent or child behaviour.

Sex role development is a complex process, begins very early in life, and may be reciprocal in nature. This idea of reciprocity would appear to be an important topic for future research.

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I am indebted to the statistical consultants at the University of Calgary for their direction, support and patience with my never-ending list of questions. I am also indebted to my coders who painstakingly coded hours of videotapes.

I would like to acknowledge the Calgary Learning Centre which graciously provided the video equipment, at no charge, for the inhome filming necessary for this study. I would also like to acknowledge the then executive staffs of the Calgary and Lethbridge Multiple Births Associations who volunteered their time and energy to contact member parents and encourage their participation.

I would like to thank the Saskatchewan Department of Health and my supervisor, Mr. Brian Jonsson, who allowed me to take time from work to visit Calgary when needed and to spend some clinic time preparing this document.

Finally I would like to thank those families who were willing participants in this study. Having twins is certainly a time consuming project and I do appreciate

their having allowed me into their homes, when often it may not have been convenient, to videotape their play with their children. I would also thank them for not being too camera shy and for their patience in waiting for these results.

*Dedicated to my wife Pat, for her patience and support throughout this process, to my daughter Nicole .who is all girl, to my son Ryan who is all boy, and to my brother Kevin who was going to follow in my footsteps and is now far ahead of me.*

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# CHAPTER ONE

## INTRODUCTION

Sex differences permeate our society. One approach to studying the origins of these differences is to observe the interactions between parents and children to determine if there are things that parents do to encourage sex-typed behaviour. In one such observational study Snow, Jacklin, and Maccoby (1983) observed fathers interacting with their 12-month-old sons and daughters. They found that the fathers in their sample did encourage some sex-appropriate activities while other sex-differentiated behaviours appeared to occur spontaneously. They concluded that father-child interaction at 12 months of age is already very reciprocal in its sex typed qualities and that an understanding of the origins of the differences in both father and child behaviour will require further research focusing on parent-child interaction in the first year of life.

The purpose of this study is to expand upon the Snow, Jacklin, and Maccoby work by observing both mothers and fathers interacting with both boys and girls (opposite-sex twins) at about 12 months of age, by obtaining a measure of the degree of parental stereotypical attitudes, and by comparing the degree of the stereotypical attitudes to both parent and child behaviour. In this introductory chapter, observable sex differences, and at what age they appear to emerge, will be reviewed. In addition the major theories which attempt to explain the origins of these differences will be briefly discussed as well as how they relate to the purpose of this work.

Behavioural and attitude differences between boys and girls begin to appear somewhere between the first and second year of life (Fagot & Kronsberg, 1982). Some of these sex differences have been observed during the first 12 months but these findings tend to be inconsistent. For example Goldberg and Lewis (1969), Messer and Lewis (1972), and Wasserman and Lewis (1985) found that 12-month-old girls appeared to interact more with their mothers and remain in close proximity in novel situations while Jacklin, Maccoby, and Dick (1973) failed to find this difference.

As children grow older more consistent sex differences emerge. Between the ages of 12 and 24 months boys and girls begin to play more with sex-appropriate toys (O'Brien & Huston, 1985; O'Brien, Huston, & Risley, 1983) and this trend increases with age (Blakemore, LaRue, & Olejnik, 1979).

By age 2 some sex-differentiated behaviours are firmly entrenched. Boys play more with blocks, manipulate objects more, and play more with transportation toys where as girls play more with soft toys and dolls, dance, and ask for more help (Fagot, 1978a). Between the ages of 2 and 3 children can describe stereotypical roles, i.e. what differing behaviours boys and girls should engage in (Kuhn, Nash, & Brucken, 1978).

Between the ages of 3 and 5 boys are found to play more outside, to play more in the sandbox, to play with transportation toys, trikes, cars, and to be physically aggressive. Girls play more indoors, play with dolls, in the kitchen, with paints, or do art work (Fagot, 1978a; Fagot & Patterson, 1969; Lott, 1978) but are

somewhat more likely to play with masculine toys than boys are to play with feminine toys (Schau, Kahn, Diepold, & Cherry, 1980). Boys, more than girls, are found at this age to make statements that express their personal desires and assert leadership (Cook, Fritz, McCornack, & Visperas, 1985). They are also more likely to take risks (Ginsburg & Miller, 1982), engage in negative behaviours (Roopnarine, 1984), tend to be more heavy handed in disputes, and engage in more solitary pretend play and less pretend play overall (Wall, Pickert, & Gibson, 1988). Girls at this age engage in more collaborative negotiation in disputes (Sheldon, 1990), are more likely to offer help (Lott, 1978), and engage in more pretend play than boys (Black, 1989).

From ages 5 through 11 these sex-differentiated behaviours persist with boys continuing to be more active and aggressive and girls being more socially aware and nurturant (Blakemore, 1981; Tauber, 1979a). These differences appear in their fantasy play as well (Libby & Aries, 1989).

Stereotypical play in girls appears to peak about age 7 although they are still less stereotyped than boys and at age 11 will still engage in more male games than boys will engage in female games (Meyer, 1980). This trend continues into adulthood (Bem & Lenney, 1976; Lever, 1976).

Sex differentiation exists in domains other than children's play. Maccoby & Jacklin (1974) concluded from their review of the literature that boys excel in visual-spatial ability, do better in math, and are more aggressive. Girls have greater verbal ability. Although some of Maccoby and Jacklin's conclusions have

been challenged (Block, 1976) the debate appears to be more over the magnitude and origins of these differences than their existence.

Other arenas where sex differences are studied include empathy (Eisenberg & Lennon, 1983), women's influenceability (Eagly, 1983; Eagly & Carli, 1981), helping behaviour (Eagly & Crowley, 1986), moral development (Baumrind, 1986; Cohn, 1991; Walker, 1984, 1986) and attitudes about success (Meyer, 1980) to name a few.

As Martin and Halverson (1981) suggest, gender stereotyping may not necessarily be a faulty process, only a process. It is true that in some situations whether one is acting according to a gender stereotype or not may not be important. There are some sex differences, however, that are not so innocuous. Being masculine, feminine, or androgynous may restrict an individual's range of choices in a given situation (Bassoff & Glass, 1982; Bem, 1974, 1975), and mental health appears more related to masculinity than femininity (Taylor & Hall, 1982; Whitley, 1983). Boys have a higher incidence of behaviour problems in childhood and adolescence (Eme, 1979; O'Conner, Foch, Sherry & Plomin, 1980), females report more overall depression (Worchel, Nolan, & Willson, 1987) and women have a higher incidence of clinical neurosis (Eme, 1979). More men commit violent crimes, are in prison, and abuse children. More women are victims of these men. It appears that an understanding of the origins of sex differences is essential if there is to be a significant change in our social situation.

Three major theories have been proposed to explain the origins of sex

differences. These include biological theories, cognitive learning theories, and social learning theories.

Theorists proposing a biological basis to sex differences suggest that there may be innate differences which lead to differences between the sexes (Lytton & Romney, 1991; Plomin & Rowe, 1979; Stevenson & Fielding, 1985). Indeed different chromosomes lead to differential development from a few days after conception and different hormones play a part throughout the lifespan. Males are more vulnerable than females to many illnesses, are physically heavier, longer or taller, have a higher basal metabolic rate, and a greater vital capacity (Hutt, 1972).

That biological differences may have a role in sex-role development is supported by Yalom, Green, and Fisk (1973) who found that males exposed to estrogen during the prenatal period were less aggressive, less masculine, and were more similar to females on movement and field dependence tests. Rowe (1982) also believes that masculinity has a genetic component although a genetic component for femininity was not found.

A biological basis to sex differences may explain the four major sex differences reported by Maccoby and Jacklin (1974). They reported differences in visual-spatial ability, mathematical ability, verbal ability, and aggression.

With respect to visual-spatial ability, although differences are consistently found (Tracy, 1987), Hyde (1981) indicates that sex differences account for only 4% of the variance in visual-spatial ability.

Differential brain asymmetry is one area that has received some attention with respect to visual-spatial functioning (Languis & Naour, 1985). The premise is that greater hemispheric specialization leads in males to greater ability in visual-spatial tasks. McGlone (1980) also presented evidence in this regard although the commentaries which immediately follow McGlone's article suggest that there is a great deal of controversy over the matter and Bouchard and McGee (1977), Jardine and Martin (1984), Linn and Peterson (1985), and Safir (1986) reported evidence for a stronger environmental than biological basis for differences in visual-spatial ability.

Sex differences account for only 1% of the variance in mathematical ability, appear only in high school (Aiken, 1972) and only at some high schools (Fennema & Sherman, 1977). Attitudes (Hilton & Berglund, 1974; Krendl, Broihier, & Fleetwood, 1989; Stevenson & Newman, 1986) or experience (McClurg & Chaille, 1987) may be more involved than ability or lack of ability (Benbow & Stanley, 1980, 1983; Martin & Hoover, 1987).

With respect to verbal abilities Cox and Waters (1986) discovered that the use of organizational strategies in verbal tasks showed a developmental trend in which boys lagged behind girls in grades one through five. It appears, however, that the differences accounted for are small (Hyde, 1981) and appear to be decreasing (Hyde & Linn, 1988) and that in other cultures males tend to have greater verbal abilities which would suggest a stronger environmental impact (Roe, Drivas, Karagellis, & Roe, 1985; Safir, 1986).

With respect to aggression, despite boys' tendency towards greater aggression in almost all studies, the debate continues (Maccoby & Jacklin, 1980; Pederson & Bell, 1970; Tieger, 1980). Boys are more aggressive in almost all cultures and at all ages. Boys also attend significantly more than girls to high action and high violence programs (Alverez, Huston, Wright, & Kerkman, 1988).

Hyde (1984) reports, however, that only 5% of the variance in aggression is due to gender differences. Also girls do learn aggressive responses but for some reason do not act them out (Bandura, 1965; Eron, 1980) and especially not against boys (Addison, 1986). And boys' aggression is more against boys than girls regardless of the origin of the act precipitating the aggressive response (Barrett, 1979; Fagot & Hagan, 1985). It appears that boys may be learning that aggression gets them what they want (Smith & Green, 1975) while girls are learning that aggression should be avoided because it causes harm to others (Boldizar, Perry, & Perry, 1989; Eagly & Steffen, 1986).

Biological theories would suggest that sex differences exist because of differences between males and females in physiology and chemistry. Sex differences do exist which appear to have a biological basis although these differences tend to be small and in some cases actually decreasing over time. They cannot, however, be ignored as one of the factors contributing to the development of sex-typed behaviour.

Cognitive learning theory is a second model that has attempted to explain differences between the sexes. The premise for these theorists is that children

develop an ability to identify themselves as male or female, and then use information from biology and the environment to learn socially acceptable behaviour (Lewis & Weinraub, 1979). Children begin with elementary labelling, move towards a condition of gender permanence and then to constancy (Eaton & Von Bargen, 1981) first for themselves and then for others (Gouze & Nadelman, 1980). This process is facilitated by a gender schema - a cognitive structure that organizes and guides perception (Bem, 1981a, 1981b; Cann & Newbern, 1984).

Children who have developed a gender schema or at least some degree of gender constancy tend to pay more attention to models acting appropriately for the child's own sex even if that model is of the opposite sex. (Perry & Bussey, 1979; Slaby & Frey, 1975). Although there is some evidence that children may achieve some degree of gender constancy between the ages of 3 and 4 (Bem, 1989; Cowan & Hoffman, 1986; Etaugh, Grinnell, & Etaugh, 1989; Martin & Halverson, 1983), most of the information we have so far indicates that gender constancy is not fully developed until age 5 or 6 and by that time sex-stereotyped preferences are firmly entrenched (Condry, 1984; Eisenberg, Murray, & Hite, 1982; Emmerich & Shepard, 1984; Fagot, Leinbach, & Hagan, 1986; Katz, 1986; Marcus & Overton, 1978; Serbin & Sprafkin, 1986).

Cognitive theory would suggest that children develop a schema which allows them to process incoming information in terms of deciding whether observed behaviours are appropriate for their sex or not. Although sex appropriate behaviours are demonstrated before gender constancy emerges it is

possible that some rudimentary schema may be developing which begins to guide behaviour very early. Fagan and Shepherd (1982) and Fagan and Singer (1979) have demonstrated that 5-month-olds can distinguish between male and female faces. Cognitive guidance of sex-differentiated behaviour cannot be ruled out even at 12 months when consistent differences begin to emerge.

It is possible that biology makes a contribution to some sex differences and that a certain amount of cognitive development may be required for role acquisition and may become more important at older ages of development (Perry, White & Perry, 1984; Smetana & Letourneau, 1984) but it appears that something is providing the information necessary for sex-role development. Sex-role socialization is the third model examined to help in the understanding of the development of sex roles.

There is considerable support for the idea that the family is a crucial context for the learning of sex-differentiated behaviour (Baumrind, 1980; Block, 1983; Hoffman, 1977; Honig, 1983). Socializing consists of parental attempts, either through modelling or reinforcing, to influence the behaviour of the child. There is evidence that parents do differentially socialize some sex differences. Lytton and Romney (1991) conducted a meta-analysis of parents' differential socialization of boys and girls. They examined amounts and types of interaction with children, encouragement of achievement, warmth, nurturance, and responsiveness, encouraging dependency, restrictiveness, disciplinary strictness, encouragement of sex-typed activities and sex-typed perception, and clarity of

communication or use of reasoning. There were trends in the expected direction for parents to encourage achievement, be restrictive, meet out discipline more to boys, and show warmth and encourage dependence slightly more to girls, but these trends were nonsignificant.

Overall they found few differences in the ways that parents socialized boys and girls except for encouraging sex-typed activities. Parents did encourage sex-appropriate activities for boys and girls. The question remains, however, as to whether parents are responding to what they observe in their children, which Lytton and Romney conclude may be a possibility, or whether they are socializing these differences because of their own attitudes and beliefs.

The literature on the socialization of sex differences by parents will be reviewed extensively in Chapter Two. It must be remembered, however, that there are other socializing influences, for example peers (Fagot & Patterson, 1969), and the media (Eron, 1980), that can have a significant impact.

In the introduction to their work Snow, Jacklin, and Maccoby (1983) indicated that there was ample evidence that fathers differentially socialize boys and girls but that it was not clear whether fathers are acting out of their own belief sets or were responding to what they saw in their children. They concluded that sex-differentiated interactions were reciprocal in nature and that the children in their study may have had some influence on the fathers' behaviour.

In the current study both the behaviours of the parents with respect to socializing practices and the behaviours of the children with respect to self-

direction will be explored. Although the focus is primarily on socialization, things parents do to encourage sex-appropriate behaviour, the possibility of a biological or cognitive influence on children's behaviour is not ignored. The methodology used here, however, limits interpretations in those areas and only provides suggestions for further research.

# CHAPTER TWO

# REVIEW OF THE LITERATURE

This review of literature is not meant to be exhaustive but representative of the findings to date having to do with sex differences in young children and the sex-differentiated treatment they receive from parents. The first portion of this review will examine differences between boys and girls in the first year of life to see if there are any differences existing prior to 12 months of age, differences that parents may be responding to. Following will be a review of parental differences in child treatment and then a review of the measurement of adult stereotypical attitudes and their relationship to adult and child behaviours.

## SEX-OF-CHILD DIFFERENCES

Numerous behaviours have been examined in the first year of life to see if sex differences exist. As noted in the introduction sex differences begin to consistently emerge around 1 year of age. If parents are responding to sex differences that they perceive in their children then these differences should be apparent prior to 12 months. To explore these differences researchers have studied neonatal muscular strength, activity levels, and hand-to-mouth behaviours. At about 3 months of age more interactive behaviours are examined including infant facial expressions while interacting with mothers. Closer to 12 months of age more behaviours become available for study including both interactive and individual play activity, attachment behaviours, and attempts to communicate.

Bell and Darling (1965) studied the prone head position (PHP), which they interpret as showing muscular strength, in neonates between 73 and 86 hours after birth. There was a slight trend for males to increase in PHP and for females to decrease between 73 and 86 hours but the results were not significant.

Korner (1973) filmed 32 caucasian neonates between 45 and 88 hours old to examine sex differences in the infants' style of hand-to-mouth behaviours. Girls exhibited significantly more frequent mouth dominated approaches although there were substantial individual differences within groups. That this indicates that females are more orally oriented, however, has yet to be demonstrated. In a further study Korner, Hutchinson, Koperski, Kraemer, and Schneider (1981) placed infants on a foam mattress designed to record a number of infant behaviours. No significant sex differences in infant cry/noncry activity were found, nor were males more vigorous or active.

Rubin, Provenzano, & Luria (1974) studied parents' reactions to newborns the results of which will be discussed later. It is noteworthy here that there were no sex differences in newborns' birth weight, or APGAR scores.

Malatesta and Haviland (1982) observed a sample of 3- to 6-month-old infants interacting with their mothers. They found that with respect to infant facial expressions female infants showed more interest in faces than males, and males displayed fewer types of expressions.

In a still face situation, which consists of mothers interacting with their infants, then showing no expression for a specified period and then resuming

interaction, Carter, Mayes and Pajer (1990) observed 3- to 4-month-old infants interacting with their mothers. They found that maternal positive interaction prior to the still face segment resulted in different responses from girls and boys. For girls maternal positive interactions prior to the still face segment were associated with decreased infant negativity (crying and fussing) during the still face segment and longer time delays to the infants' first positive affect afterwards. Infant boys, however, made more positive bids (smiling and vocalizing) initially in the still face segment but then made more negative bids (crying and fussing) afterwards and showed more negative affect.

Other authors have similarly observed mother infant interactions at around 6 months. Bates, Olson, Pettit, and Bayles (1982) observed infants and mothers both at home and in the lab. On the dimensions examined which included motor activity, smile, manipulative activity, positive vocalization, oral activity/exploration, reach for and gaze at mother, frown, and fuss or cry, there were no sex-of-child differences. Belsky, Gilstrap, and Rovine (1984) observed parent-child interaction longitudinally from 1 to 9 months of age. Although there were age differences no sex differences were found in the variables fuss/cry, smile/excite, explore, and sleep.

Crawley et al. (1978) observed 4-, 6-, and 8-month-old infants interacting with their mothers in the laboratory. The purpose of this study was to examine the developmental trend of play behaviour. Mothers matched their choice of games to their child's developmental level but there were no sex differences in the

types of games or the infants' responses.

Corter and Bow (1976) studied 9.5- to 11-month-old infants in a type of strange situation in order to observe differences in mothers' responses to infant distress. They successfully induced stress in most infants by having mothers leave the infants alone. No sex differences appeared in infant distress signals.

Although no physical differences in infants are apparent at birth, over the space of the first year boys generally grow heavier, taller, show more rapid psychomotor development, and are less coordinated than girls (Bee, Mitchell, Barnard, Eyres & Hammond, 1984). By 12 months other sex differences begin to emerge. Play behaviour begins to show sex-of-child differences. Roopnarine (1986) observed children 10- to 18-months-old interacting with their parents. Girls were more likely to play with dolls and to give dolls to parents.

Zelazo and Kearsley (1980) observed infants ranging in age from 9.5 to 15.5 months in a free play situation in the laboratory. The children had access to toys from three categories, masculine, feminine, and neutral. Although both boys and girls played more with neutral toys overall, boys played less with female toys than girls and girls played less with male toys than boys.

Snow, Jacklin, and Maccoby (1983) also observed play behaviours in 12-month-olds. In their study boys touched tempting objects more than girls and boys who were given dolls played less with the dolls than girls who were given dolls. Caldera, Huston, and O'Brien (1989) found that the boys and girls in their sample of slightly older children also played more with sex-appropriate toys.

In one oft-quoted study Goldberg and Lewis (1969) observed both play behaviour and reaction to frustration in 12-month-olds in the laboratory. Girls were more reluctant to leave their mothers, made significantly more returns to mother, and vocalized more to mother. When a barrier was placed between the children and their respective mothers girls cried more and motioned for help more. Boys on the other hand made attempts to get around the barriers. Toy play was also sex-differentiated with girls choosing toys requiring more fine than gross motor coordination.

Jacklin, Maccoby, and Dick (1973) conducted a similar study with differing results. In this experiment some children were placed on the floor near their mothers (near children) and some children were placed on the floor further from their mothers (far children). During one phase of the experiment a loud angry male voice was also played to induce a level of fear in the children. In a second experiment barriers were not used but the level of intensity of the fear stimulus was altered. The authors suggest that the previously discovered sex differences (from Goldberg & Lewis, 1969) were more a result of experimental condition than actual differences. Far children clung more to the barrier although this was more true for girls, near girls cried more than near boys, and far boys cried more than near boys. No significant differences in toy play were observed except that boys played more with robots. It is difficult to equate and thus compare these two experiments as there are a number of differences between them.

Wasserman and Lewis (1985) conducted a more recent variation of the

same experiment. This time there were two conditions, one in which mother was allowed to interact and a second in which she was not allowed to interact with her children. Girls touched their mothers more and girls remained nearer their mothers during the nonavailable condition. They also initiated more proximity seeking in both conditions. Contrary to one of Wasserman and Lewis' hypotheses boys vocalized more in both conditions.

Differences in attachment behaviours have also been found by Brooks and Lewis (1974) and Ban and Lewis (1974). Brooks and Lewis observed boy-girl twins in the laboratory interacting with their mother. Girls touched, looked at, vocalized to and maintained proximity to mother longer than boys. Girls also tended to play more with the dog and cat while the boys tended to play more with the wooden pull toy although other toys were played with equally.

Ban and Lewis observed mothers, fathers, and infants in the laboratory. They classified attachment behaviours as proximal (touching, proximity seeking) and distal (looking, vocalizing). Both boys and girls directed more proximal behaviours to mothers. For distal behaviours boys looked more at fathers. These authors concluded that if boys are attached to one parent it is likely they will be attached to both, but not so for girls who tended to show attachment behaviours more to one parent than the other.

Lamb (1977a), in his observations of the attachment behaviours of infants from 7- to 24-months-old, found that at 7 to 12 months there were no preferences for either parent but that by 24 months most girls preferred mother and most boys

preferred father. In an additional study of infants and their parents Lamb (1977b) did find sex-of-parent differences in child behaviour. Although infants were equally attached (proximity seeking, touching, approaching, fussing) to both parents they did display more affiliative behaviours (smiling, vocalizing, looking, laughing) to fathers.

Sex differences also appear with respect to attempts to communicate. Klein & Durfee (1978) observed 1-year-old infants both at home and in the laboratory. They found that girls showed more social competence, positive communication, and contact seeking of the mother but that this sex difference only occurred in children who had older siblings. Even with levels of maternal interaction statistically equalized girls showed more positive communication to mothers.

Although the information is inconsistent, sometimes contradictory, and dependent on situations and perhaps even birth order, it appears that the semblances of sex-differentiated behaviours are emerging around 1 year of age. After birth and for the few first months few differences are displayed between male and female infants. Just prior to 12 months children begin to display consistent differences in sex-appropriate toy play, attachment, and communicative behaviours. The next question to consider is whether there are parent behaviours which may be contributing to these emerging behaviour patterns.

## SEX DIFFERENCES IN ADULT BEHAVIOUR

If parents are displaying differential treatment of their sons and daughters

which could lead to sex-differentiated child behaviour it is possible that it would begin in very early childhood, prior to the emergence of observable differences and would possibly continue beyond the toddler years. This review of adult behaviours will begin with observations completed shortly after the birth of the child and continue beyond toddlerhood. As the nature of parent-child interactions change somewhat, corresponding to the developmental changes in the child, this review will be reported in stages beginning with the first 6 months, then 6 months to 18 months, followed by 18 months to 24 months, and finally 24 months and beyond. Although the older age toddler groupings are beyond the scope of this study they are included to demonstrate consistency in sex-role socialization during the preschool years.

Within the First Six Months:

Research on differences in parental behaviours in the first six months of a child's life has focused on differences in how they perceive their children and how they interact differentially with boys and girls. Most of the activities studied include parental caretaking, stimulating, and play.

At birth parents appear to perceive their children quite differently despite a lack of observable differences between boys and girls. Rubin, Provenzano, and Luria (1974) asked parents to rate their newborn infants. There were no significant sex differences for birth weight, length, or Apgar scores. Fathers rated daughters as softer, finer featured, more awkward, weaker, less attentive, cuddlier, and more delicate than sons. Fathers rated sons as firmer, larger featured, more

alert, stronger, and hardier. Mothers agreed with fathers' ratings for size of infant and for size of features. They were less discriminatory than fathers for the variables firm-soft and alert-inattentive in that they rated sons and daughters about the same. Mothers did, however, rate sons as cuddlier, weaker, and as more delicate.

Parents also appear to respond and interact differently in some ways with sons and daughters. Malatesta and Haviland (1982) studied face-to-face interactions with 3- and 6-month-old infants and their mothers. They found that mothers matched facial expressions of males more than females even though the girls showed more interest, and discouraged males nonmatching responses more. Tronick and Cohn (1989) found similar results. The boys in the Malatesta and Haviland study, however, showed a narrower range of expression than the girls and mothers may have been trying to increase male expressiveness.

There is some evidence that mothers of boys tend to hold their infants more where as mothers of girls tend to vocalize more to their infants. Moss (1967) discovered that mothers in his sample held male infants (1- and 3-months-old) more than female infants and vocalized more to female infants including imitating female vocalizations. There were sex differences in the amount of fuss/cry favouring boys which were thought to explain why mothers held the boys more but these differences were not replicated in further studies (Moss, 1974).

The sex-of-child differences that mothers appear to make may be

confounded by additional variables. Thoman, Leiderman, and Olson (1972) found that primiparous mothers spend more time talking to girls and feeding boys but that multiparous mothers spent more time feeding girls and talking to boys.

Lewis (1972) examined mother-infant interaction for specific sex differences. His sample consisted of 32 mother infant pairs (3-months-old) from diverse backgrounds observed in their homes. There were no significant sex differences in child behaviour. Mothers of boys held, touched, and rocked their children more than mothers of girls. Mothers of girls vocalized more to their infants. Mothers who vocalized and smiled more had children who vocalized and smiled more and cried less. Lewis believed the direction of effects to be from mother to infant. Mothers' behavioural associations with boys included both proximal and distal (referring to distance from mother) associations where mothers' behavioural associations with girls tended to be more distal.

For some reason, however, boys get more than their share of maternal caretaking. Jacobs and Moss (1976) observed first- and second-born siblings in the home when the infants were 3-months-old. There was a decrease in caretaking activity between first- and second-borns, which is to be expected since there are now two children to care for. The decrease was most for second-born girls, next for second-born boys with an older brother, but virtually no decrease occurred when second-born boys had an older sister.

Lewis (1972) also found that mothers of girls responded more quickly to a fret/cry than mothers of boys. Condry and Condry (1976) had similar results with

nonparent adult females but Corter and Bow (1976) found in their sample of mothers that mothers of boys retrieved males more often from a distress situation.

Not only do mothers care for children, fathers do as well. Field (1978) and Parke and Suomi (1980) both reported that they found that fathers were involved with their children. Parke and Suomi (in reviewing several studies coauthored by Parke) reported that the fathers in their studies engaged in all sorts of infant caretaking and interactive behaviours.

There appear to be differences, however, in the ways that fathers and mothers interact with their children. Levy-Shiff, Sharir, and Mogilner (1989) found in their observations of parents interacting with preterm infants in the hospital that mothers spent more time caretaking while fathers spent more time playing and stimulating their infants. This behaviour difference continues throughout the first year (Lamb, 1977a) and beyond (Clarke-Stewart, 1978).

Belsky, Gilstrap, and Rovine (1984) reported that although fathers are involved in caretaking and are aware of developmental change, the mothers in their study spent more time engaging infants, were more responsive, stimulating, and positively affectionate. Fathers spent more time reading and watching T.V.

When fathers interact they tend to interact more with males. Parke and O'Leary (1976, reported in Parke and Suomi, 1980) found in hospital-based observations that fathers touched and vocalized more to firstborn boys. Rebelsky and Hanks (1971) found that while fathers' vocalizations were initially high to both sexes, they decreased over time and the decrease was more noticeable in

fathers of girls.

These differences persist even when fathers are the primary caregivers. Field (1978) examined the differences between mothers, primary caretaker fathers and secondary caretaker fathers. There were no significant differences between the various groups of parents for talking or grooming/caretaking. There were sex-of-parent differences in others areas, however, in that mothers of infants engaged in more holding of infants' limbs and fathers of infants engaged in more game playing and poking. Also, fathers of sons engaged in more game playing and less high pitched vocalizations than fathers of daughters.

Lamb, Frodi, Hwang, Frodi, and Steinberg (1982) compared the parent-child interactions of parents who were role reversed (fathers who were primary caretakers, mothers who were away at work) with traditional parents. Mothers were still more likely to hold, tend to, vocalize to, smile at, and display affection than fathers.

In summary, in the first few days of life parents rate their children differently despite noticeable differences, mothers match facial expressions more with boys than with girls, they hold boys more, vocalize more to girls, and take on more of the caretaking role than fathers. Fathers are highly involved but tend to play more with infants than do mothers and their play tends to be more with boys than with girls.

Six Months to Eighteen Months:

As children grow the nature of caretaking activities changes although both

parents remain very much involved with their infants. The focus of sex-differentiated socialization studies for this age group includes caretaking, teaching styles, play, and discipline.

Landerholm and Scriven (1981) videotaped parents interacting with their 6-month-old infants in their homes. The parents were instructed to complete 10 tasks with their infant. They found that both parents exhibited significantly more physical contact with boys, used more object/material play with girls, and that the mothers showed more social/verbal stimulation with their children than did the fathers. Belsky (1979) also found that mothers do more stimulating and caretaking and Smith and Daglish (1977) found that fathers are more likely to play.

With older children the extra attention that boys appear to receive gives way to a situation in which, when both mothers and fathers are studied together, mothers tend to interact more with daughters and fathers more with sons. Belsky (1979) observed the interactions of mothers and fathers with infants 15 months of age in their homes. He found that in his sample mothers did more of the caretaking but that other differences were minimal or non-existent and that mothers tended to interact more with daughters and fathers tended to interact more with sons. Lamb (1977a) also found that fathers interacted more with sons and Gunnar and Donahue (1980) found that mothers interacted more with daughters. In the Gunnar and Donahue study, however, daughters were more likely than sons to initiate interactions.

As children grow their play styles change and parental interaction styles keep pace. Differences still exist, however, in how mothers and fathers interact with boys and girls. Power (1985) tracked changes in parental and child play from ages 7 to 13 months. As children grew older mothers spent more time directing the exploration of girls and less time directing boys. Mothers were also more likely to follow a child's curiosity. Fathers were more likely to be directive and interfering and to impose their will.

Snow, Jacklin, and Maccoby (1983) observed that fathers encouraged sex-typed play in the 12-month-old infants they observed. Fathers, in their study of play interactions between fathers and 1-year-olds, were more likely to give all toys to girls but were not likely to give boys dolls. As noted earlier one interesting finding which will be discussed later was that the boys in this study who were given dolls did not play with them for very long.

Roopnarine (1986) also found that parents were more likely to attend to the block play of sons and fathers were more likely to attend to the doll play of girls and give dolls to girls. Girls were more likely to play with dolls as well.

Around 1 year of age children are more likely to get into mischief and need some direction from their parents. It appears that in this dimension boys and girls are treated differently as well. Smith and Daglish (1977) found that parents punished and discouraged boys more. Maccoby, Snow, and Jacklin (1984) observed mothers and infants first at 12 and then 18 months and found that mothers used more physical manipulation with boys and a more negative teaching

style. Beckwith (1971) found that mothers of lower socioeconomic status treated sons more restrictively.

In summary, although the nature of interactions have changed somewhat from the previous age category differences in how parents interact with boys and girls appear to continue. Mothers do more caretaking than fathers and fathers tend to play more than mothers. Mothers tend to interact more with girls, which shows a slight shift from their behaviour in the first 6 months, while fathers tend to interact more with boys. Fathers appear to encourage more sex-appropriate play than mothers and boys tend to receive more discipline from both parents.

Eighteen Months to Twenty-Four Months:

It appears that parental behaviours do show sex-of-child differences at least for the first 18 months of the child's life. Research with the 18- to 24-month-old age group focuses on verbal interactions, play activities, teaching styles, and discipline. Some researchers have begun to look at parents' more subtle reactions to child behaviour as well as the more overt behaviours usually observed.

With respect to communication Cherry and Lewis (1976) observed 6 mother-daughter and 6 mother-son dyads in the laboratory for 15 minutes of interaction. Mothers of girls talked more, were more likely to ask questions, used more repetition and used longer utterances. There was a nonsignificant trend for mothers of boys to use more commands. Mothers may have been responding in kind, however, as girls talked more. These differences in maternal speech

patterns are not always replicated as Phillips (1973) found no sex-of-child differences in the syntax or vocabulary of mother's speech. The two studies appear, however, to be examining different components of maternal vocal interactions.

Weinraub and Frankel (1977) observed mothers and fathers with their toddlers in the laboratory in a free play situation. They found that the parents in their study vocalized more to, sat on the floor with, and played more with same-sex infants than with infants of the opposite sex. When these mothers interacted with their infants they tended to be in closer proximity and infant vocalization was related to maternal looking and talking suggesting a conversational pattern not apparent with fathers.

Parents continue to distinguish between children in play activities. Eisenberg, Wolchik, Hernandez, and Pasternack (1985) observed toddlers and their parents at home on two separate occasions six months apart. Parents were required to bring toys to the tapings for their children to play with. Parents of boys brought more masculine toys and neutral toys and parents of girls brought more neutral toys.

That parents influence the toy play of children by the toys they provide is suggested by a study which looked at the contents of children's rooms. Rheingold and Cook (1975) found definite differences in the contents of boys' and girls' rooms showing a high degree of stereotyping.

Fagot (1974) observed children at home with their parents. There were

definite sex-of-child differences in the children's behaviour. Girls played with soft toys and dolls, danced, asked for help, and dressed up like adults. Boys played with blocks and manipulated toys or objects. The parents of these children left boys more to play on their own, gave more criticism and praise to girls, and both parents were more likely to join the play of girls. In a later study Fagot (1978b) found similar results but additionally found that boys' play was more likely to be stopped than girls', boys received more positive responses when they played with blocks, girls received more positive responses for doll play, boys received more negative responses when playing with dolls, girls were criticized more for large motor activities, and girls received more positive responses when they asked for help.

Two recent studies have examined parental reaction to children's toy play. Caldera, Huston, and O'Brien (1989) had parents and children from 18 to 23 months of age play in an observation room with masculine, feminine, and neutral toys. Fathers of sons showed more excitement when opening a box of masculine toys and showed less excitement when opening a box of feminine toys. Mothers of daughters showed most excitement when opening a box of feminine toys. As noted previously these children did, however, play more with sex-appropriate toys without parental intervention and the parents did appear to be responding to child initiations rather than initiating play themselves.

Fagot and Hagan (1991) observed parent-child interaction at home when the children were 12 months, 18 months, and 5 years of age. At 12 months boys

received more positive responses for male-typical toy play than did girls, and received more positive reactions for negative and assertive behaviours than did girls. At 18 months boys received more negative reactions for attempts to communicate than girls, more positive reactions for male-typical toy play and negative behaviour, and fewer positive reactions than girls for feminine toy play. Girls received more positive reactions for attempts to communicate. Fagot and Leinbach (1989) and Fagot, Leinbach, and O'Boyle (1992) suggest that parents' affective responses may have more impact on child behaviour than instruction.

Bradley and Gobbart (1989) observed children playing with their parents with a limited number of toys. They reported that fathers but not mothers offered toys appropriate to their child's gender.

Sex-of-child differences in parental discipline have been observed. Minton, Kagan and Levine (1971) found that girls were more often reprimanded for failing to perform a task with competence and boys were more often reprimanded for aggression to mother. Boys showed a higher integrity to household goods meaning that they were more likely to touch things they were not supposed to and more likely to do damage. Mothers reported worrying about daughters being hurt but worried about sons doing damage to household goods. Boys were more likely to resist requests and obey later or be forced to obey.

Fagot (1985) made an interesting discovery when observing toddlers in their homes with parents over a series of sessions rather than just one or two. During the initial sessions boys received more punishment than girls. Over the

later sessions, however, the amount of punishment that boys received decreased suggesting that caution must be taken in interpreting the results of one or even two observations.

In summary, with reference to this age group, mothers appear to talk more to girls. Parents appear to play more with same-sex infants although Fagot (1974) found both parents more likely to play with girls. Parents also appear to encourage sex-appropriate play both subtly and overtly although mothers appear to be less involved in this encouragement than fathers.

Twenty-Four Months and Beyond:

Much of the parental socialization of sex differences research has focused on this older age group and appears to show continued differential treatment of boys and girls. Research with this age group focuses on teaching styles, play, and discipline.

With respect to teaching styles, Frankel and Rollins (1983) found that when parents were asked to help their 6-year-old child with a task that they tended to attempt to teach their sons more problem solving strategies, were more directive with sons, and showed more approval and disapproval. Parents with daughters tended to interact more cooperatively in a concrete and specific fashion and girls were given more feedback about their performance. When mistakes were made mothers were more likely to respond actively to and accept more help-seeking from girls (Rothbart & Rothbart, 1976).

Bee, Mitchell, Barnard, Eyres, and Hammond (1984) found that mothers of

girls tended to use more teaching styles with girls. Chapman (1979) found that mothers used more induction with girls and more commands with boys. Mulhern and Passman (1981) found a sex-of-child by sex-of-parent interaction. The mothers in this study punished sons more intensely than daughters, fathers tended to punish daughters more but mothers were more punitive overall. This interactive pattern between sex-of-parent and sex-of-child in teaching was also reported by McGillicuddy-De Lisi (1988) who found that parents place higher cognitive demands on opposite-sex children.

With respect to affection Noller (1978) observed parents leaving their children at daycare. Parents from single parent families interacted equally affectionately with both sons and daughters where parents from two parent families showed more affection to daughters and fathers showed more affection than mothers. In another naturalistic study (in a shopping mall) Peters and Stewart (1981) found that males sought and received more instrumental behaviour from father while girls sought and received more affectional behaviour, with girls' affection seeking being reciprocated more and ignored less than boys'.

With respect to play, Langlois and Downs (1980) found that the girls in their study were rewarded for same-sex play and boys were rewarded for same-sex play and punished for opposite-sex play. Fathers, more than mothers, encouraged same-sex play in both children. Jacklin, DiPietro, and Maccoby (1984) also observed that fathers encouraged same-sex play with boys and girls. Tauber (1979b) found that parents of boys were more likely to engage in more active play

and parents of girls were more likely to engage in sociable play. Mothers appeared to support physical activity in both sexes while fathers encouraged it only in sons.

With respect to discipline Margolin and Patterson (1975) found that mothers gave the same number of positive responses to both boys and girls but that fathers gave twice as many to sons. Kuczynski (1984) found that mothers in his study used more commands, bargaining, and aversive consequences with boys but that boys were more actively oppositional. Bee, Mitchell, Barnard, Eyres, and Hammond (1984) found that mothers of 2-year-olds were more restrictive and punitive towards sons and that mothers of 4-year-olds provided a safer physical environment with sons.

Cohen, Dibble, and Grawe (1977) found that parents reported using more guilt with girls and that they were more angry and detached with children of the same sex, mothers more so than fathers. Bearison (1979) found that parents reported using more person-oriented injunctions in discipline with the same-sex children with mothers being more person-oriented than sons. Smetana (1989) also found that mothers of girls focused on the consequences of their behaviours especially with regard to the rights and welfare of others while mothers of sons used commands in an attempt to control.

Grusec and Kuczynski (1980) and Grusec, Dix, and Mills (1982) found that mothers used all sorts of discipline measures with children but that these were directed more frequently at boys. McLaughlin (1983), however, found no

differences between mothers and fathers in their controlling strategies towards children and no sex differences in compliance.

That parents treat children differently based on their own sex is also obvious from children's own reports of parental behaviour. Laosa and Brophy (1972) asked kindergarten children questions about their parents. These children saw fathers as more dominant in decision making and in competence and saw mothers as more dominant in limit setting. Girls saw mothers as more nurturant.

Dino, Barnett, and Howard (1984) also asked children to rate their parents' help-giving behaviours. Girls indicated that they received more help than boys, that fathers were more likely to give instrumental responses, that boys were more likely to receive instrumental responses, that mothers were more likely to give expressive responses, and that girls were more likely to receive expressive responses. Parents may have been responding appropriately, however, as although instrumental responses were seen as more helpful overall, girls did report that expressive responses were more helpful and boys that instrumental responses were more helpful.

In summary, parents appear to use different teaching styles with boys and girls, appear to encourage sex-appropriate play although fathers are more involved in this than mothers, and appear to use different methods of discipline with their sons and daughters. Boys and girls report receiving different types of responses from their mothers and fathers.

Although it appears that parents continue differential treatment of boys

and girls beyond the toddler years caution must be exercised in giving any generalized interpretations. Lytton and Romney (1991) found through meta-analysis that when the studies are aggregated significant differences remain only in the area of encouraging sex-typed play and that differences in treatment tended to decrease with the increasing age of the children.

Why parents treat boys and girls differently remains unclear. Although it is possible that parents are merely reacting to and reinforcing what they see in their children there is some evidence that parents are reacting more from a stereotyped position than otherwise.

## ADULT STEREOTYPICAL ATTITUDES

If parents are responding to children according to their own stereotypical attitudes or how they believe boys and girls should or want to be treated then it is possible that there should be some way of measuring these attitudes and then correlating the measurements to observable adult and child behaviours. Three methods have been used to attempt to measure adult stereotypical attitudes about children. In the first method adult parents and nonparents have been asked to rate videotapes of children who are designated as boys or girls when in fact they are the same child or group of children.

Meyer and Sobieszek (1972), for example, asked males and females with either high or low levels of contact with children to rate a 17-month-old child they had seen on film on several male and female characteristics. There were no clear cut results except that both males and females attributed more of the qualities of

both sexes to the child they believed to be of their own sex. Sobieszek (1978) replicated the original study and found that males were slightly more stereotyping but that both males and females rated same-sex children as higher on all attributes and as being more likable. Adults appear to have an affinity for children of their own sex or they see their own sex in a better light than the opposite sex.

In a Gurwitz and Dodge (1975) study subjects who thought they were viewing a boy rated him as more masculine, mischievous, lovable, energetic, loud, extroverted, and as having greater potential for intellectual achievement. Males were more extreme in their ratings. Condry and Condry (1976) found that males with more experience with children and females with less experience with children were more likely to see a difference in the child due to a sex label. Male infant cries in this study were seen as anger where female infant cries were seen as fear. The baby was rated as being more active and potent when labelled male.

Using a slightly different design adults were shown a video of two children playing (Condry & Ross, 1985). The subjects were told they were seeing a boy-boy pair, a girl-girl pair, and a boy-girl pair. The boy-boy pair was seen as the least aggressive and most affectionate and girls who were aggressing against a boy were seen as more potent than boys engaged in the same activity. The authors concluded that boys and girls are judged differently in terms of what constitutes aggression.

In the second method of assessing adult stereotypical attitudes adults have

been asked to interact with a child alternately labelled a boy or a girl. Seavey, Katz, and Zalk (1975) had nonparents interact with a child labelled boy or girl. When the child was labelled a girl a doll was used more for interaction and there was a tendency for males to do this more than females. When the infant was not labelled either boy or girl females interacted more than males. Sidorowicz and Lunney (1980) replicated this study with similar results.

Frisch (1977) had adults interact with several children labelled as male or female. The children designated as males received more encouragement for activity and male role toy choice. The children labelled as female received more interpersonal stimulation and nurturing and it was female subjects who interacted this way more than male subjects. Although there were no sex-of-child differences in behaviour there were some individual differences in child behaviour which seemed to elicit more of the nurturing and interpersonal stimulation.

Bell and Carver (1980) had expectant women interact with infants labelled as boys or girls. In this study infants seen as more awake and active were smiled at more, rated as more robust and active, and infants who were more passive were smiled at less. Passive behaviour resulted in more use of feminine toys by subjects and more infant activity resulted in more use of masculine toys and higher ratings of masculinity. The authors concluded that infant behaviour had a greater bearing on adult behaviour than sex label. Expectant mothers who believed in stereotypes did, however, give a hammer more often to a child labelled as a boy. In another study, this time using mothers who had children of

their own of both sexes, Will, Self & Datan (1976), found that these mothers presented a doll more often to a child labelled a girl.

A third method of measuring the stereotypedness of adults' interactions with children has been to have adults and parents rate children on various measures. Fagot (1973, 1981b) asked parents to rate specified behaviours as appropriate for boys, girls, or both and assigned a score of stereotypedness based on the parents' responses. She found that although many behaviours were rated as appropriate for all children some behaviours were rated as more appropriate for boys and others for girls and that men tended to rate more behaviours as sex-appropriate.

Atkinson and Endsley (1976) found that both parents thought it more important to encourage feminine behaviours in girls and that mothers but not fathers thought it important to encourage feminine behaviours in boys. Birnbaum and Croll (1984) found that working class parents rated boys as higher in anger and that it should be that way. Girls were also rated higher in fear and sadness. Intons-Peterson (1985) found that although 91% of 86 adjectives were attributed to both sexes, fathers rated boys as more athletic, bright, good, and level-headed, where as girls were rated as nice, sweet, peppy-energetic and humourless. These fathers indicated that they used more physical affection with girls and denied privileges and gave the silent treatment more to sons.

Marcus and Corsini (1978) asked parents to predict the level of success of their own daughters and sons on four tasks including bead design, basket throw,

picture memory and drawing. There were no significant sex differences in performance. The fathers' expectation had been that girls would out perform boys on all but the basket throw tasks.

In summary, it appears that adults, both parents and nonparents, and especially males, rate and interact differently with children depending on the ascribed sex of the child. They also rate behaviours as more appropriate for boys and girls and believe that children will have more success at sex-appropriate tasks. The next question to consider is whether or not these attitudes affect their behaviour.

## RELATIONSHIP OF STEREOTYPICAL ATTITUDES TO BEHAVIOUR

Although numerous studies indicate that mothers and fathers differentially rate behaviours and attributes as more appropriate for boys and girls, there has been only limited success in correlating these stereotyped ratings to either parental or child behaviour (eg. Smith & Daglish, 1977). Fagot (1974) did find a modest correlation between parent ratings and child behaviours for girls. Bradley and Gobbart (1989) also found a relationship between gender-typed toy presentation and father's sex-role orientation. No significant relationship existed for mothers.

Using sex roles as a measure of stereotyping Blakemore (1985) characterized subjects as traditional or feminist and found that overall females interacted more with an infant in all ways than males and that subjects rated as feminists of both sexes tended to have lower, although not statistically significant,

levels of interaction. Bem, Martyna, and Watson (1976) had undergraduate subjects interact with a baby. At first analysis there were no differences due to sex roles. A reanalysis, however, showed that masculine subjects were significantly less nurturant than feminine or androgynous subjects. Lamb, Frodi, Hwang, Frodi, and Steinberg (1982) decided that the sex of the parent had more to do with parental behaviour than sex-role orientation.

Baumrind (1982) intensively studied 50 families on various measures using both observation and self-report. She found that gender identity did predict differences in certain child rearing variables. Sex-typed parents were demanding and moderately responsive, androgenous parents were child-centered rather than authoritative, responsive but not demanding or firm.

McHale and Huston (1984) suggested that just looking at sex-role orientation or stereotyping preferences may not be enough. They concluded from their work with self reports of adults just prior to and shortly after the birth of their first child that patterns including sex roles, role preferences, and perceived skill may form a cluster that would be more predictive of actual behaviour.

In attempting to further explore the relationship between behaviour and stereotypedness by using diverse measures of stereotypedness Fagot, Leinbach and O'Boyle (1992) observed mother-child interaction, administered both gender labelling and gender stereotyping tasks to children between 24 and 36 months of age, and administered the Attitude Towards Women Scale (Spence, Helmreich, & Stapp, 1973), the Personality Attributes Questionnaire (PAC) (Spence &

Helmreich, 1978), and a subscale of the Schaeffer and Edgerton (Schaeffer & Edgerton, 1985) scales to the mothers. They found that the mothers whose children passed the gender labelling tasks tended to give more traditional responses on the Attitudes Towards Women Scale, scored as more sex-typed on the M-F scale of the PAC, and endorsed more traditional family values on the Schaeffer and Edgerton family values subscale. These same mothers handed their children sex-typical toys more often and mothers of boys classified as early labellers initiated less opposite-sex play with their sons. Fagot and Leinbach (1989) and Weinraub, Clemens, Sockloff, Ethridge, Gracely, and Myers (1984) also found that adults, especially fathers, who were more stereotyped in their attitudes tended to have children who were more aware of stereotypes and were classified as early labellers in tests of gender constancy.

Brooks-Gunn (1985) reported that there may be a connection between stereotyped attitudes and behaviour but that other variables are confusing findings. In her study lower class mothers had higher sex-typed scores. Mothers who had lower sex-typed scores engaged in more active play with girls and were less directive with their sons. Mothers with high sex-typed beliefs behaved in the opposite direction and were more responsive to sons.

In a further study (Brooks-Gunn, 1986) maternal distal and active toy play were negatively related to sex-typed beliefs about toddlers for mothers of girls. These behaviours were displayed more by mothers with lower sex-typed beliefs who also tended to come from higher middle income families.

In summary, there appears to be a modest relationship between stereotypical attitudes and parent and child behaviour although the nature of the relationship remains unclear as do the extraneous factors involved. As there has been some limited success in correlating attitudes to behaviour it appears that further exploration in this area may be warranted.

## SUMMARY

Four major themes have been addressed in this chapter. First, sex differences in child behaviour, second, differences in parental behaviour toward boys and girls, third, stereotypical attitudes, and fourth, the relationship of stereotypical attitudes to adult and child behaviours. Each area will be briefly summarized, the nature of this study reviewed, and then several hypotheses based on the results of the literature review will be proposed.

With respect to sex differences in child behaviour few differences are observed immediately after birth and in the first few months. By about 12 months of age sex differences begin to emerge in the areas of play, attachment behaviours, and communicative behaviours.

With respect to parental behaviours, shortly after the birth of their child parents rate children differently despite a lack of noticeable differences. In the first few months mothers hold boys more, vocalize more to girls, and assume more of the caretaking functions than fathers. Fathers tend to play more. As children grow the nature of the parent-child interactions change but the sex differentiated behaviour persists. Mothers continue to perform the caretaking functions. After

about 6 months mothers begin to spend more time with daughters while fathers interact more with sons. Fathers, more than mothers, encourage sex-appropriate play and boys receive more discipline. Sex-differentiated treatment appears to continue at least through the toddler years. Caution must be exercised in making generalized conclusions, however, as when studies were aggregated only encouraging sex-typed play showed significant differences (Lytton & Romney, 1991).

With respect to stereotypical attitudes several methods have been used to assess whether adults hold stereotypical attitudes and if they do, do sex differences exist in the degree of these attitudes. Both parents and nonparent adults rate children differently based on the perceived gender of the child. They also rate behaviours as more appropriate for boys or girls and males tend to hold these stereotypical attitudes more than females.

Finally, there has been some limited success in identifying the relationship between stereotypical attitudes and behaviour. Further exploration appears warranted in this area.

As indicated previously the purpose of this study was to expand upon the Snow, Jacklin, and Maccoby (1983) study in which fathers were observed interacting with their 12-month-old sons and daughters. It was decided to include mothers in order to compare mothers' and fathers' interactions with their children. It was also decided to include a measure of stereotypical attitudes to compare mothers' and fathers' attitudes and also to correlate these attitudes

with mothers' and fathers' as well as boys' and girls' behaviour.

It is noteworthy that most studies have focused on parents of boys versus parents of girls. Very few have observed parents of both boys and girls. Goshen-Gottstein (1981) observed mothers' interactions with sets of twins, triplets, and quadruplets in Israel. She found that Israeli mothers did not distinguish between boys and girls until 3 years of age at which time they dressed their children differently. Brooks and Lewis (1974) observed 13- to 14-month-old opposite-sex twins and found sex differences in attachment behaviours and some play behaviours. It was decided that observing both boys and girls who were the same age and who had the same parents would provide a new medium for the study of parent-child interactions. A sample was therefore obtained of 12-month-old opposite-sex twins who were then observed in their homes interacting with their twins.

## HYPOTHESES

Based on the results of the research reviewed the following hypotheses appear tenable. Stated in the null form they include:

1a. There will be no differences in the observed behaviours of the opposite-sex twins in this sample.

1b. There will be no sex-of-child differences in the behaviours that the children in this sample direct towards their parents.

2a. There will be no sex-of-parent differences between mothers and fathers in the observed behaviours of the parents in this sample.

2b. There will be no sex-of-child or sex-of-parent differences in the behaviours that the parents in this sample direct towards their children.

3. There will be no sex-of-parent differences in parental stereotypical attitudes as reflected in the scores obtained from the results of the Child Behaviour Questionnaire.

4. There will be no significant relationship between parental stereotypical attitudes as reflected in the scores obtained from the results of the Child Behaviour Questionnaire and parent or child behaviours in this sample.

# CHAPTER THREE

# METHODOLOGY

## SUBJECTS

The subjects consisted of 16 sets of 10- to 14-month-old opposite-sex twins and their parents. The families were recruited from the Calgary and Lethbridge Multiple Birth Associations. Families with opposite-sex twins approximately 1 year of age were contacted by the membership secretaries of the respective associations and asked if they were willing to participate in a study of behavioural differences between boys and girls. Thirteen of 15 families in Calgary and three of four families in Lethbridge agreed to participate.

An additional four families with same-sex twins were recruited in Calgary in a similar manner. These same-sex twins were included in a pilot project which served to help refine procedures and train the coders. The data from these four sets of twins are not included in the data analysis.

The 16 sets of opposite-sex twins formed the main sample. The twins ranged in age from 11 to 13 months, had no serious medical complications, nor did they appear to show any developmental delays. The twin's families were intact two parent families, 11 of which had from one to four older children. The families were from various socioeconomic levels. Two of the mothers worked. Educational information was available for eight of the families. Of these fathers' educations ranged from grade 11 to master's degree and mothers' educations ranged from grade 10 to master's degree. Mothers' ages ranged from 20 to 37

years with a mean age of 30.5. Fathers' ages ranged from 21 to 42 years with a mean age of 32.43.

INSTRUMENTS

The Instruments included two behaviour checklists consisting of observable parent and child behaviours, somewhat expanded from Snow, Jacklin, and Maccoby (1983), and a Child Behaviour Questionnaire used to attempt to obtain a measure of parental stereotypical attitudes.

The first behaviour checklist consisted of 30 targeted child behaviours affiliated with play (Appendix A). Snow, Jacklin, and Maccoby (1983) observed "Touching Tempting Objects", "Child Initiated Holding and Proximity", "Gives Toy to Parent or to Sibling", "Plays with Toys", "Vocalizes", and "Explores". The remainder of this checklist was compiled from observable child behaviours reported in the following literature. O'Brien and Huston (1985) and Roopnarine (1986) have observed children's toy play. Proximity to parents has been observed by Goldberg and Lewis (1969), Jacklin, Maccoby, and Dick (1973), Wasserman and Lewis (1985) and Fagot (1974, 1978b).

The second behaviour checklist consisted of 30 targeted parent behaviours affiliated with play interaction (Appendix B). Snow, Jacklin, and Maccoby (1983) observed "Parental Prohibition", "Adult Initiated Holding and Proximity", "Gives Toy", and "Vocalizes to Child". Again the remainder of this checklist was compiled from observable parent behaviours reported in additional literature on parent-child interaction with 1-year-olds (see Fagot, 1974, 1978b; Langlois &

Downs, 1980).

The Child Behaviour Questionnaire contained a list of 32 possible child behaviours (Appendix C). Fagot (1973) had developed a list of 38 behaviours of 2-year-old children from observations of children playing freely in their homes. This list was subsequently given to nonparents who were asked to rate the behaviours as more appropriate for one sex, the other, or both. Fagot (1974, 1978b) has used an expanded list of 46 child behaviours in a similar manner as well as a modified 30 behaviour checklist (Fagot, 1981b). The consistency of the results of the questionnaire across these studies suggests some degree of reliability in using this approach. Brooks-Gunn (1985) used a similar questionnaire and asked parents to rate the behaviours listed as characteristic of boys, girls, both or neither.

As the complete questionnaires mentioned above are not reported in the literature, the current questionnaire was developed by compiling those behaviours which were reported as well as play behaviours reported in the literature from which the observational behaviour checklists used with this sample were drawn. Parents in this sample were asked to indicate by checking in the appropriate column whether the specific behaviour was more appropriate for a boy, a girl, both, or neither. A parental stereotypical attitude raw score was obtained by totalling the number of behaviours that parents rated as more suitable for a boy or for a girl.

APPARATUS

A video camera and recorder which transcribed the time in seconds onto the videotape was used to record the behaviours of the children and their parents for each segment. During the sessions the subjects played with the toys, provided by the author, which consisted of feminine toys (a large doll, a smaller rainbow doll, and a stuffed dog or cuddly toy), masculine toys (a truck, a grader, and a transformer robot), and neutral toys (a toy vacuum, a pop-up-toy, and a small basket ball).

Snow, Jacklin, and Maccoby (1983) used these three categories of toys with two toys in each category. Four toys in their study were classified as highly sex-typed - two dolls and two trucks - while two others were not classified - a vacuum cleaner and a shovel. Although no mention is made as to how these classifications were derived Fagot (1974) found that dolls and cuddly toys were played with significantly more by girls than boys and sex differences for play with transportation toys approached significance in favour of boys. O'Brien and Huston (1985) and O'Brien, Huston, and Riley (1983) had mothers classify toys according to the same three categories. Included with the masculine toys in their studies were trucks and transportation toys. Included with the feminine toys were dolls. Similar results have been reported by Langlois and Downs (1980) who had undergraduate university students rate toys as masculine, feminine, or neutral.

There appears to be support for using the three categories of toys (see also Roopnarine, 1986, and Zelazo and Kearsley, 1980), to include dolls and cuddly

toys in the feminine category, and to include trucks and transportation toys in the masculine category. In the present study three toys were included in each category as there were two children being observed at the same time and not just one as in Snow, Jacklin, and Maccoby (1983). Jacklin, Maccoby, and Dick (1973) found that robots were played with more by boys than girls and thus the robot was selected to be in the masculine category. The remaining toys were classified as neutral not having been reported in the literature reviewed as sex-typed.

During the taping of the first two sets of twins used for the pilot study the original pop-up-toy, which was quite colourful, was played with considerably more than the other toys. A less colourful pop-up-toy was used in subsequent sessions and although it was still played with extensively there appeared to be more variability in toy play in the following taping sessions. At the beginning of each taping session and between visits the toys were kept in a large, nondescript cardboard box.

## PROCEDURE

The Calgary and Lethbridge Twin and Triplet Associations were contacted by phone and the nature of the study explained to the executive. The executive were informed that the study was concerned with sex differences in the way that children of this age play. The membership clerks of the respective clubs subsequently contacted the families who were eligible (ie. those who had 1-year-old opposite-sex twins) and asked if they would be willing to participate in a study. Of the eligible families from both cities three declined to participate and

a list of those families who were willing to participate was supplied to the author.

Each family was then contacted by phone by the author. Again it was explained to the families that the nature of the study was to examine sex differences in the way that children of this age played and an appointment was requested to allow the researcher an opportunity to explain the study in more detail. An appointment was established for a brief first visit with the mother and father. This first visit served as an introduction of the researcher to the family and the following was explained to the parents:

> My name is Gary Campagnola and I am a Graduate student at the University of Calgary. As part of my graduate training I am required to conduct a research project and I have chosen to focus on certain aspects of development in young children. Specifically I am looking at how 1-year-olds play and how they interact with their parents. I also thought it would be interesting to examine these differences in boys and girls who have had relatively the same environment and who are about the same age. An ideal group for this study would be opposite-sex twins and this is why I am requesting your participation in this study.
>
> In order to obtain the information I need for my study I would like to visit your home twice, the second visit about one week after the first. The first visit would consist of my video taping the twins playing with a set of toys that I will provide. This will last about 15 minutes. The second visit would consist of video taping two 15 minute segments of first one parent playing

with the children and then the other parent playing with the children. While the one parent plays I would ask the other parent to complete a brief questionnaire and visa versa.

At the end of the data collection portion of the study all of the information will be fed into the computer at the university and various statistical analyses will be run. Once the project is completed and passed I will mail out a summary of the study and the results to all those families who participated.

If you are willing to participate you will be paid $20.00 for your time and I would ask you now to sign these consent forms. There is also a brief questionnaire which I will bring on the second visit and which includes basic questions about your family and your children. I emphasize that all information will be kept in strictest confidence. Thank you.

At the conclusion of this session the parents read and signed the consent forms (Appendix D) and a date was established for the second session.

The second session consisted of obtaining a videotape of the twins playing with the prescribed set of toys in the families' home. The toys were taken out of the box by the researcher and placed on the floor within reach of the twins thus giving the children access to all toys. Instructions to the parents were as follows:

I have provided these toys for your children to play with and will videotape them at play for 15 minutes. All I would ask is that you allow them to play freely with the toys, that you prevent your other children from interfering,

> and that you attempt to keep your twins within camera range. If a child becomes distressed it will be permissible to stop the tape and resume later when your child is more comfortable.

The twins were then taped for 15 minutes and the tape saved for later scoring.

A second appointment for about one week later was established with the family for session three. Owing to illness and weather conditions the time between the second and third taping sessions ranged from 1 to 4 weeks. Also, in some instances because of travel distance and weather conditions sessions one and two were combined. In these instances at the completion of session one permission was obtained to proceed to session two and if permission was granted the toys and video equipment were brought into the home.

The third session consisted of taping two segments, one for 15 minutes with mother playing with the twins and one for 15 minutes with father playing with the twins. During the taping of one parent-twin group the other parent was asked to complete the Child Behaviour Questionnaire provided. At the conclusion of the first taping segment there was a brief break where the researcher asked for demographic information according to a predetermined questionnaire. Then the second taping began. The instructions to parents for this third session were as follows:

> For this second taping session I would like to have mother and father play with the twins as normally as possible. Please try to forget that the camera is here and that I am here. Please also try, however, to position yourself so

that you are not directly in front of the camera or blocking your actions or one of the children. As one parent is playing with the twins, and it will be up to you who goes first, I would ask the other to ensure that the other children do not interfere and also to complete the questionnaire.

Instructions to Parent Playing:

As you see I have kept the toys in the box. Please distribute them as you see fit and use as many or as few as you wish. Also, I have placed several other objects in the room and would ask you to try to prohibit the children from playing with them if possible.

Instructions to Parent Taking Questionnaire:

Please complete the questionnaire as truthfully as possible and indicate what you believe and not what you think I may expect you to believe.

Instructions At Completion of First Parent Play Session:

We have completed the first portion of this visit. I would now like to take a break for a few minutes and ask you a few questions about your family. We can then resume with the second parent. (Toys replaced in box)

At the completion of this session the parents were debriefed as follows:

At the first visit I indicated that I was looking at the ways in which boys and girls at this age play with certain toys and with their parents. Additionally I will be looking at differences in the ways in which mother and father play with or otherwise interact with boys and girls at this age which in turn may lead to sex differences. I felt that if I had mentioned

this before that it may have had a bearing on how you interacted with your children.

With your permission I will now proceed to code the behaviours on the tapes so that they may be combined with the other information to form our data base.

All parents agreed to this request.

At the conclusion of the debriefing the parents were paid and thanked for their participation. They signed a receipt indicating that they had participated and had been paid. Again the tapes were saved for later coding.

CODING

In order to obtain a count of the behaviours of the parents and the children for data analysis the tapes were observed by two trained coders and stopped every 6 seconds at which point the behaviours of the subjects were recorded according to the predetermined behaviour checklists. Snow, Jacklin, and Maccoby (1983) as well as Jacklin, Maccoby, and Dick (1983) and Jacklin, DiPietro, and Maccoby (1984) used a 6-second interval as a basis for coding behaviours. These behaviour scores then represent the number of 6-second intervals in which specified behaviours occur.

The coders were two female undergraduate students from the Faculty of Education recruited by the author through personal inquiry. These coders were supplied with a detailed list of the targeted child behaviours (Appendix A), adult behaviours (Appendix B), explicit definitions of and instructions as to how the

behaviours were to be coded (Appendices E and F respectively), and lined sheets on which the times and behaviours were to be recorded (Appendix G).

The taped sessions from the four sets of same-sex twins served as training tapes. The coders were shown the three sessions taped from family number one of the same-sex twins subgroup, the tape was stopped every 6 seconds, and the behaviour codes recorded on the prepared coding sheets. The behaviours of all subjects were coded. In the session with children only at least two behaviours were coded as some behaviours (eg. toy play and vocalizing) could occur in the same segment, and in the sessions with the parents at least three behaviours were recorded.

Upon completion of the training session the coders were asked to independently code the sessions for family two. When this was completed the codings for family two from each coder were compared. All codes at each time segment, two for the children-only situation and three for the with-adult situation, had to match for the segment to be scored an agreement. The percentage of the number of segments in which interrater agreement was reached was calculated. Percent agreement for twins only was 81%. Percent agreement for adults and twins was 60%.

In order to improve the percent agreement the above training procedure was repeated using the second family of same-sex twins. The coders were asked to independently code the remaining two same-sex twin families. Percent interrater agreement for twins was 85% and for adults and twins was 80%.

Upon completion of the filming for the 16 families of opposite-sex twins the films were distributed to the coders. They were asked to select four at random and to each code them independently. The codings were then compared and percent agreement was 84% for twins only and remained at 80% for adults with twins. The remaining tapes were then coded, half by one coder and the remaining by the other. The percent of interrater agreement reported here may appear to be somewhat low suggesting that caution must be exercised in interpreting the results of any statistical analysis. It should be pointed out, however, that the percent agreement was based on a very stringent matching criterion and that the number of actual matches was considerably higher as failures often consisted of only one of the two or three codes not matching.

In order to transform the codings to usable data the total number of times each target behaviour occurred per taped segment was recorded. This produced scores for 30 child behaviours and 30 adult behaviours which were then combined to produce 6 child and 7 adult variables. The six child variables were then analyzed using Repeated Measures ANOVAs as were the seven adult variables for sex-of-child and sex-of-parent (situation), and for the interaction between sex-of-child and sex-of-parent. Several child variables were then analyzed using Repeated Measures MANOVA as were several adult variables. Stereotypical behaviour scores were created for mothers, fathers, girls, and boys. Mothers' and fathers' stereotypical behaviour scores were compared using a t-test as were the boys' and girls' scores. Mothers' and fathers' stereotypical attitude scores were

also compared using a t-test. These stereotypical behaviour scores were then expressed as ratios of all play behaviours and were compared using a t-test as well. The stereotypical behaviours scores were then correlated with each other and with mothers' and fathers' stereotypical attitude scores derived from the Child Behaviour Questionnaire.

# CHAPTER FOUR

## RESULTS

As a result of the limited sample size two points will be addressed initially. First, the results from the statistical analyses reported below will only be considered trends arising from exploratory work. Second, as the number of subjects is relatively small nonparametric statistics were considered. Zar (1984) states, however, that ANOVA is robust and operates well with small sample sizes and even with considerable heterogeneity of variance as long as the N's are equal or nearly equal. As there are no missing data, sample sizes are equal, and the results will only be considered trends the use of parametric statistics appears supportable. All of the statistics reported here were computed on the Multics system at the University of Calgary using SPSSX (Spss Inc., 1986).

Upon completion of the initial coding there were 30 child variables for both boys and girls, five variables producing scores for two situations (with mother and with father) and the remaining variables producing scores for three situations (with mother, with father, and with sibling). There were also as many adult variables for both mother and father producing scores for two situations (boys and girls). This resulted in an enormous amount of data to be analyzed. Because the results of such extensive statistical calculations would be very difficult to interpret, it was decided to reduce the data to more manageable proportions.

The first step in reducing the data was the elimination of any variables which were observed less than 5 times over the course of the study. Following

this criterion the child variables Gives Toy to Parent, Gives Toy to Sibling, Touches Tempting Objects, Changes Toy, and Vocalizes and the parent variables Discourages Activity, Encourages Activity, and Changes Toy were omitted from further analysis.

Although the child variable Takes Toy (from sibling) and the parent variable Inactive did have enough observations to be included in further analysis, as they were in the factor analysis, it was determined that they did not relate enough to the purpose of the study to be included in further analysis.

In the Snow, Jacklin, and Maccoby (1983) study "Child Initiated Holding" and "Proximity Seeking" were collapsed and analyzed as one variable as were "Play with Both Dolls", analyzed as "Play with Feminine Toys", and "Play with Both Trucks", analyzed as "Play with Masculine Toys". The remaining child variables in the present study were combined as follows. Initiates Holding, Sits with Parent, Initiates Proximity, and Stays Close To Parent were believed to constitute attachment behaviours and were grouped under the variable name Attachment Behaviours. As the variables Plays With toy and Wants toy appeared to represent child preferences they were collapsed together for the following toy play variables. As the doll, rainbow doll and cuddly toy were feminine toys the variables Wants/Plays With these toys were grouped under the variable name Feminine Toy Play. As the truck, grader, and robot were masculine toys the variables Wants/Plays With these toys were grouped under the variable name Masculine Toy Play. Although Snow, Jacklin and Maccoby analyzed the neutral

toys separately it was decided to collapse the variables Wants/Plays With the vacuum, ball, and pop-up-toy and group them under the variable name Neutral Toy Play. The variables Inactive and Explores were left as is. These groupings resulted in a variable list as follows:

Attachment Behaviours (with mother, with father)

Feminine Toy Play (three situations)

Masculine Toy Play (three situations)

Neutral Toy Play (three situations)

Inactive (three situations)

Explores (three situations)

For parent variables, in Snow, Maccoby, and Jacklin (1983) Physical and Verbal Prohibition were analyzed as one variable as were Father-initiated Holding and Proximity. The masculine and feminine toys were also collapsed.

The remaining parent variables in the present study were combined as follows. Verbal Prohibition and Physical Prohibition were grouped under the variable name Prohibition. The variables Initiates Proximity, Stays Close to Child, Initiates Holding, and Holds Child appeared to represent nurturing behaviours and were grouped under the variable name Nurturing. Verbalizing to Child and Joins Play were left as is. As the variables Gives toy and Shows toy appeared to represent parent directed toy play they were collapsed as Encouraging Toy Play. The Gives/Shows Feminine Toy (doll, rainbow doll, cuddly toy) variables were grouped under the variable name Encouraging Feminine Toy Play. The

Gives/Shows Masculine Toy (truck, grader, robot) variables were grouped under the variable name Encouraging Masculine Toy Play. And again, although Snow, Jacklin, and Maccoby (1983) analyzed the other toys separately, it was decided that in order to keep the number of variables to a minimum the Gives/Shows Neutral Toy (vacuum, ball, pop-up-toy) variables were collapsed and grouped under the variable name Encouraging Neutral Toy Play.

This reduction resulted in a variable list for parents as follows:

Prohibition (boys and girls)

Nurturing (boys and girls)

Verbalizing (boys and girls)

Joins Play (boys and girls)

Encouraging Feminine Toy Play (boys and girls)

Encouraging Masculine Toy Play (boys and girls)

Encouraging Neutral Toy Play (boys and girls)

Although the reduction of variables into the above mentioned categories appears to have face validity an exploratory R Factor Analysis was completed on child and parent variables separately to see if the new variables had any statistical basis.

The Factor Analysis using varimax factor rotations for the children's variables was computed with boys' and girls' scores combined on all original variables (less Gives Toy to Parent, Gives Toy to Sibling, Touches Tempting Objects, Changes Toy, and Vocalizes) and with Wants and Plays With toys

combined for each of the toys respectively. The correlation matrix resulting from the child variables showed a number of significant correlations suggesting some relationships between the variables and is presented in Table 1.

The factors produced (Table 2) were not strong or discrete. Initiates Holding and Sits with Parent loaded together on Factor 3 (.695 & .909 respectively). Initiates Proximity and Stays Close to Parent loaded together on Factor 4 (.717 & .894 respectively). Plays with Doll and Plays with Cuddly Toy loaded together on Factor 2 (.833 & .796 respectively) while Plays with Doll and Plays with Rainbow Doll loaded together mildly on Factor 4 (.355 & .569 respectively). Plays with Truck and Plays with Robot loaded together on Factor 3 (.694 & .431 respectively) while Plays with Vacuum, Plays with Pop-Up-Toy, and Plays with Ball loaded together on Factor 1 (.672, 664, & .907 respectively). There was some overlap on these factors, however, as, for example, Initiates Holding and Sits with Parent loaded on the same factor as Plays with Truck and Plays with Robot.

With respect to the child variables there appears to be mild support for collapsing the variables as did Snow, Maccoby, and Jacklin (1983). For Attachment Behaviours Initiates Holding and Sits with Parent appear somewhat related as do Initiates Proximity and Stays Close to Parent. For Feminine Toy Play, Plays with Doll loaded on one factor with Plays with Cuddly toy and with Plays with Rainbow Doll on another. For Masculine Toy Play, Plays with Truck and Plays with Robot loaded together. For Neutral Toy Play, Plays with

TABLE 1

FACTOR ANALYSIS CORRELATION MATRIX FOR CHILD VARIABLES

| | INIT HLDG | SITS W/ PARENT | INIT PROX. | CLO TO PARENT | PLAY W/ DOLL | PLAY W/ R DOLL | PLAY W/ CUD TOY | PLAY W/ TRUCK |
|---|---|---|---|---|---|---|---|---|
| INITIATES HOLDING | | -.627* | -.153 | -.053 | -.055 | .163 | .236 | -.211 |
| SITS W/ PARENT | | | .039 | .154 | -.010 | .041 | .168 | -.494 |
| INITIATES HOLDING | | | | .609* | -.018 | .188 | -.296 | -.167 |
| CLOSE TO PARENT | | | | | .290 | .372 | -.145 | -.150 |
| PLAYS WITH DOLL | | | | | | .469* | .593* | -.081 |
| PLAYS WITH RAINBOW DOLL | | | | | | | .002 | -.042 |
| PLAYS WITH CUDDLY TOY | | | | | | | | -.088 |
| PLAYS WITH TRUCK | | | | | | | | |

* $p < .05$

TABLE 1 (CON'T)

FACTOR ANALYSIS CORRELATION MATRIX FOR CHILD VARIABLES

| | INIT HLDG | SITS W/ PARENT | INIT PROX. | CLO TO PARENT | PLAY W/ DOLL | PLAY W/ R DOLL | PLAY W/ CUD TOY | PLAY W/ TRUCK |
|---|---|---|---|---|---|---|---|---|
| PLAYS WITH GRADER | -.083 | -.188 | -.133 | -.208 | -.221 | -.224 | -.127 | .167 |
| PLAYS WITH ROBOT | -.397 | -.508* | -.174 | -.304 | .411 | -.113 | .484* | .109 |
| PLAYS WITH VACUUM | .175 | -.181 | .131 | -.155 | -.368 | .266 | -.363 | .149 |
| PLAYS WITH POP-UP-TOY | .065 | .339 | -.305 | -.338 | -.296 | -.413 | -.038 | -.277 |
| PLAYS WITH BALL | .477* | .066 | .140 | .054 | .422 | .591* | .240 | .053 |
| TAKES TOY | -.290 | -.303 | .483* | -.173 | .005 | -.132 | .059 | -.113 |
| INACTIVE | -.490* | -.097 | -.016 | .114 | -.312 | -.232 | -.374 | .011 |
| EXPLORES | -.072 | -.091 | .278 | .003 | -.538* | -.414 | -.4019 | -.028 |

* $p < .05$

TABLE 1 (CON'T)

FACTOR ANALYSIS CORRELATION MATRIX FOR CHILD VARIABLES

| | PLAY W/ GRADER | PLAY W/ ROBOT | PLAY W/ VACUUM | PLAY W/ POP-UP | PLAY W/ BALL | TAKE TOY | INACT. | EXPL. |
|---|---|---|---|---|---|---|---|---|
| PLAYS WITH GRADER | | | | | | | | |
| PLAYS WITH ROBOT | .108 | | | | | | | |
| PLAYS WITH VACUUM | .010 | -.312 | | | | | | |
| PLAYS WITH POP-UP-TOY | .199 | -.049 | .010 | | | | | |
| PLAYS WITH BALL | -.166 | .113 | .404 | -.572 | | | | |
| TAKES TOY | -.234 | .353 | .325 | -.278 | .282 | | | |
| INACTIVE | .040 | -.217 | -.455* | .460* | -.839* | -.330 | | |
| EXPLORES | -.183 | -.291 | .434* | -.283 | -.080 | .354 | -.117 | |

* $p < .05$

TABLE 2

VARIMAX ROTATED FACTOR MATRIX FOR CHILD VARIABLES

| | FACTOR 1 | FACTOR 2 | FACTOR 3 | FACTOR 4 | FACTOR 5 |
|---|---|---|---|---|---|
| INITIATES HOLDING | 0.510* | -0.080 | 0.695* | -0.194 | -0.318* |
| SITS W/ PARENT | 0.001 | -0.026 | 0.909* | 0.064 | -0.205 |
| INITIATES PROXIMITY | 0.027 | -0.223 | 0.032 | 0.717* | 0.428* |
| CLOSE TO PARENT | -0.061 | -0.009 | 0.091 | 0.894* | -0.123 |
| PLAYS WITH DOLL | 0.243 | 0.833* | -0.036 | 0.355* | -0.083 |
| PLAYS WITH RAIN. DOLL | 0.493* | 0.187 | -0.048 | 0.569* | -0.397* |
| PLAYS WITH CUDD. TOY | 0.195 | 0.796* | 0.224 | -0.227 | 0.075 |
| PLAYS WITH TRUCK | 0.163 | -0.111 | -0.694* | -0.173 | -0.272 |
| PLAYS WITH GRADER | -0.115 | -0.110 | -0.299 | -0.382* | -0.301* |
| PLAYS WITH ROBOT | -0.005 | 0.704* | -0.431* | -0.271 | 0.356* |
| PLAYS WITH VACUUM | 0.672* | -0.598* | -0.178 | -0.033 | 0.121 |
| PLAYS WITH POP-UP | -0.664* | 0.046 | 0.390* | -0.427* | -0.162 |
| PLAYS WITH BALL | 0.907* | 0.208 | 0.075 | 0.129 | 0.046 |
| TAKES TOY | 0.231 | 0.027 | -0.149 | 0.044 | 0.892* |
| INACTIVE | 0.877* | -0.181 | -0.148 | 0.148 | -0.216 |
| EXPLORES | 0.078 | -0.674* | 0.021 | -0.010 | 0.565* |

* $r > .30$

Vacuum, Plays with Pop-Up-Toy, and Plays with Ball loaded together. The factors produced were not discrete, however, with some of the attachment behaviours loading on the same factor as Masculine Toy Play.

The Factor Analysis with varimax rotated factors for the parent variables was computed with fathers' and mothers' scores combined on all original variables (less Discourages Activity, Encourages Activity, and Changes Toy) and with Gives and Shows toys combined for each of the toys respectively. The correlation matrix for the parent variables showed a number of significant correlations and is presented in Table 3.

Again the factors produced (Table 4) were not strong or discrete. Verbal and Physical Prohibition loaded together on Factor 3 (.657 & .592 respectively). Initiates Proximity, Initiates Holding, and Holds Child also loaded together on Factor 3 (.617, .670, & .699 respectively). Stays Close to Child and Holds Child loaded together on Factor 6 (.646 & .453 respectively). Gives Vacuum and Gives Pop-Up-Toy loaded together on Factor 2 (.821 & .797 respectively). Gives Doll and Gives Grader loaded together, however, on Factor 1 (.851 & .821 respectively) while Gives Robot and Gives Ball loaded together on Factor 4 (.910 & .891 respectively) and Gives Rainbow Doll and Gives Truck loaded together on Factor 5 (.676 & .836 respectively).

With respect to the parent variables there appears to be some support for collapsing some of the variables as did Snow, Jacklin, and Maccoby (1983). For Prohibition, Physical and Verbal Prohibition loaded together. For Nurturing,

TABLE 3

FACTOR ANALYSIS CORRELATION MATRIX FOR PARENT VARIABLES

| | VERB. PROH. | PHYS. PROH. | INIT. PROX. | CLOSE CHILD | INIT. HOLD. | HOLDS CHILD | VERB. | JOINS PLAY | GIVES DOLL |
|---|---|---|---|---|---|---|---|---|---|
| VERBAL PROHIB. | | .354 | .232 | -.242 | -.214 | -.409 | -.027 | .004 | .107 |
| PHYSICAL PROHIB. | | | .551* | .060 | -.287 | -.240 | .176 | -.359 | -.299 |
| INITIATES PROXIMITY | | | | -.180 | -.312 | -.365 | .229 | -.359 | .002 |
| CLOSE TO CHILD | | | | | -.233 | .275 | -.326 | .185 | -.1157 |
| INITIATES HOLDING | | | | | | .470* | -.400 | -.055 | .259 |
| HOLDS CHILD | | | | | | | .460* | .122 | .155 |
| VERBALIZES | | | | | | | | -.477* | -.302 |
| JOINS PLAY | | | | | | | | | -.467* |
| GIVES DOLL | | | | | | | | | |

* $p < .05$

TABLE 3 (CON'T)

FACTOR ANALYSIS CORRELATION MATRIX FOR PARENT VARIABLES

| | VERB. PROH. | PHYS. PROH. | INIT. PROX. | CLOSE CHILD | INIT. HOLD. | HOLDS CHILD | VERB. | JOINS PLAY | GIVES DOLL |
|---|---|---|---|---|---|---|---|---|---|
| GIVES RAIN. | -.096 | -.057 | -.348 | -.162 | .085 | .046 | .153 | -.030 | -.169 |
| GIVES CUD.TOY | -.239 | -.077 | -.327 | -.144 | .352 | .281 | .170 | .065 | .173 |
| GIVES TRUCK | -.036 | .118 | -.111 | -.240 | .050 | -.063 | -.260 | .563* | .127 |
| GIVES GRADER | .102 | -.284 | -.338 | -.165 | .177 | .181 | -.334 | .568* | .681* |
| GIVES ROBOT | -.362 | .042 | .298 | .119 | -.173 | .101 | .040 | .378 | .305 |
| GIVES VACUUM | -.014 | -.329 | -.034 | .260 | -.231 | -.031 | -.071 | .482* | .432* |
| GIVES POP-UP. | -.205 | -.280 | -.340 | .351 | .099 | -.058 | -.011 | .477* | .194 |
| GIVES BALL | .225 | -.009 | -.186 | .021 | .217 | -.396 | -.004 | -.178 | -.011 |
| INACTIVE | -.231 | .293 | .244 | .026 | .003 | .033 | .091 | -.653* | -.612* |

* $p < .05$

TABLE 3 (CON'T)

FACTOR ANALYSIS CORRELATION MATRIX FOR PARENT VARIABLES

| | GIVES RAIN. | GIVES CUD.TOY | GIVES TRUCK | GIVES GRADER | GIVES ROBOT | GIVES VACUUM | GIVES POP-UP | GIVES BALL | INACT. |
|---|---|---|---|---|---|---|---|---|---|
| GIVES RAIN. | | | | | | | | | |
| GIVES CUD.TOY | .364 | | | | | | | | |
| GIVES TRUCK | .331 | .197 | | | | | | | |
| GIVES GRADER | .066 | .096 | .263 | | | | | | |
| GIVES ROBOT | -.162 | .027 | .513* | .160 | | | | | |
| GIVES VACUUM | -.028 | -.118 | .088 | .069 | .300 | | | | |
| GIVES POP-UP | .243 | .302 | .328 | -.072 | .177 | .486* | | | |
| GIVES BALL | .309 | -.094 | -.147 | .132 | -.702* | -.124 | .120 | | |
| INACTIVE | -.263 | -.086 | -.390 | -.470* | .164 | -.590* | -.589* | -.173 | |

* $p < .05$

TABLE 4

VARIMAX ROTATED FACTOR MATRIX FOR PARENT VARIABLES

| | FACTOR 1 | FACTOR 2 | FACTOR 3 | FACTOR 4 | FACTOR 5 | FACTOR 6 |
|---|---|---|---|---|---|---|
| VERBAL PROHIBITION | 0.338* | -0.215 | -0.657* | -0.380* | 0.021 | 0.003 |
| PHYSICAL PROHIBITION | -0.330* | -0.416* | -0.592* | 0.106 | 0.255 | 0.053 |
| INITIATES PROXIMITY | -0.080 | -0.265 | -0.617* | 0.374* | -0.242 | -0.250 |
| CLOSE TO CHILD | -0.431* | 0.446* | 0.027 | -0.058 | -0.215 | 0.646* |
| INITIATES HOLDING | 0.301* | -0.300* | 0.670* | -0.190 | 0.079 | 0.098 |
| HOLDS CHILD | 0.050 | -0.134 | 0.699* | 0.258 | -0.074 | 0.453* |
| VERBALIZES | -0.334* | 0.071 | -0.146 | 0.021 | -0.018 | -0.862* |
| JOINS PLAY | 0.510* | 0.532* | -0.001 | 0.213 | 0.300* | 0.436* |
| GIVES DOLL | 0.851* | 0.247 | 0.099 | 0.142 | -0.121 | 0.005 |
| GIVES RAIN. DOLL | -0.110 | 0.108 | 0.244 | -0.330* | 0.676* | -0.222 |
| GIVES CUDD. TOY | 0.035 | -0.009 | 0.579* | 0.059 | 0.442* | -0.288 |
| GIVES TRUCK | 0.249 | 0.094 | -0.110 | 0.311* | 0.836* | 0.161 |
| GIVES GRADER | 0.821* | 0.005 | 0.127 | -0.045 | 0.132 | 0.178 |
| GIVES ROBOT | 0.178 | 0.184 | -0.062 | 0.910* | 0.184 | -0.063 |
| GIVES VACUUM | 0.213 | 0.821* | -0.085 | 0.186 | -0.160 | 0.013 |
| GIVES POP-UP-TOY | -0.053 | 0.797* | 0.195 | -0.040 | 0.351* | 0.023 |
| GIVES BALL | 0.073 | 0.044 | -0.086 | -0.891* | 0.081 | -0.059 |
| INACTIVE | -0.950* | -0.643* | 0.076 | 0.117 | -0.297 | 0.021 |

* $r > .30$

Initiates Proximity, Initiates Holding, and Holds Child loaded together as did Holds Child and Stays Close to Child. For Encouraging Neutral Toy Play, Gives Vacuum and Gives Pop-Up-Toy loaded together. For collapsing the other toy play variables, however, there is less support as the Encouraging Feminine Toy Play variables loaded together with both Encouraging Masculine Toy Play and Encouraging Neutral Toy Play variables.

The fact that the data were collapsed over parents may have produced some confusing results. A factor analysis using father with boys data showed Gives Rainbow Doll and Gives Cuddly Toy loading together, Gives Truck and Gives Grader loading together, and Gives Pop-up Toy and Gives Ball loading together. Factor analyses using father-daughter data, mother-son, and mother-daughter data did not improve on the analysis for collapsed parents data already described.

Despite the weak support for the groupings from the factor analysis it was decided to continue with the analysis based on the variables resulting from the above mentioned groupings following Snow, Jacklin, and Maccoby's (1983) methods. The means and standard deviations of the child variables are presented in Table 5. An examination of the variables overall suggests that although there may be differences in variable means between boys and girls the standard deviations are relatively high. The significance of these differences will be assessed later in the data analysis. The means and standard deviations of parent variables are presented in Table 6. Again as with the children the standard

TABLE 5

MEANS AND STANDARD DEVIATIONS OF CHILD VARIABLES

BOYS

| VARIABLE NAME | WITH MOTHER MEAN | S.D. | WITH FATHER MEAN | S.D. | WITH SIBLING MEAN | S.D. |
|---|---|---|---|---|---|---|
| ATTACHMENT | 14.50 | 20.55 | 4.56 | 7.6 | | |
| FEMININE TOY PLAY | 12.62 | 11.38 | 12.87 | 13.87 | 13.25 | 13.81 |
| MASCULINE TOY PLAY | 16.06 | 10.20 | 20.62 | 18.93 | 19.37 | 15.96 |
| NEUTRAL TOY PLAY | 56.68 | 17.70 | 77.37 | 31.25 | 72.37 | 36.30 |
| INACTIVE | 31.43 | 18.36 | 21.62 | 17.01 | 19.87 | 16.76 |
| EXPLORES | 18.00 | 16.06 | 9.43 | 13.94 | 13.31 | 20.14 |

GIRLS

| | | | | | | |
|---|---|---|---|---|---|---|
| ATTACHMENT | 21.00 | 29.31 | 7.06 | 12.72 | | |
| FEMININE TOY PLAY | 23.87 | 19.25 | 24.43 | 22.12 | 22.37 | 31.82 |
| MASCULINE TOY PLAY | 8.31 | 9.57 | 12.18 | 11.68 | 14.68 | 19.48 |
| NEUTRAL TOY PLAY | 54.68 | 33.05 | 65.18 | 25.50 | 55.87 | 28.46 |
| INACTIVE | 29.31 | 13.53 | 33.56 | 18.58 | 31.06 | 19.60 |
| EXPLORES | 17.62 | 26.21 | 10.37 | 12.22 | 16.18 | 18.40 |

TABLE 6

MEANS AND STANDARD DEVIATIONS OF PARENT VARIABLES

| VARIABLE NAME | FATHERS | | | | MOTHERS | | | |
|---|---|---|---|---|---|---|---|---|
| | WITH BOYS | | WITH GIRLS | | WITH BOYS | | WITH GIRLS | |
| | MEAN | S.D. | MEAN | S.D. | MEAN | S.D. | MEAN | S.D. |
| PROHIBITION | 1.06 | 1.28 | .43 | .81 | 1.68 | 2.27 | 1.12 | 1.74 |
| NURTURING | 7.37 | 12.83 | 7.81 | 11.22 | 13.81 | 18.54 | 18.00 | 27.36 |
| VERBALIZES | 13.56 | 9.15 | 15.81 | 8.53 | 17.18 | 11.49 | 16.06 | 11.34 |
| JOINS PLAY | 21.87 | 10.42 | 26.81 | 14.20 | 22.50 | 9.85 | 22.93 | 12.48 |
| ENCOURAGING FEMININE TOY PLAY | 6.06 | 3.99 | 9.68 | 5.16 | 6.56 | 4.60 | 7.25 | 5.09 |
| ENCOURAGING MASCULINE TOY PLAY | 3.62 | 2.65 | 4.87 | 3.68 | 6.43 | 3.86 | 4.62 | 3.82 |
| ENCOURAGING NEUTRAL TOY PLAY | 6.37 | 3.66 | 7.37 | 5.48 | 8.25 | 5.17 | 4.81 | 3.60 |

ADDITIONAL VARIABLES

| | FATHERS | | MOTHERS | |
|---|---|---|---|---|
| | MEAN | S.D. | MEAN | S.D. |
| AGE | 32.43 | 5.54 | 30.50 | 4.63 |
| ATTITUDE SCORE | 6.06 | 5.42 | 3.31 | 4.93 |

deviations are relatively high indicating high variability among subjects. Mothers' and fathers' sex-role attitude scores and ages are also included in Table 6.

Although by analyzing each dependant variable separately the risk of a Type 1 error is increased, as this was an exploratory study and the intent was to explore differences which may not appear with the variables combined, it was decided to use ANOVAs to examine each dependant variable. For both the child and adult variables MANOVA was then used with the variables which showed significant or near significant sex differences as a check on the validity of the ANOVA results and to further explore the relationships discovered.

As the children are related, live in the same environment, and the observations are repeated on the same subjects the Repeated Measures ANOVA appears appropriate (Hertzog & Rovine, 1985; Kraemer & Jacklin, 1979). For the child variable Attachment a 2 x 2 (sex-of-child x situation) Repeated Measures ANOVA using the Wilkes $\lambda$ criteria was computed as attachment behaviours were only observed with mother and with father. For the remaining child variables a 2 x 3 (sex-of-child x situation) Repeated Measures ANOVA using the Wilkes $\lambda$ criteria was computed. The results of these analyses are presented in Table 7. A 2 x 3 (sex-of-child x situation) Repeated Measures MANOVA using the Wilkes $\lambda$ criteria was run using Feminine Toy Play, Masculine Toy Play, and Neutral Toy Play as the dependant variables. These results are presented in Table 8.

All parent variables were analyzed using a 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures ANOVA using the Wilkes $\lambda$ criteria. The results

of these analyses are presented in Table 9. A 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures MANOVA using the Wilkes $\lambda$ criteria was run using Prohibition, Nurturing, Encouraging Feminine Toy Play, Encouraging Masculine Toy Play, and Encouraging Neutral Toy Play as dependant variables. These results are presented in Table 11. For all analyses the significance level was set at .05.

RESULTS OF ANALYSIS OF CHILD VARIABLES

The results of the Repeated Measures ANOVAs for the child variables will be presented individually. Again the results are considered only trends and will not necessarily generalize to other samples.

ATTACHMENT: As can be seen from Table 7 the 2 x 2 (sex-of-child x situation) Repeated Measures ANOVA produced a nonsignificant sex-of-child effect $F(1,30) = .896$, $p < .351$, a significant effect for situation (with mother or with father) $F(1,30) = 5.854$, $p < .022$, and a nonsignificant effect for the interaction between sex-of-child and situation $F(1,30) = .164$, $p < .688$. An examination of means in Table 5 reveals that significantly more attachment behaviours were directed towards mother when she was interacting with both boys and girls than towards father when he was interacting with the twins in this sample of families.

FEMININE TOY PLAY: As can be seen from Table 7 the 2 x 3 (sex-of-child x situation) Repeated Measures ANOVA produced a nonsignificant

TABLE 7

RESULTS OF REPEATED MEASURES ANOVA WITH CHILD VARIABLES

| VARIABLE | F | df | p. |
|---|---|---|---|
| ATTACHMENT | | | |
| SEX-OF-CHILD | .896 | 1,30 | .351 |
| SITUATION | 5.854 | 1,30 | .022 |
| SEX-OF-CHILD X SITUATION | .164 | 1,30 | .688 |
| FEMININE TOY PLAY | | | |
| SEX-OF-CHILD | 3.435 | 1,30 | .074 |
| SITUATION | .034 | 2,29 | .966 |
| SEX-OF-CHILD X SITUATION | .054 | 2,29 | .947 |
| MASCULINE TOY PLAY | | | |
| SEX-OF-CHILD | 3.028 | 1,30 | .092 |
| SITUATION | 2.504 | 2,29 | .099 |
| SEX-OF-CHILD X SITUATION | .156 | 2,29 | .856 |
| NEUTRAL TOY PLAY | | | |
| SEX-OF-CHILD | 3.364 | 1,30 | .077 |
| SITUATION | 1.570 | 2,29 | .225 |
| SEX-OF-CHILD X SITUATION | .319 | 2,29 | .729 |
| INACTIVE | | | |
| SEX-OF-CHILD | 2.838 | 1,30 | .102 |
| SITUATION | .758 | 2,29 | .477 |
| SEX-OF-CHILD X SITUATION | 1.660 | 2,29 | .208 |
| EXPLORES | | | |
| SEX-OF-CHILD | .082 | 1,30 | .777 |
| SITUATION | 2.236 | 2,29 | .125 |
| SEX-OF-CHILD X SITUATION | .049 | 2,29 | .952 |

sex-of-child effect $F(1,30) = 3.435$, $p < .074$, a nonsignificant effect for situation $F(2,29) = .0341$, $p < .966$, and a nonsignificant interaction effect for sex-of-child by situation $F(2,29) = .054$, $p < .947$. It is noteworthy that the sex-of-child effect approached significance. An examination of the means in Table 5 suggests that in this sample the female twins did tend to play more with the feminine toys than did the male twins even when there was no parent present to encourage the sex-typed play.

MASCULINE TOY PLAY: For this variable a 2 x 3 (sex-of-child x situation) Repeated Measures ANOVA produced a nonsignificant sex-of-child effect $F(1,30) = 3.028$, $p < .092$, a nonsignificant situation effect $F(2,29) = 2.504$, $p < .099$, and a nonsignificant sex-of-child by situation effect $F(2,29)$, $p < .856$. It is again noteworthy that the sex-of-child effect and the situation effect approached significance. An examination of the means in Table 5 suggests that the boys tended to play more with the masculine toys than the girls, and that the children tended to play least with the masculine toys in the presence of mother.

NEUTRAL TOY PLAY: This 2 x 3 (sex-of-child x situation) Repeated Measures ANOVA resulted in a nonsignificant sex-of-child effect $F(1,30) = 3.364$, $p < .077$, a situation effect that was nonsignificant $F(2,29) = 1.57$, $p < .225$, and a nonsignificant sex-of-child x situation interaction effect $F(2,29) = .319$, $p < .729$. It is noteworthy that the sex-of-child effect approached significance. An examination of the means in Table 5 suggests that the boys in this sample tended to play more with neutral toys than girls in all situations.

INACTIVE: This 2 x 3 (sex-of-child x situation) Repeated Measures ANOVA revealed a nonsignificant sex-of-child effect $F(1,30) = 2.838$, $p < .102$, a nonsignificant situation effect $F(2,29) = .785$, $p < .477$, and a nonsignificant sex-of-child by situation interaction effect $F(2,29) = 1.660$, $p < .208$. It is noteworthy that the sex-of-child effect approached significance. An examination of the means in Table 5 suggests that girls tended to be more inactive than boys with father but not with mother.

EXPLORES: This 2 x 3 (sex-of-child x situation) Repeated Measures ANOVA revealed a nonsignificant effect for sex-of-child $F(1,30) = .082$, $p < .777$, a nonsignificant situation effect $F(2,29) = 2.236$, $p < .125$, and a nonsignificant sex-of-child x situation interaction effect $F(2,29) = .049$, $p < .952$. The trend is for both boys and girls to exhibit greater exploration behaviour with mothers than with fathers (see Table 5).

It appears that the only clear finding in the results of the analysis of children's variables is that both children directed more attachment behaviours to mother than to father. There were trends for differences between boy and girl twins in feminine and neutral toy play and because of their theoretical importance it was deemed worthwhile to analyze toy play further. The three variables Feminine Toy Play, Masculine Toy Play, and Neutral Toy Play were included as dependent variables in a Repeated Measures MANOVA again using the Wilkes $\lambda$ criterion, the results of which are presented in Table 8.

The MANOVA results show a sex-of-child effect that approaches

TABLE 8

RESULTS OF REPEATED MEASURES MANOVA WITH CHILD VARIABLES FEMININE TOY PLAY, MASCULINE TOY PLAY, AND NEUTRAL TOY PLAY

| | F | df | p. |
|---|---|---|---|
| SEX-OF-CHILD | 2.833 | 3,28 | .056 |
| SITUATION | 1.440 | 6,116 | .205 |
| SEX-OF-CHILD X SITUATION | .182 | 6,116 | .981 |

significance $F(3,28) = 2.833$, $p < .056$, a nonsignificant situation effect $F(6,25) = 1.651$, $p < .175$, and a nonsignificant sex-of-child x situation interaction effect $F(6,25) = .170$, $p < .982$. These results confirmed the findings of the individual ANOVAS that there is a trend for sex-of-child differences in toy play. Univarite F-tests (which were essentially a replication of the results of the Repeated Measures ANOVAs in Table 7) confirmed that the twin boys in this study tended to play more with the neutral toys than the twin girls and the twin girls tended to play more with the feminine toys than the twin boys although the results only approached significance and only represent possible trends.

RESULTS OF ANALYSIS OF PARENT VARIABLES

Individual Repeated Measures ANOVAS were computed on the parent variables using the Wilkes $\lambda$ criterion. The results are presented in Table 9. Again these results are considered tentative and may not generalize to other samples.

PROHIBITION: As can be seen from Table 9 the 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures ANOVA revealed a nonsignificant sex-of-parent effect $F(1,30) = 1.748$, $p < .196$, a significant sex-of-child effect $F(1,30) = 4.247$, $p < .048$, and a nonsignificant sex-of-parent by sex-of-child interaction effect $F(1,30) = .011$, $p < .914$. An examination of the relevant means in Table 6 suggests that the parents in this sample exhibited more prohibitive behaviours towards the twin boys than the twin girls.

NURTURING: This 2 x 2 (sex-of-parent x sex-of-child) Repeated

TABLE 9

RESULTS OF REPEATED MEASURES ANOVA WITH PARENT VARIABLES

| VARIABLE | F | df | p. |
|---|---|---|---|
| PROHIBITION | | | |
| SEX-OF-PARENT | 1.748 | 1,30 | .196 |
| SEX-OF-CHILD | 4.247 | 1,30 | .048 |
| SEX-OF-PARENT X SEX-OF-CHILD | .011 | 1,30 | .914 |
| NURTURING | | | |
| SEX-OF-PARENT | 2.821 | 1,30 | .103 |
| SEX-OF-CHILD | .285 | 1,30 | .597 |
| SEX-OF-PARENT X SEX-OF-CHILD | .187 | 1,30 | .688 |
| VERBALIZING | | | |
| SEX-OF-PARENT | .455 | 1,30 | .510 |
| SEX-OF-CHILD | .037 | 1,30 | .848 |
| SEX-OF-PARENT X SEX-OF-CHILD | 1.124 | 1,30 | .297 |
| JOINS PLAY | | | |
| SEX-OF-PARENT | .203 | 1,30 | .655 |
| SEX-OF-CHILD | 1.567 | 1,30 | .220 |
| SEX-OF-PARENT X SEX-OF-CHILD | 1.089 | 1,30 | .303 |
| ENCOURAGING FEMININE TOY PLAY | | | |
| SEX-OF-PARENT | .455 | 1,30 | .509 |
| SEX-OF-CHILD | 6.669 | 1,30 | .015 |
| SEX-OF-PARENT X SEX-OF-CHILD | 3.094 | 1,30 | .089 |
| ENCOURAGING MASCULINE TOY PLAY | | | |
| SEX-OF-PARENT | 1.493 | 1,30 | .231 |
| SEX-OF-CHILD | .168 | 1,30 | .685 |
| SEX-OF-PARENT X SEX-OF-CHILD | 4.986 | 1,30 | .033 |

TABLE 9 (CON'T)

RESULTS OF REPEATED MEASURES ANOVA WITH PARENT VARIABLES

| VARIABLE | F | df | p. |
|---|---|---|---|
| ENCOURAGING NEUTRAL TOY PLAY | | | |
| SEX-OF-PARENT | .071 | 1,30 | .791 |
| SEX-OF-CHILD | 1.567 | 1,30 | .220 |
| SEX-OF-PARENT X SEX-OF-CHILD | 5.193 | 1,30 | .030 |

Measures ANOVA produced a nonsignificant sex-of-parent effect $F(1,30) = 2.821$, $p < .103$, a nonsignificant sex-of-child effect $F(1,30) = .285$, $p < .597$, and a nonsignificant sex-of-parent x sex-of-child interaction effect $F(1,30) = .187$, $p < .668$. As can be seen from Table 6 the mothers tended to engage in more nurturing behaviours than the fathers for both boys and girls.

VERBALIZING: The 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures ANOVA revealed a nonsignificant sex-of-parent effect $F(1,30) = .445$, $p < .510$, a nonsignificant sex-of-child effect $F(1,30) = .037$, $p < .848$, and a nonsignificant sex-of-parent x sex-of-child effect $F(1,30) = 1.124$, $p < .297$. There appear to be no parental differences in verbalizing in this sample.

JOINS PLAY: This 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures ANOVA revealed a nonsignificant sex-of-parent effect $F(1,30) = .203$, $p < .655$, a nonsignificant sex-of-child effect $F(1,30) = 1.567$, $p < .220$, and a nonsignificant sex-of-parent by sex-of-child interaction effect $F(1,30) = 1.098$, $p < .303$. No sex differences were found in this sample for parents joining children's play.

ENCOURAGING FEMININE TOY PLAY: This 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures ANOVA revealed a nonsignificant sex-of-parent effect $F(1,30) = .445$, $p < .509$, a significant sex-of-child effect $F(1,30) = 6.669$, $p < .015$, and a nonsignificant sex-of-parent by sex-of-child interaction effect $F(1,30) = 3.094$, $p < .089$. Girls in this sample were given significantly more feminine toys than boys. It is noteworthy that the sex-of-parent by sex-of-child interaction effect approached significance. Simple effects t-tests (Table 10) showed that the

TABLE 10

SIMPLE EFFECTS T-TEST FOR PARENT VARIABLES ENCOURAGING FEMININE TOY PLAY, ENCOURAGING MASCULINE TOY PLAY, AND ENCOURAGING NEUTRAL TOY PLAY

MOTHERS

| VARIABLE | MEAN | S.D. | T | df | p |
|---|---|---|---|---|---|
| ENC. FEM. TOY BOY | 6.56 | 4.60 | -.64 | 15 | .534 |
| ENC. FEM. TOY GIRL | 7.25 | 5.09 | | | |
| ENC. MASC. TOY BOY | 6.43 | 3.86 | 1.85 | 15 | .084 |
| ENC. MASC. TOY GIRL | 4.62 | 3.82 | | | |
| ENC. NEUT. TOY BOY | 8.25 | 5.17 | 2.25 | 15 | .040 |
| ENC. NEUT. TOY GIRL | 4.81 | 3.60 | | | |

FATHERS

| VARIABLE | MEAN | S.D. | T | df | p |
|---|---|---|---|---|---|
| ENC. FEM. TOY BOY | 6.06 | 3.99 | -2.84 | 15 | .012 |
| ENC. FEM. TOY GIRL | 9.68 | 5.16 | | | |
| ENC. MASC. TOY BOY | 3.62 | 2.65 | -1.30 | 15 | .212 |
| ENC. MASC. TOY GIRL | 4.87 | 3.68 | | | |
| ENC. NEUT. TOY BOY | 6.37 | 3.66 | -.83 | 15 | .421 |
| ENC. NEUT. TOY GIRL | 7.37 | 5.48 | | | |

fathers in this sample gave significantly more feminine toys to girls than to boys, $t(15) = -2.84$, $p < .012$, while there was no significant difference in the number of feminine toys that the mothers in this sample gave to boys and girls, $t(15) = -.64$, $p<.534$.

ENCOURAGING MASCULINE TOY PLAY: This 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures ANOVA revealed a nonsignificant sex-of-parent effect $F(1,30) = 1.439$, $p < .231$, a nonsignificant sex-of-child effect $F(1,30) = .168$, $p < .685$, but a significant sex-of-parent by sex-of-child interaction effect $F(1,30) = 4.986$, $p < .033$. Although an examination of the relevant means in Table 6 may suggest that the mothers in this sample tended to give more masculine toys to boys while the fathers in this sample tended to give more masculine toys to girls, which would explain the interaction effect, simple effects t-tests (Table 10) indicated that these differences were not significant for fathers, $t(15) = -1.30$, $p<.212$, or mothers, $t(15) = 1.85$, $p<.084$.

ENCOURAGING NEUTRAL TOY PLAY: This 2 x 2 (sex-of-parent x sex-of-child) Repeated Measures ANOVA revealed a nonsignificant sex-of-parent effect $F(1,30) = .071$, $p < .791$, a nonsignificant sex-of-child effect $F(1,30) = 1.567$, $p < .220$, but again a significant sex-of-parent x sex-of-child interaction effect $F(1,30) = 5.139$, $p < .030$. Simple effects t-tests (Table 10) showed that while the fathers in this sample did not significantly discriminate between boys and girls in their encouraging neutral toy play, $t(15) = -.83$, $p<.421$, the mothers in this sample gave significantly more neutral toys to boys than to girls, $t(15) = 2.25$,

$p<.04$.

As there were several significant effects from the results of the individual ANOVAs it was decided, as with the child variables, to combine the dependant variables and analyze them by a Repeated Measures MANOVA using the Wilkes $\lambda$ criterion. As Joins Play and Vocalizes showed no significant effects they were excluded from this analysis. Although nurturing behaviours showed no significant effects, as the sex-of-parent effect approached significance it was also included. The results of this MANOVA are presented in Table 11.

The Repeated Measures MANOVA revealed a nonsignificant sex-of-parent effect $F(5,26) = 1.334$, $p < .281$. There was, however, a significant sex-of-child effect $F(5,26) = 3.177$, $p < .023$, and a significant sex-of-parent by sex-of-child interaction effect $F(5,26) = 3.735$, $p < .011$.

With respect to the significant sex-of-child effect from the MANOVA, univariate f-tests (which were essentially the results of the Repeated Measures ANOVAs reported in Table 9) showed the significant variables to be Prohibition, $F(1,30) = 4.247$, $p < .048$ and Encouraging Feminine Toy Play, $F(1,30) = 6.669$, $p < .015$, suggesting that the significant sex-of-child effect was the result of parents prohibiting boys more than girls and giving girls more feminine toys. With respect to the significant interaction effect from the MANOVA, the univariate f-tests show the significant variables to be Encouraging Masculine Toy Play, $F(1,30) = 4.986$, $p < .033$, and Encouraging Neutral Toy Play, $F(1,30) = 5.193$, $p < .030$. In addition, Encouraging Feminine Toy Play approached

TABLE 11

RESULTS OF REPEATED MEASURES MANOVA WITH PARENT VARIABLES PROHIBITION, NURTURING, ENCOURAGING FEMININE TOY PLAY, ENCOURAGING MASCULINE TOY PLAY, AND ENCOURAGING NEUTRAL TOY PLAY

| | F | df | p. |
|---|---|---|---|
| SEX-OF-PARENT | 1.334 | 5,26 | .281 |
| SEX-OF-CHILD | 3.177 | 5,26 | .023 |
| SEX-OF-PARENT X SEX-OF-CHILD | 3.735 | 5,26 | .011 |

significance $F(1,30) = 3.094$, $p < .089$. These results suggest that the significant interaction effect was the result of fathers giving girls more feminine toys while mothers gave boys more masculine and neutral toys.

To summarize the results from the parent variables it appears the parents in this study used more prohibitive behaviours with boys than with girls and there were no significant differences for Verbalizing or Joins Play.

Toy play with the twins becomes a little more complicated. There was a tendency for fathers to give more feminine toys to girls while mothers distributed feminine toys more evenly. There were no significant differences for the distribution of masculine toys. There was a tendency for mothers to give more neutral toys to boys than to girls while fathers distributed neutral toys more evenly. There was a trend for mothers to be more nurturing than fathers.

RESULTS OF STEREOTYPICAL PLAY BEHAVIOUR SCORES

As parents and children appear to be acting in somewhat stereotypical fashion it was decided to create a stereotypical play behaviour score for mothers, fathers, twin boys, and twin girls. The individual father's stereotypical play behaviour score (FSBS) consisted of the measure of his giving masculine toys to his son (MTB) minus his giving masculine toys to his daughter (MTG) added to his giving feminine toys to his daughter (FTG) minus his giving feminine toys to his son (FTB), i.e. FSBS = (MTB - MTG) + (FTG - FTB). A stereotypical play behaviour score for mothers (MSBS) was similarly created.

The individual boy's stereotypical play behaviour score (BSBS) consisted

of his masculine play with his mother (MTM), with his father (MTF), and with his sibling (MTN) minus his feminine toy play in these same situations, with his mother (FTM), with his father (FTF), and with his sibling (FTN), i.e. BSBS = (MTM + MTF + MTN) - (FTM + FTF + FTN). The individual girl's stereotyped behaviour score was calculated in a similar manner.

The means and standard deviations of the Stereotypical Play Behaviour scores are presented in Table 12. As can be seen the means of the mothers' and fathers' scores appear similar. A two tailed t-test revealed no significant differences, $T(15) = -.06$, $p < .952$. The means of the boys' and girls' scores appear to be substantially different. A two tailed t-test, however, failed to show a significant difference, $T(15) = -.77$, $p < .455$, possibly due to the high levels of variability expressed in the standard deviations.

In order to compare levels of stereotypical play behaviour relative to all play behaviour the Stereotypical Play Behaviour Scores were expressed as a ratio of all play behaviours and the mothers' and fathers' relative stereotypical play behaviour scores were compared using a two tailed t-test as were the boy's and girl's scores. The results of this analysis are presented in Table 13. There were no significant differences between mothers' and fathers' stereotypical behaviours relative to all behaviours, $T(15) = -0.16$, $p < .875$, nor between boy's and girl's stereotypical behaviours relative to all behaviour, $T(15) = -0.66$, $p < .521$.

RESULTS OF STEREOTYPICAL ATTITUDE SCORES

The mothers' and fathers' scores on the Child Behaviour Questionnaire

TABLE 12

STEREOTYPICAL PLAY BEHAVIOUR VARIABLES

| VARIABLE | MEAN | S.D. | T VALUE | df | p. = 2tailed |
|---|---|---|---|---|---|
| STEREOTYPICAL BEHAVIOUR OF FATHER | 2.375 | 5.913 | | | |
| STEREOTYPICAL BEHAVIOUR OF MOTHER | 2.500 | 6.976 | -0.06 | 15 | .952 |
| STEREOTYPICAL BEHAVIOUR OF BOYS | 17.312 | 45.001 | | | |
| STEREOTYPICAL BEHAVIOUR OF GIRLS | 35.500 | 69.170 | -0.77 | 15 | .455 |

TABLE 13

T-TEST FOR STEREOTYPICAL PLAY BEHAVIOURS EXPRESSED AS A RATIO OF ALL PLAY BEHAVIOURS

| VARIABLE | MEANS | S.D. | T VALUE | df | p. = 2Tailed |
|---|---|---|---|---|---|
| RELATIVE STEREOTYICAL BEHAVIOUR OF FATHER | .016 | .046 | -0.16 | 15 | .875 |
| RELATIVE STEREOTYICAL BEHAVIOUR OF MOTHER | .018 | .047 | | | |
| RELATIVE STEREOTYPICAL BEHAVIOUR OF BOYS | .O41 | .104 | -0.66 | 15 | .521 |
| RELATIVE STEREOTYPICAL BEHAVIOUR OF GIRLS | .075 | .145 | | | |

were compared using a two-tailed t-test and the results are shown in Table 14. Fathers scored on average twice as high as mothers and the difference is significant $T(15) = -2.54$, $p < .023$. Fathers appear to believe that more childhood behaviours are appropriate for one sex or the other.

## RESULTS OF CORRELATIONS BETWEEN STEREOTYPICAL ATTITUDE SCORES AND BEHAVIOUR

To determine if there existed any relationships between the stereotypical behaviour scores discussed above and the parents' attitudes about sex-appropriate behaviours for children, the stereotypical play behaviour scores of mothers, fathers, boys, and girls, and the mothers' and fathers' attitude scores were correlated using the Pearson Product Moment Coefficient. The mothers' and fathers' ages were included as the data were available.

The resulting correlation matrix is presented in Table 15. Mothers' and fathers' attitude scores are highly correlated $r = .6544$, $p < .006$. It appears that although fathers overall scored significantly higher than mothers on this measure, the higher the father's scores the higher the mother's scores tended to be. Fathers' stereotyped behaviour was correlated to sons' stereotyped behaviour, $r = .5732$, $p < .020$. Fathers who engaged in more stereotyped behaviour had sons who tended to do the same. Mothers' and fathers' attitude scores were not correlated to mothers', fathers', boys', or girls' behaviour.

Several additional correlations appear with respect to the parents' ages. Mothers' and fathers' ages are highly correlated, $r = .6936$, $p < .003$. Also, the

TABLE 14

T-TEST FOR STEREOTYPICAL ATTITUDE SCORES OF PARENTS

| VARIABLE | MEANS | S.D. | T VALUE | df | p. = 2Tailed |
|---|---|---|---|---|---|
| FATHERS' STEREOTYICAL ATTITUDE SCORE | 6.062 | 5.422 | -2.54 | 15 | .023 |
| MOTHERS' STEREOTYICAL ATTITUDE SCORE | 3.312 | 4.936 | | | |

TABLE 15

CORRELATIONS BETWEEN STEREOTYPICAL PLAY BEHAVIOURS, AGE, AND STEREOTYPICAL ATTITUDE SCORES

| | ST. BEH. FATHER | ST. BEH. MOTHER | ST. BEH. BOY | ST. BEH. GIRL | MOTHER'S AGE | FATHER'S AGE | ST.ATT. MOTHER | ST.ATT. FATHER |
|---|---|---|---|---|---|---|---|---|
| ST. BEH. FATHER | | .1966 | .5732* | -.2158 | -.3542 | -.2058 | -.2206 | -.1625 |
| ST. BEH. MOTHER | | | -.1585 | -.1198 | .1939 | .1266 | -.0300 | .1666 |
| ST. BEH. BOY | | | | -.3490 | -.0590 | .1166 | .0322 | -.2435 |
| ST. BEH. GIRL | | | | | .0938 | -.3660 | -.3174 | -.0314 |
| MOTHERS' AGE | | | | | | .6936* | -.2026 | -.3755 |
| FATHERS' AGE | | | | | | | -.1148 | -.4818 |
| ST. ATT. SC. MOTHER | | | | | | | | .6544* |
| ST. ATT. SC. FATHER | | | | | | | | |

* $p < .05$

ST. BEH. = STEREOTYPICAL BEHAVIOUR
ST. ATT. SC. = STEREOTYPICAL ATTITUDE SCORE

correlation between father's age and attitude score approaches significance, r = -.4818, p , .059. It appears that older fathers may have less stereotyped attitudes than younger fathers.

# CHAPTER FIVE

## DISCUSSION

As stated in Chapter One the purpose of this study was to explore sex-differentiated parent-child interactions by expanding on an earlier study by Snow, Jacklin, and Maccoby (1983). Sixteen sets of opposite-sex twins and their parents were observed, their behaviours recorded, coded, and then analyzed. In this chapter the results of these analyses will be reviewed with respect to the literature presented and the subsequent hypotheses suggested in Chapter Two. Trends arising from these results with directions arising for future research, and the contributions of this work to the literature will be presented.

With respect to the child variables Hypothesis 1a states that there would be no significant differences between boys and girls in observed behaviours in this sample of opposite-sex twins. Hypothesis 1b states that there would be no observable differences in these children's behaviour in the presence of their mothers or fathers. The following variables were analyzed for sex differences: Attachment Behaviours, Feminine Toy Play, Masculine Toy Play, Neutral Toy Play, Inactive, and Explores.

For Attachment Behaviours the Repeated Measures ANOVA produced nonsignificant effects for sex-of-child and for the sex-of-child by sex-of-parent interaction effect. There were no significant differences between boys and girls in this sample in wanting to be held, sitting with the parent, wanting to be close to the parent, and staying close to the parent. This lack of difference between boys

and girls is similar to Snow, Jacklin, and Maccoby's (1983) findings of no significant sex differences for "Initiates Holding" and "Proximity Seeking". Hypothesis 1a is supported for this sample of twins for Attachment Behaviours.

Other authors have, however, found significant sex differences in childrens' attachment behaviours. Brooks and Lewis (1974) and Messer and Lewis (1972) found that the one-year-old girls in their samples touched, looked at, vocalized to, and maintained proximity to parents more than did the one-year-old boys. It is possible that at one year of age attachment behaviours are demonstrated inconsistently or that there is a generational difference between 1972 and more recent studies. It is also possible that father presence, even if he is not directly involved, may somehow affect behaviours (see Clarke-Stewart, 1978). Further research in these areas appears warranted.

With respect to Hypothesis 1b the repeated measures ANOVA produced a significant situation effect. When these children displayed the attachment behaviours described above, the behaviours were directed significantly more often towards mother than towards father. Hypothesis 1b is not supported in this sample for Attachment Behaviours.

Ban and Lewis (1974) also found that children displayed more touching and proximity seeking, or staying close, to mothers than to fathers. Clarke-Stewart (1978) and Lamb (1977a, 1977b, 1978) on the other hand found no sex-of-parent differences in children's attachment behaviours. Clarke-Stewart and Lamb, however, used a strange situation scenario which places children in a

different context than the play situation used in the current study. Lamb also found few sex-of parent differences in child attachment behaviours in the studies which included in-home observations and does concede that there are certain situations in which children of this age show a preference for mother (Lamb, 1978).

With respect to Feminine Toy Play the repeated measures ANOVA produced no significant effects. There were no significant differences between boys and girls for amount time spent playing with dolls or cuddly toys. Hypotheses 1a and 1b are supported for this sample for Feminine Toy Play.

There was, however, a tendency worth noting. The sex-of-child effect produced by the repeated measures ANOVA did approach significance. The girls in this sample tended to play more with the feminine toys than did the boys in all situations. Snow, Jacklin, and Maccoby (1983) did find that the girls in their sample played significantly more with the dolls than did the boys. Roopnarine (1986) also reports similar results.

With respect to Masculine Toy Play the repeated measures ANOVA produced no significant results. Hypotheses 1a and 1b are supported for this sample of twins. There was a trend, however, for boys to play more with masculine toys, particularly in the presence of father.

Snow, Jacklin, and Maccoby (1983) also found no differences between boys and girls for truck play. O'Brien, Huston, and Risley (1983) did find that the boys in their sample were more likely to play with masculine toys although they

found no differences for girls. Caldera, Huston, and O'Brien (1989), O'Brien and Huston (1985), and Zelazo and Kearsley (1980) also found that the boys and girls in their respective studies played more with same-sex toys although all of the children in their sample were older than the children in the current sample which may explain the difference.

With respect to Neutral Toy Play the repeated measures ANOVA produced no significant effects. There were no significant differences between boys and girls in time spent playing with the vacuum, ball, or pop-up-toy. Hypotheses 1a and 1b are supported in this sample for Neutral Toy Play.

Again there was a trend worth noting, however, in that the sex-of-child effect approached significance. The boys in this sample tended to play more with the neutral toys than did the girls. Snow, Jacklin, and Maccoby (1983) did find a significant sex difference for play with the vacuum.

With respect to the child variables Inactive and Explores no significant sex differences emerged. There were no significant differences between boys and girls in the amounts of time that they spent either just sitting, wandering with no apparent purpose, or exploring. Hypotheses 1a and 1b are supported in this sample for the variables Inactive and Explores. There was a trend, however, for children to explore more in the presence of mother. Anecdotally there were substantial differences between twin pairs on these variables but these differences were not analyzed.

Snow, Jacklin, and Maccoby (1983) also failed to find significant

differences between boys and girls for "Explores Room". Pederson and Bell (1970) suggest that boys engage in more gross motor activity while girls are more sedentary. Such was not the case for this sample of twins.

In summary there were no statistically significant differences between boys and girls in this sample of opposite-sex twins. There was one significant difference in how they behaved in the presence of their mothers and fathers. Both children displayed significantly more attachment behaviours towards mothers than towards fathers.

Further, with respect to toy play, because of the fact that the sex-of-child effects for Feminine Toy Play and Neutral Toy Play approached significance and because of the sex differences reported in other literature for play behaviours it was decided to analyze the toy play variables together using a repeated measures MANOVA. Again no statistically significant results emerged. The sex-of-child effect again approached significance, however, suggesting that the tendency for girls to play more with feminine toys and for the boys to play with neutral toys remained.

With respect to the parent behaviours hypothesis 2a states that there would be no significant difference between mothers and fathers in the observed behaviours of the parents in this sample. Hypothesis 2b states that there would no difference in how parents behave with sons or with daughters. The following variables were analyzed for sex differences: Prohibition, Nurturing, Verbalizing, Joins Play, Encouraging Feminine Toy Play, Encouraging Masculine Toy Play, and

Encouraging Neutral Toy Play.

With respect to Prohibition the repeated measures ANOVA produced nonsignificant effects for sex-of-parent and for the sex-of-child by sex-of-parent interaction. There were no differences between mothers and fathers for the number of times they verbally asked their children to stop a behaviour or physically remove their child from a prohibited object or activity. Hypothesis 2a is supported in this sample for the variable Prohibition.

There was, however, a significant difference for sex-of-child. Both parents showed significantly more prohibitive behaviours toward sons than toward daughters. Hypothesis 2b is not supported in this sample for Prohibition. Snow, Jacklin, and Maccoby (1983) also found that fathers prohibited boys more than girls as have Smith and Daglish (1977) and Minton, Kagan, and Levine (1971).

With respect to the variable Nurturing the repeated measures ANOVA produced no significant effects. There were no significant differences between parents for holding children, moving close to children, staying close to children, or picking children up. Neither were there significant differences in the amounts of these behaviours directed at boys or girls. Hypotheses 2a and 2b are supported for this sample of twin parents. There was a trend, however, for mothers to demonstrate more nurturing behaviour than fathers.

Snow, Jacklin, and Maccoby (1983) found no significant differences for "Father Initiated Holding or Proximity". Although other authors (Belsky, 1979; Lamb, Frodi, Hwang, Frodi, & Steinberg, 1982) have reported that mothers

engage in more caretaking activities than fathers, it is possible that the nature of the interactions in the current study, being primarily play interactions, may have precluded sex differences for this variable.

With respect to the variables Joins Play and Verbalizing no significant sex differences were observed. Hypotheses 2a and 2b are supported in this sample for these variables.

With respect to Encouraging Feminine Toy Play the repeated measures ANOVA produced a nonsignificant sex-of-parent effect and a nonsignificant sex-of-parent by sex-of-child interaction effect. There was, however, a significant sex-of-child effect showing that girls were given significantly more feminine toys than were boys. As the sex-of-parent by sex-of-child effect approached significance the Encouraging Feminine Toy Play variable means were analyzed with simple effects t-tests. The results showed that the fathers gave significantly more feminine toys to girls than to boys while mothers did not discriminate in their distribution of feminine toys. Hypotheses 2a and 2b are not supported in this sample for Encouraging Feminine Toy Play.

Snow, Jacklin, and Maccoby (1983) and Roopnarine (1986) also found fathers willing to give dolls and other feminine toys to girls but less so to boys. The results of this sample would tend to support their findings.

With respect to the variable Encouraging Masculine Toy Play no significant sex differences emerged. There were no sex differences in the amount of encouragement of play with the truck, grader, or robot. Hypotheses 2a and 2b are

supported in this sample for Encouraging Masculine Toy Play.

With respect to the variable Encouraging Neutral Toy Play the repeated measures ANOVA produced a nonsignificant sex-of-parent effect and a nonsignificant sex-of-child effect. There was a significant sex-of-parent by sex-of-child interaction effect. Simple effects t-tests showed that mothers gave more neutral toys to boys than to girls but fathers gave neutral toys equally to both boys and girls. Hypotheses 2a and 2b are not supported in this sample for Encouraging Neutral Toy Play.

When the variables which produced either a significant effect or an effect which approached significance were combined in the MANOVA analysis a significant sex-of-child and a significant sex-of-child by sex-of-parent interaction effect emerged. The sex differences in the encouragement of toy play contributed to the interaction effect supporting the finding that fathers encouraged feminine toy play in girls while mothers encouraged neutral toy play in boys. Although the encouragement of masculine toy play shows in the univariate tests as contributing somewhat to the interaction effect, the simple effects t-test showed differences only approaching significance.

Sex-of-child differences in Prohibition and Encouraging Feminine Toy Play contributed to the significant sex-of-child MANOVA effect supporting the ANOVA finding that parents prohibited boys more and girls were encouraged to play with feminine toys more than boys.

In summary the parents in this sample prohibited the behaviour of the boys

more than the girls. The fathers in this sample gave more feminine toys to girls than to boys while the mothers in this sample gave more neutral toys to boys than to girls.

As there were trends for both boys and girls and mothers and fathers to be playing in a somewhat stereotypical fashion, a stereotypical behaviour score was created for all subjects. These scores were compared by two tailed t-test in order to determine if there were sex differences in degree of stereotypical behaviour. There were no significant differences between mothers and fathers or between boys and girls. The stereotypical behaviour scores were then expressed as ratios of all play behaviours and again compared with a t-test. No significant sex differences emerged. It appears that mothers, fathers, boys, and girls were not engaging in more or less stereotypical play behaviours than their counterparts.

Hypotheses 3 states that there would be no significant differences in stereotypical attitude as reflected in the scores obtained from the results of the Child Behaviour Questionnaire. The results of the Child Behaviour Questionnaire indicated that the fathers in this sample scored twice as high as the mothers with the difference being significant. Hypothesis 3 is not supported in this sample.

These fathers appear to believe that more behaviours are appropriate for boys or girls than do mothers. Fagot (1973, 1974) obtained similar results in her samples of parents. Although the fathers did indicate that more behaviours were sex-appropriate it should not be ignored that the mothers in this sample did

indicate that some behaviours were sex-appropriate as well.

Hypothesis 4 states that there would be no significant relationship between parental stereotypical attitudes as reflected in the scores obtained from the Child Behaviour Questionnaire and parent or child behaviours in this sample. There were no significant correlations between either mother's or father's Stereotypical Attitude Scores and mother's, father's, boy's, or girl's Stereotypical Play Behaviour Score. Hypothesis 4 is supported for this sample. Smith and Daglish (1977) also found nonsignificant correlations between parent's stereotyping and adult's or children's behaviour. There was a significant correlation in this sample, however, between father's and son's Stereotypical Play Behaviour, $r = .5732$, $p < .05$.

To briefly summarize the findings of this study the analyses of the variables produced the following results.

Child Variables:

- both boys and girls in this sample displayed significantly more attachment behaviours towards mother than towards father.
- there was a trend for the girls in this sample to play more with feminine toys and for the boys in this sample to play more with masculine and neutral toys.
- there were no significant sex differences for exploring or inactive as defined in Appendix E.

Parent Variables:

- the parents in this sample prohibited sons behaviour significantly more than daughters behaviour.
- there was a trend for the mothers in this sample to show more nurturing behaviours than the fathers toward the twins.
- there were no significant differences between the mothers and fathers in this sample for Verbalizing or Joins Play.
- the fathers in this sample encouraged significantly more feminine toy play with daughters than with sons.
- the mothers in this sample encouraged significantly more neutral toy play with sons than with daughters and showed a trend to encourage more masculine toy play with sons than with daughters.

Stereotypical Play Behaviour Scores and Stereotypical Attitude Scores:

- there were no significant differences between the mothers, fathers, boys, or girls in this sample in the amount of Stereotypical Play Behaviours demonstrated.
- the fathers in this sample scored significantly higher than the mothers in this sample in Stereotypical Attitude Scores.
- there were no significant correlations between parents' Stereotypical Attitude Scores and parents' or childrens' Stereotypical Play Behaviour Scores in this sample.

- there was a significant correlation between fathers' and sons' Stereotypical Behaviour Scores in this sample.

Several interesting trends may have emerged from these results which would appear to warrant further exploration. Firstly, as the children demonstrated more attachment behaviours toward mother and there was a trend for mothers to show more nurturing behaviours to the twins there may be a reciprocal interaction between mothers and children with respect to attachment behaviours. Although the parents in this sample did not demonstrate significant sex differences in nurturing behaviours during the play interactions observed, it is well documented that mothers do engage in more of the caretaking activities, especially in early childhood. Belsky, Gilstrap, and Rovine (1984) reported that over the first year the mothers in their study were significantly more engaging, responsive, stimulating, and positively affectionate while fathers spent more time reading and watching T.V. It is possible that the more attachment behaviours directed at mother may be in response to the early caretaking role of mother. Attempts to find degrees of relationships between these variables may prove useful.

Secondly there may be a reciprocal interaction with respect to parental prohibition. The parents in this study did prohibit boys more than girls. Smith and Daglish (1977) and Snow, Jacklin, and Maccoby (1983) found similar results. What they also found, however, was that the boys in their studies were more likely to engage in forbidden play and to touch tempting objects. Minton, Kagan, and

Levine (1971) reported that the boys in their study were more likely to touch forbidden objects and in fact that mothers were concerned about daughters hurting themselves while they were concerned about sons damaging the house and contents.

Unfortunately, in this study the variable Touches Tempting Objects was excluded because of the low frequency of occurrence. It is possible that the novelty of the toys held the infants' attention and that a longer observation period may have yielded differing results. The relationship between boys behaviour and parental prohibition appears worthy of future exploration.

Thirdly, although the children's play in this sample showed only trends toward sex-appropriateness, it could be interpreted as being reciprocal with the parents' toy play encouragement. Fathers encouraged feminine toy play with girls more than with boys and girls played with feminine toys more than did boys. Mothers encouraged neutral toy play in boys and boys tended to play more with neutral toys.

The fact that these children tended to play in this manner across situations, however, could bring into question the direction of effects. Several authors including Maccoby (1988), and Lytton and Romney (1991) suggest that a predisposition to play with same-sex toys may exist and Scarr and McCartney (1983) believe that people seek out environments that they find compatible and stimulating. Snow, Jacklin, and Maccoby suggest that boys given dolls played less with them than girls given dolls. Certainly the direction of effects in sex-

appropriate play is a debatable topic and worthy of further exploration.

Fourth, the question arises as to why the mothers in this sample encouraged neutral toy play for boys more than for girls and why the boys in this sample tended to play more with the neutral toys than girls. Snow, Jacklin, and Maccoby (1983) also found sex differences for play with the vacuum favouring boys. It is possible that the toys designated as neutral in both studies may not be so neutral after all. Further studies to sort out the categorization of toys appears necessary to answer this question.

Fifth, there appear to be several indicators that there may be within family relationships factors which may be contributing to the degree of stereotypical behaviours. Although not part of the original Hypotheses, in this sample there was a significant correlation between the stereotypical play behaviours of fathers and sons. Also, in this sample, there was a significant correlation between mothers' and fathers' stereotypical attitude scores suggesting that mothers and fathers hold similar attitudes.

Although there were no correlations between attitude scores and behaviours for the current sample, other authors have found such relationships using different measures of stereotyped beliefs. Fagot, Leinbach, and O'Boyle (1992), reported in Chapter Two, found that mothers who scored as more stereotyped had children who were classified as more successful gender labellers. These mothers also handed their children more sex-typed toys and gave more positive responses for sex-typical toy play. Brooks-Gunn (1985, 1986), Bradley

and Gobbart (1989), and Weinraub, Clemens, Sockloff, Ethridge, Gracely, and Myers (1984) have found similar family connections. Further exploration into this "family connection" would appear valuable.

At the beginning of this chapter it was stated that the purpose of this study was to explore sex-differentiated parent-child interactions by expanding on a study by Snow, Jacklin, and Maccoby (1983) who observed fathers interacting with their 1-year-old children. Snow, Jacklin, and Maccoby concluded that sex differences may have their origins in the first year of life, much earlier than previously expected. They found that fathers prohibited boys more than girls, perhaps because boys "needed" it more. They found that fathers exhibited more holding and proximity to daughters. And they found sex-differences in the parameters that fathers set for boys and girls with respect to toy play, but concluded that these interactions were already reciprocal in their sex-typed qualities.

For the most part the results of the current study confirm the findings and conclusions of Snow, Jacklin, and Maccoby (1983). Boys were prohibited more than girls and girls received more encouragement of feminine play from their fathers. The trend for sex-differentiation in children's toy play may also be interpreted as being somewhat child directed and as adding a degree of reciprocity to the interactions. These results differ from the earlier study in that the differences in paternal nurturing were not found.

What the current study adds to their work is firstly the role of mothers in the process and secondly the possible influence that stereotypical attitudes may

have on behaviour. With respect to their role the mothers in this sample joined the fathers in prohibiting boys more than girls, and appear to be somewhat involved in encouraging the sex-appropriate play of boys, as Lytton and Romney (1991) found in their meta-analysis. With respect to the influence of stereotypical attitudes on behaviour, no relationships were discovered.

Although the idea of having opposite-sex twins as subjects is relatively novel it is difficult to determine if it made any substantial difference in the results. These children and parents do appear to be behaving in a similar manner to the parents of singletons as demonstrated by the similarity between these results and those of Snow, Jacklin, and Maccoby (1983). Further work comparing twins and singletons in similar situations may prove helpful.

As stated at the end of Chapter One the primary focus of this study was the behaviours that parents may engage in to socialize sex-appropriate activities in their children. Indeed, the results obtained could be interpreted as suggesting that the parents in this study tended to encourage the sex-appropriate play of their children.

Exactly how much of a role parents play in the socialization of sex differences remains unclear. Peers (Serbin, Connor, Bouchardt, & Citron, 1979; Shell & Eisenberg, 1990), teachers, and other caregivers (Fagot, 1981a; Fagot, Hagan, Leinbach, & Kronsberg, 1985) all appear to contribute to the process. Anecdotally one of the families observed had a 4-year-old sister who, as she watched the twins play, was very adamant about which toys her brother and sister

should play with.

What cannot be ignored, however, is the role that biology or cognition may play in sex role development. As Maccoby (1988) states, rewarding and punishing children for sex-appropriate play contributes to the acquisition of masculine and feminine attributes, but such reinforcement and punishment does not tell the whole story. Although great caution must be exercised in any interpretation of these results because of the exploratory nature of the current work and the lack of clearly significant findings for children's toy play, these results may be interpreted as tentatively supporting the idea that sex-differentiated toy play at this age may not be all parent directed.

If this study were to be repeated several factors may improve on interpretability. Firstly, a larger sample would make the results from the data analysis less tentative. Secondly, more precise measures of stereotyping or stereotypical roles may have shown a better relationship to either the parent's or children's behaviour. Thirdly, a sequence analysis may help sort out the direction of effects. And fourthly, the addition of information on socioeconomic status and education level may help to see the contribution of other variables to the process of the development of sex-appropriate behaviour.

The development of sex roles is a complex process which begins very early in life. It is a worthwhile subject which warrants further study as we attempt to sort out why sex differences in many areas exist and move towards equality in all categories of humanness.

# REFERENCES

Addison, W.E. (1986). Agnostic behaviour in preschool children: A comparison of same-sex versus opposite-sex interactions. Bulletin of the Psychonomic Society, 24, 44-46.

Aiken, L.R. (1972). Research on attitudes toward mathematics. The Arithmetic Teacher, 19, 229-234.

Alvarez, M.M., Huston, A.C., Wright, J.C., & Kerkman, D.D. (1988). Gender differences in visual attention to television form and content. Journal of Applied Developmental Psychology, 9, 459-475.

Atkinson, J., & Endsley, R.C. (1976). Influence of sex of child and parent on parental reactions to hypothetical parent-child situations. Genetic Psychology Monographs, 94, 131-147.

Ban, P.L., & Lewis, M. (1974). Mothers and fathers, girls and boys: Attachment behaviour in the one-year-old. Merrill-Palmer Quarterly, 20, 195-202.

Bandura, A. (1965). Influence of models' reinforcement contingencies on the acquisition of imitative responses. Journal of Personality and Social Psychology, 1, 589-595.

Barrett, D.E. (1979). A naturalistic study of sex differences in children's aggression. Merrill-Palmer Quarterly, 25, 193-204.

Bassoff, E.S., & Glass, G.V. (1982). The relationship between sex roles and mental health: A meta-analysis of twenty-six studies. The Counselling Psychologist, 10, 105-112.

Bates, J.E., Olson, S.L., Pettit, G.S., & Bayles, K. (1982). Dimensions of individuality in the mother-infant relationship at six months of age. Child Development, 53, 446-461.

Baumrind, D. (1980). New directions in socialization research. American Psychologist, 35, 639-652.

Baumrind, D. (1982). Are androgynous individuals more effective persons and parents? Child Development, 53, 44-75.

Baumrind, D. (1986). Sex differences in moral reasoning: Response to Walker's (1984) conclusion that there are none. Child Development, 57, 511-521.

Bearison, D.J. (1979). Sex-linked patterns of socialization. Sex Roles, 5, 11-18.

Beckwith, L. (1971). Relationships between attributes of mothers and their infants' IQ scores. Child Development, 42, 1083-1097.

Bee, H.L., Mitchell, S.K., Barnard, K.E., Eyres, S.J., & Hammond, M.A. (1984). Predicting intellectual outcomes: Sex differences in response to early environmental stimulation. Sex Roles, 10, 783-803.

Bell, N.J., & Carver, W. (1980). A reevaluation of gender label effects: Expectant mothers' responses to infants. Child Development, 51, 925-927.

Bell, R.Q., & Darling, J.F. (1965). The prone head reaction in the human neonate: Relation with sex and tactile sensitivity. Child Development, 36, 943-949.

Belsky, J. (1979). Mother-father-infant interaction: A naturalistic observational study. Developmental Psychology, 15, 601-607.

Belsky, J., Gilstrap, B., & Rovine, M. (1984). The Pennsylvania infant and family development project, 1: Stability and change in mother-infant and father-infant interaction in a family setting at one, three, and nine months. Child Development, 55, 692-705.

Bem, S.L. (1974). The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 42, 155-162.

Bem, S.L. (1975). Sex role adaptability: One consequence of psychological androgyny. Journal of Personality and Social Psychology, 31, 634-643.

Bem, S.L. (1981a). Gender schema theory: A cognitive account of sex typing. Psychological Review, 88, 354-364.

Bem, S.L. (1981b). The BSRI and gender schema theory: A reply to Spence and Helmreich. Psychological Review, 88, 369-371.

Bem, S.L. (1989). Genital knowledge and gender constancy in preschool children. Child Development, 60, 649-662.

Bem, S.L., & Lenney, E. (1976). Sex typing and the avoidance of cross-sex behaviour. Journal of Personality and Social Psychology, 33, 48-54.

Bem, S.L., Martyna, W., & Watson, C. (1976). Sex typing and androgyny: Further explorations of the expressive domain. Journal of Personality and Social Psychology, 34, 1016-1023.

Benbow, C.P., & Stanley, J.C. (1980). Sex differences in mathematical ability: Fact or artifact? Science, 210, 1262-1264.

Benbow, C.P., & Stanley, J.C. (1983). Sex differences in mathematical reasoning ability: More facts. Science, 222, 1029-1031.

Birnbaum, D.W., & Croll, W.L. (1984). The etiology of children's stereotypes about differences in emotionality. Sex Roles, 10, 677-691.

Black, B. (1989). Interactive pretence: Social and symbolic skills in play school play groups. Merrill-Palmer Quarterly, 35, 379-397.

Blakemore, J.E.O. (1981). Age and sex differences in interaction with a human infant. Child Development, 52, 386-388.

Blakemore, J.E.O. (1985). Interaction with a baby by young adults: A comparison of traditional and feminist men and women. Sex Roles, 13, 405-411.

Blakemore, J.E., LaRue, A.A., & Olejnik, A.B. (1979). Sex-appropriate toy preference and the ability to conceptualize toys as sex-role related. Developmental Psychology, 15, 339-340.

Block, J.H. (1976). Issues, problems, and pitfalls in assessing sex differences: A critical review of the psychology of sex differences. Merrill-Palmer Quarterly, 31, 33-45.

Block, J.H. (1983). Differential premises arising from differential socialization of the sexes: Some conjectures. Child Development, 54, 1335-1354.

Boldizar, J.P., Perry, D.G., & Perry, L.C. (1989). Outcome values and aggression. Child Development, 60, 571-579.

Bouchard, T.J., & McGee, M.G. (1977). Sex differences human spatial ability: Not an x-linked recessive gene effect. Social Biology, 24, 332-335.

Bradley, B.S., & Gobbart, S.K. (1989). Determinants of gender-typed play in toddlers. Journal of Genetic Psychology, 150, 453-455.

Brooks, J., & Lewis, M. (1974). Attachment behaviour in thirteen-month-old, opposite-sex twins. Child Development, 45, 243-247.

Brooks-Gunn, J. (1985). Maternal beliefs about children's sex-typed characteristics as they relate to maternal behaviour. In I.E. Sigel (Ed.), Parental belief systems: The psychological consequences for children. New Jersey: Lawrence Erlbaum Assoc.

Brooks-Gunn, J. (1986). The relationship of maternal beliefs about sex typing to maternal and young children's behaviour. Sex Roles, 14, 21-35.

Caldera, Y.M., Huston, A.C., & O'Brien, M. (1989). Social interactions and play patterns of parents and toddlers with feminine, masculine and neutral toys. Child Development, 60, 70-76.

Cann, A., & Newbern, S.R. (1984). Sex stereotype effects in children's picture recognition. Child Development, 55, 1085-1090.

Cantor, N.L., & Gelfand, D.M. (1977). Effects of responsiveness and sex of children on adults' behaviour. Child Development, 48, 232-238.

Cantor, N.L., Wood, D.D., & Gelfand, D.M. (1977). Effects of responsiveness and sex of children on adult males' behaviour. Child Development, 48, 1426-1430.

Carson, D.K., Wagner, B.S., & Schultz, N.W. (1986). Temperament and gender: Correlates of toddler social competence. Journal of Social Psychology, 148(3), 289-302.

Carter, A.S., Mayes, L.C., & Pajer, K.A. (1990). The role of dyadic affect in play and infant sex in predicting infant response to the still-face situation. Child Development, 61, 764-773.

Chapman, M. (1979). Listening to reason: Children's attentiveness and parental discipline. Merrill-Palmer Quarterly, 25, 251-263.

Cherry, L., & Lewis, M. (1976). Mothers and two-year-olds: A study of sex-differentiated aspects of verbal interaction. Developmental Psychology, 12, 278-282.

Clarke-Stewart, K.A. (1978). And daddy makes three: The father's impact on mother and young children. Child Development, 49, 466-478.

Cohen, D.J., Dibble, E., & Grawe, J.M. (1977). Parental style. Mothers' and fathers' perceptions of their relations with their twin children. Archives of General Psychiatry, 34, 445-451.

Cohn, L.D. (1991). Sex differences in the course of personality development: A meta-analysis. Psychological Bulletin, 109, 252-266.

Condry, J.C. (1984). Gender identity and social competence. Sex Roles, 11, 485-511.

Condry, J.C., & Condry, S. (1976). Sex differences: A study of the eye of the beholder. Child Development, 47, 812-819.

Condry, J.C., & Ross, D.F. (1985). Sex and aggression: The influence of gender label on the perception of aggression in children. Child Development, 56, 225-233.

Cook, A.S., Fritz, J.J., McCornack, B.L., & Visperas, C. (1985). Early gender differences in the functional use of language. Sex Roles, 12, 909-915.

Corter, C., & Bow, J. (1976). The mother's response to separation as a function of her infant's sex and vocal distress. Child Development, 47, 872-876.

Cowan, G., & Hoffman, C.D. (1986). Gender Stereotyping in young children: Evidence to support a concept-learning approach. Sex Roles, 14, 211-224.

Cox, D., & Waters, H.S. (1986). Sex differences in the use of organization strategies: A developmental analysis. Journal of Experimental Child Psychology, 41, 18-37.

Crawley, S.B., Rogers, P.P., Friedman, S., Iacobbo, M., Criticos, A., Richardson, L., & Thompson, M.A. (1978). Developmental changes in the structure of mother-infant play. Developmental Psychology, 14, 30-36.

Dino, G.A., Barnett, M.A., & Howard, J.A. (1984). Children's expectations of sex differences in parents' responses to sons and daughters encountering interpersonal problems. Sex Roles, 11, 709-717.

Eagly, A.H. (1983). Gender and social influence. A social psychological analysis. American Psychologist, 38, 971-981.

Eagly, A.H., & Carli, L.L. (1981). Sex of researchers and sex-typed communications as determinants of sex differences in influenceability: A meta-analysis of social influence studies. Psychological Bulletin, 90, 1-20.

Eagly, A.H., & Crowley, M. (1986). Gender and helping behaviour: A meta-analytic review of the social psychological literature. Psychological Bulletin, 100, 283-308.

Eagly, A.H., & Steffen, V.J. (1986). Gender and aggressive behaviour: A meta-analytic review of the social psychological literature. Psychological Bulletin, 100, 309-330.

Eaton, W.O., & Von Bargen, D. (1981). Asynchronus development of gender understanding in preschool children. Child Development, 52, 1020-1027.

Eisenberg, N., & Lennon, R. (1983). Sex differences in empathy and related capacities. Psychological Bulletin, 94, 100-131.

Eisenberg, N., Murray, E., & Hite, T. (1982). Children's reasoning regarding sex-typed toy choices. Child Development, 53, 81-86.

Eisenberg, N., Wolchik, S.A., Hernandez, R., & Pasternack, J.F. (1985). Parental socialization of young children's play: A short-term longitudinal study. Child Development, 56, 1506-1513.

Eme, R.F. (1979). Sex differences in childhood psychopathology: A review. Psychological Bulletin, 86, 574-595.

Emmerich, W., & Shepard, K. (1984). Cognitive factors in the development of sex-typed preferences. Sex Roles, 11, 997-1007.

Eron, L.D. (1980). Prescription for reduction of aggression. American Psychologist, 35, 244-252.

Etaugh, C., Grinnell, K., & Etaugh, A. (1989). Development of gender labeling: Effect of age of pictured children. Sex Roles, 21, 769-773.

Fagan, J.F., & Shepherd, P. A. (1982). Theoretical issues in the early development of visual perception. In M. Lewis & L. Taft (Eds.), Developmental disabilities: Theory, assessment, and intervention. New York: S.P. Medical and Scientific Books.

Fagan, J.F., & Singer, L.T. (1979). The role of single feature differences in infant recognition of faces. Infant Behaviour and Development, 2, 39-45.

Fagot, B.I. (1973). Sex-related stereotyping of toddlers' behaviours. Developmental Psychology, 9, 429.

Fagot, B.I. (1974). Sex differences in toddlers' behaviour and parental reaction. Developmental Psychology, 10, 554-558.

Fagot, B.I. (1978a). Reinforcing contingencies for sex-role behaviours: Effect of experience with children. Child Development, 49, 30-36.

Fagot, B.I. (1978b). The influence of sex of child on parental reactions to toddler children. Child Development, 49, 459-465.

Fagot, B.I. (1981a). Male and female teachers: Do they treat boys and girls differently? Sex Roles, 7, 263-271.

Fagot, B.I. (1981b). Stereotypes versus behavioural judgements of sex differences in young children. Sex Roles, 7, 1093-1096.

Fagot, B.I. (1985). A cautionary note: Parents' socialization of boys and girls. Sex Roles, 12, 471-476.

Fagot, B.I., & Hagan, R. (1985). Aggression in toddlers: Responses to the assertive acts of boys and girls. Sex Roles, 12, 341-351.

Fagot, B.I., & Hagan, R. (1991). Observations of parent reactions to sex-stereotyped behaviours: Age and sex effects. Child Development, 62, 617-628.

Fagot, B.I., Hagan, R., Leinbach, M.D., & Kronsberg, S. (1985). Differential reactions to assertive and communicative acts of toddler boys and girls. Child Development, 56, 1499-1505.

Fagot, B.I., & Kronsberg, S.J. (1982). Sex differences: Biological and social factors influencing the behaviour of young boys and girls. In S.G. Moore & C.R. Cooper (Eds.), The young child: Reviews of research, volume 3 (pp. 193-210). Washington: National Association for the Education of Young Children.

Fagot, B.I., & Leinbach, M.D. (1989). The young child's gender schema: Environmental input, internal organization. Child Development, 60, 663-672.

Fagot, B.I., Leinbach, M.D., & Hagan, R. (1986). Gender labeling and the adoption of sex-typed behaviours. Developmental Psychology, 22, 440-443.

Fagot, B.I., Leinbach, M.D., & O'Boyle, C. (1992). Gender labeling, gender stereotyping, and parenting behaviours. Developmental Psychology, 28, 225-230.

Fagot, B.I., & Patterson, G.R. (1969). An in vivo analysis of reinforcing contingencies for sex-role behaviours in the preschool child. Developmental Psychology, 1, 563-568.

Fennema, E., & Sherman, J. (1977). Sex-related differences in mathematics achievement, spatial visualization and affective factors. American Educational Research Journal, 14, 51-71.

Field, T. (1978). Interaction behaviours of primary versus secondary caretaker fathers. Developmental Psychology, 14, 183-184.

Fischbein, S. (1990). Biosocial influences on sex differences for ability and achievement test results as well as marks at school. Intelligence, 14, 127-139.

Frankel, M.T., & Rollins, H.A. (1983). Does mother know best? Mothers and fathers interacting with preschool sons and daughters. Developmental Psychology, 19, 694-702.

Frisch, H.L. (1977). Sex stereotypes in adult-infant play. Child Development, 48, 1671-1675.

Ginsburg, H.J., & Miller, S.M. (1982). Sex differences in children's risk taking behaviour. Child Development, 53, 426-428.

Goldberg, S., & Lewis, M. (1969). Play behaviour in the year old infant: Early sex differences. Child Development, 40, 21-31.

Goldsmith, H.H. (1983). Genetic influences on personality from infancy to adulthood. Child Development, 54, 331-355.

Goshen-Gottstein, E.R. (1981). Differential maternal socialization of opposite-sexed twins, triplets, and quadruplets. Child Development, 52, 1255-1264.

Gouze, K.R., & Nadelman, L. (1980). Constancy of gender identity for self and others in children between the ages of three and seven. Child Development, 51, 275-278.

Grusec, J.E., Dix, T., & Mills, R. (1982) The effects of type, severity, and victim of children's transgressions on maternal discipline. Canadian Journal of Behavioural Science, 14, 276-289.

Grusec, J.E., & Kuczynski, L. (1980). Direction of effect in socialization: A comparison of the parents' versus the childs' behaviour as determinants of disciplinary techniques. Developmental Psychology, 16, 1-9.

Gunnar, M.R., & Donahue, M. (1980). Sex differences in social responsiveness between six months and twelve months. Child Development, 51, 262-265.

Gurwitz, S.B., & Dodge, K.A. (1975). Adults' evaluations of a child as a function of sex of adult and sex of child. Journal of Personality and Social Psychology, 32, 822-828.

Hertzog, C., & Rovine, M. (1985). Repeated-measures analysis of variance in developmental research: Selected issues. Child Development, 56, 787-809.

Hilton, T.L., & Berglund, G.W. (1974). Sex differences in mathematics achievement - A longitudinal study. The Journal of Educational Research, 67, 231-237.

Hoffman, L.W. (1977). Changes in family roles, socialization and sex differences. American Psychologist, 32, 644-657.

Hoffman, L.W. (1991). The influence of the family environment on personality: Accounting for sibling differences. Psychological Bulletin, 110, 187-203.

Honig, A.S. (1983). Sex role socialization in early childhood. Young Children, 38, 57-70.

Hutt, C. (1972). Sex differences in human development. Human Development, 15, 153-170.

Hyde, J.S. (1981). How large are cognitive gender differences? A meta-analysis using w2 and d. American Psychologist, 36, 892-901.

Hyde, J.S. (1984). How large are gender differences in aggression? A developmental meta-analysis. Developmental Psychology, 20, 722-736.

Hyde, J.S., & Linn, M.C. (1988). Gender differences in verbal ability: A meta-analysis. Psychological Bulletin, 104, 53-69.

Intons-Peterson, M.J. (1985). Fathers' expectations and aspirations for their children. Sex Roles, 12, 877-895.

Jacklin, C.N., DiPietro, J.A., & Maccoby, E.E. (1984). Sex-typing behaviour and sex-typing pressure in child/parent interaction. Archives of Sexual Behaviour, 13, (5), 413-425.

Jacklin, C.N., Maccoby, E.E., & Dick, A.E. (1973). Barrier behaviour and toy preference: Sex differences (and their absence) in the year-old child. Child Development, 44, 196-200.

Jacobs, B.S., & Moss, H.A. (1976). Birth order and sex of sibling as determinants of mother-infant interaction. Child Development, 47, 315-322.

Jardine, R., & Martin, N.G. (1984). No evidence for sex-linked or sex-limited gene expression influencing spatial orientation. Behaviour Genetics, 14, 345-354.

Katz, P.A. (1986). Modification of children's gender-stereotyped behaviour: General issues and research considerations. Sex Roles, 14, 591-602.

Klein, R.P., & Durfee, J.T. (1978). Effects of sex and birth order on infant social behaviour. Infant Behaviour and Development, 1, 106-117.

Korner, A.F. (1973). Sex differences in new borns with special reference to differences in the organization of oral behaviour. Journal of Child Psychology and Psychiatry, 14, 19-29.

Korner, A.F., Hutchinson, C.A., Koperski, J.A., Kraemer, H.C., & Schneider, P.A. (1981). Stability of individual differences of neonatal motor and crying patterns. Child Development, 52, 83-90.

Kraemer, H.C., & Jacklin, C.N. (1979). Statistical analysis of dyadic social behaviour. Psychological Bulletin, 86, 217-224.

Krendl, K.A., Broihier, M.C., & Fleetwood, C. (1989). Children and computers: Do sex-related differences persist? Journal of Communication, 39, 85-93.

Kuczynski, L. (1984). Socialization goals and mother-child interaction: Strategies for long-term and short-term compliance. Developmental Psychology, 20, 1061-1073.

Kuhn, D., Nash, S.C., & Brucken, L. (1978). Sex role concepts of two- and three-year-olds. Child Development, 49, 445-451.

Lamb, M.E. (1977a). Father-infant and mother-infant interaction in the first year of life. Child Development, 48, 167-181.

Lamb, M.E. (1977b). The development of parental preferences in the first two years of life. Sex Roles, 3, 495-497.

Lamb, M.E. (1978). Qualitative aspects of mother- and father-infant attachments. Infant Behaviour and Development, 1, 265-275.

Lamb, M.E., Frodi, A.M., Hwang, C.P. Frodi, M. & Steinberg, J. (1982). Mother- and father-infant interaction involving play and holding in traditional and nontraditional Swedish families. Developmental Psychology, 18, 215-221.

Landerholm, E.J., & Scriven, G. (1981). A comparison of mother and father interaction with their six-month-old male and female infants. Early Child Development and Care, 7, 317-328.

Langlois, J.H., & Downs, A.C. (1980). Mothers, fathers, and peers as socializing agents of sex-typed play behaviours in young children. Child Development, 51, 1237-1247.

Languis, M.L., & Naour, P.J. (1985). Sex differences in neuropsychological function: A vector model. In L.C. Hartlage and C.F. Telzrow (Eds.), The neuropsychology of individual differences (pp. 237-251). New York; Plenum Press.

Laosa. L.M., & Brophy, J.E. (1972). Effects of sex and birth order on sex-role development and intelligence among kindergarten children. Developmental Psychology, 6, 409-415.

Lever, J. (1976). Sex differences in the games children play. Social Problems, 23, 478-487.

Levy-Shiff, R., Sharir, H., & Mogilner, M.B. (1989). Mother- and father-preterm infant relationship in the hospital preterm nursery. Child Development, 60, 93-102.

Lewis, M. (1972). State as an infant-environment interaction: An analysis of mother-infant interaction as a function of sex. Merrill-Palmer Quarterly, 18, 95-122.

Lewis, M., & Weinraub, M. (1979). Origins of early sex-role development. Sex Roles, 5, 135-153.

Libby, M.N., & Aries, E. (1989). Gender differences in preschool children's narrative fantasy. Psychology of Women Quarterly, 13, 293-306.

Linn, M.C., & Peterson, A.C. (1985). Emergence and characterization of sex differences in spatial ability: A meta-analysis. Child Development, 56, 1479-1498.

Lott, B. (1978). Behavioural concordance with sex role ideology related to play areas, creativity, and parental sex typing of children. Journal of Personality and Social Psychology, 36, 1087-1100.

Lytton, H., & Romney, D.M. (1991). Parents' differential socialization of boys and girls: A meta-analysis. Psychological Bulletin, 109, 267-296.

Maccoby, E.E. (1988). Gender as a social category. Developmental Psychology, 24, 755-765.

Maccoby, E.E., & Jacklin, C.N. (1974). The psychology of sex differences. California: Stanford University press.

Maccoby, E.E., & Jacklin, C.N. (1980). Sex differences in aggression: A rejoinder and reprise. Child Development, 51, 964-980.

Maccoby, E.E., Snow, M.E., & Jacklin, C.N. (1984). Children's dispositions and mother-child interaction at 12 and 18 months: A short-term longitudinal study. Developmental Psychology, 20, 459-472.

Malatesta, C.Z., & Haviland, J.H. (1982). Learning display rules: The socialization of emotional expression in infancy. Child Development, 53, 991-1003.

Marcus, D.E., & Overton, W.F. (1978). The development of cognitive gender constancy and sex role preferences. Child Development, 49, 434-444.

Marcus, T.L., & Corsini, D.A. (1978). Parental expectations of preschool children as related to child gender and socioeconomic status. Child Development, 49, 243-246.

Margolin, G., & Patterson, G.R. (1975). Differential consequences provided by mothers and fathers for their sons and daughters. Developmental Psychology, 11, 537-538.

Martin, C.L., & Halverson, C.F. (1981). A schematic processing model of sex typing and stereotyping in children. Child Development, 52, 1119-1134.

Martin, C.L., & Halverson, C.F. (1983). Gender constancy: A methodological and theoretical analysis. Sex Roles, 9, 775-790.

Martin, D.J., & Hoover, H.D. (1987). Sex differences in educational achievement: A longitudinal study. Journal of Early Adolescence, 7, 65-83.

McClurg, P.A., & Chaille, C. (1987). Computer games: Environments for developing spatial cognition? Journal of Educational Computing Research, 3, 95-111.

McGillicuddy-De Lisi, A.V. (1988). Sex differences in parental teaching behaviours. Merrill-Palmer Quarterly, 34, 147-162.

McGlone, J. (1980). Sex differences in human brain asymmetry: A critical survey. The Behavioural and Brain Sciences, 3, 215-263.

McHale, S.M., & Huston, T.L. (1984). Men and women as parents: Sex role orientations, employment, and parental roles with infants. Child Development, 55, 1349-1361.

McLaughlin, B. (1983). Child compliance to parental control techniques. Developmental Psychology, 19, 667-673.

Messer, S.B., & Lewis, M. (1972). Social class and sex differences in the attachment and play behaviour of the year-old infant. Merrill-Palmer Quarterly, 18, 295-306.

Meyer, B. (1980). The development of girls' sex-role attitudes. Child Development, 51, 508-514.

Meyer, J.W., & Sobieszek, B.I. (1972). Effect of a child's sex on adult interpretations of its behaviour. Developmental Psychology, 6, 42-48.

Minton, C., Kagan, J., & Levine, J.A. (1971). Maternal control and obedience in the two-year-old. Child Development, 42, 1873-1894.

Moss, H.A. (1967). Sex, age, and state as determinants of mother-infant interaction. Merrill-Palmer Quarterly, 13, 19-36.

Moss, H.A. (1974). Early sex differences and mother-infant interaction. In R.C. Friedman, R.M. Richart, & R.L. Vande Wiele (Eds.), Sex differences in behaviour (pp. 149-163). New York: John Wiley & Sons.

Mulhern, R.K., & Passman, R.H. (1981). Parental discipline as affected by the sex of the parent, the sex of the child, and the child's apparent responsiveness to discipline. Developmental Psychology, 17, 604-613.

Noller, P. (1978). Sex differences in the socialization of affectionate expression. Developmental Psychology, 14, 317-319.

O'Brien, M., & Huston, A.C. (1985). Development of sex-typed play behaviour in toddlers. Developmental Psychology, 21, 866-871.

O'Brien, M., Huston, A.C., & Risley, T.R. (1983). Sex-typed play of toddlers in a day care center. Journal of Applied Developmental Psychology, 4, 1-9.

O'Conner, M., Foch, T., Sherry, T., & Plomin, R. (1980). A twin study of specific behavioural problems of socialization as viewed by parents. Journal of Abnormal Child Psychology, 8, 189-199.

Parke, R.D., & Suomi, S.J. (1980). Adult male-infant relationships: Human and nonhuman primate evidence. In K. Immelmann, G. Barlow, M. Main, & L. Petrinovitch (Eds.), Behavioural development: The bielfield interdisciplinary project. New York: Cambridge University Press.

Pederson, F.A., & Bell, R.Q. (1970). Sex differences in preschool children without histories of complications of pregnancy and delivery. Developmental Psychology, 3, 10-15.

Perry, D.G., & Bussey, K. (1979). The social learning theory of sex differences: Imitation is alive and well. Journal of Personality and Social Psychology, 37, 1699-1712.

Perry, D.G., White, A.J., & Perry, L.C. (1984). Does early sex typing result from the children's attempts to match their behaviour to sex role stereotypes? Child Development, 55, 2114-2121.

Peters, D.L., & Stewart, R.B. (1981). Father-child interactions in a shopping mall: A naturalistic study of father role behaviour. The Journal of Genetic Psychology, 138, 269-278.

Phillips, J.R. (1973). Syntax and vocabulary of mothers' speech to young children: Age and sex comparisons. Child Development, 44, 182-185.

Plomin, R., & Rowe, D.C. (1979). Genetic and environmental etiology of social behaviour in infancy. Developmental Psychology, 15, 62-72.

Power, T.G. (1985). Mother- and father-infant play: A developmental analysis. Child Development, 56, 1514-1524.

Rebelsky, F., & Hanks, C. (1971). Fathers' verbal interaction with infants in the first three months of life. Child development, 42, 63-68.

Rheingold, H.L., & Cook, K.V. (1975). The contents of boys' and girls' rooms as an index of parents' behaviour. Child Development, 46, 459-463.

Roe, K.V., Drivas, A., Karagellis, A., & Roe, A. (1985). Sex differences in vocal interaction with mother and stranger in Greek infants: Some cognitive implications. Developmental Psychology, 56, 372-377.

Roopnarine, J.L. (1984). Sex-typed socialization in mixed-age preschool classrooms. Child Development, 55, 1078-1084.

Roopnarine, J.L. (1986). Mothers' and fathers' behaviours toward the toy play of their infant sons and daughters. Sex Roles, 14, 59-68.

Rossi, A.S. (1984). Gender and parenthood. American Sociological Review, 49, 1-18.

Rothbart, M.K., & Rothbart, M. (1976). Birth order, sex of child, and maternal help-giving. Sex Roles, 2, 30-46.

Rowe, D.C. (1982). Sources of variability in sex-linked personality attributes: A twin study. Developmental Psychology, 18, 431-434.

Rubin, J.Z., Provenzano, F.J., & Luria, Z. (1974). The eye of the beholder: Parents' views on sex of newborns. American Journal of Orthopsychiatry, 44, 512-519.

Safir, M.P. (1986). The effects of nature or of nurture on sex differences in intellectual functioning: Israeli findings. Sex Roles, 14, 581-590.

Scarr, S., & McCartney, K. (1983). How people make their own environments: A theory of genotype - environmental effects. Child Development, 54, 424-435.

Schaefer, E.S., & Edgerton, M. (1985). Parent and child correlates of parent modernity. In I.E. Siegel (Ed.), Parental belief systems: The psychological consequences for children (pp. 287-318). Hillsdale, New Jersey: Erlbaum.

Schau, C.G., Kahn, L., Diepold, J.H., & Cherry, F. (1980). The relationships of parental expectations and their preschool children's verbal sex typing to their sex-typed toy behaviour. Child Development, 51, 266-270.

Seavey, C.A., Katz, P.A., & Zalk, S.R. (1975). Baby x. The effect of gender labels on adult responses to infants. Sex Roles, 1, 103-109.

Serbin, L.A., Connor, J.M., Burchardt, C.J., & Citron, C.C. (1979). Effects of peer presence on sex-typing of children's play behaviour. Journal of Experimental Child Psychology, 27, 303-309.

Serbin, L.A., & Sprafkin, C. (1986). The salience of gender and the process of sex typing in three- to seven-year-old children. Child Development, 57, 1188-1199.

Sheldon, A. (1990). Pickle fights: Gender talk in preschool disputes. Discourse Processes, 13, 5-31.

Shell, R., & Eisenberg, N. (1990). The role of peers' gender in children's naturally occurring interest in toys. International Journal of Behavioural Development, 13, 373-388.

Sidorowicz, L.S., & Lunney, G.S. (1980). Baby x revisited. Sex Roles, 6, 67-73.

Slaby, R.G. & Frey, K.S. (1975). Development of gender constancy and selective attention to same-sex models. Child Development, 46, 849-856.

Smetana, J.G. (1989). Toddlers' social interactions in the context of moral and conventional transgressions in the home. Developmental Psychology, 25, 499-508.

Smetana, J.G., & Letourneau, K.J. (1984). Development of gender constancy and children's sex-typed free play behaviour. Developmental Psychology, 20, 691-696.

Smith, P.K., & Daglish, L. (1977). Sex differences in parent and infant behaviour in the home. Child Development, 48, 1250-1254.

Smith, P.K., & Green, M. (1975). Aggressive behaviour in English nurseries and play groups: Sex differences and responses of adults. Child Development, 46, 211-214.

Snow, M.E., Jacklin, C.N., & Maccoby, E.E. (1983). Sex-of-child differences in father-child interaction at one year of age. Child Development, 54, 227-232.

Sobieszek, B.I. (1978). Adult interpretations of child behaviour. Sex Roles, 4, 579-588.

Spence, J.T., & Helmreich, R.L. (1978). Masculinity and feminity: Their psychological dimensions, correlates and antecedents. Austin: University of Texas Press.

Spence, J.T., Helmreich, R.L., & Stapp, S. (1973). A short version of the Attitudes Towards Women Scale. Bulletin of Psychonomic Science, 2, 219-220.

SPSSX User's Guide, 2nd ed. (1986). Illinois: SPSS Inc.

Stevenson, H.W., & Newman, R.S. (1986). Long-term prediction of achievement and attitudes in mathematics and reading. Child Development, 57, 646-659.

Stevenson, J., & Fielding, J. (1985). Ratings of temperament in families of young twins. British Journal of Developmental Psychology, 3, 143-152.

Tauber, M.A. (1979a). Parental socialization techniques and sex differences in children's play. Child Development, 50, 225-234.

Tauber, M.A. (1979b). Sex differences in parent-child interaction styles during a free-play session. Child Development, 50, 981-988.

Taylor, M.C., & Hall, J.A. (1982). Psychological androgyny: Theories, methods, and conclusions. Psychological Bulletin, 92, 347-366.

Thoman, E.B., Leiderman, P.H., & Olson, J.P. (1972). Neonate-mother interaction during breast-feeding. Developmental Psychology, 6, 110-118.

Tieger, T. (1980). On the biological basis of sex differences in aggression. Child Development, 51, 943-963.

Tracy, D.M. (1987). Toys, spatial ability, and science and mathematics achievement: Are they related? Sex Roles, 17, 115-138.

Trevarthen, C. (1974). Conversations with a two-month-old. New Scientist, 62, 230-235.

Tronick, E.Z., & Cohn, J.F. (1989). Infant-mother face-to-face interaction: Age and gender differences in coordination and the occurrence of miscoordination. Child Development, 60, 85-92.

Walker, L.J. (1984). Sex differences in the development of moral reasoning: A critical review. Child Development, 55, 677-691.

Walker, L.J. (1986). Sex differences in the development of moral reasoning: A rejoinder to Baumrind. Child Development, 57, 522-526.

Wall, S.M., Pickert, S.M., & Gibson, W.B. (1988). Fantasy play in 5- and 6-year-old children. The Journal of Psychology, 123, 245-256.

Wasserman, G.A., & Lewis, M. (1985). Infant sex differences: Ecolgical effects. Sex Roles, 12, 665-675.

Weinraub, M., Clemens, L.P., Sockloff, A., Ethridge, T., Gracely, E., & Myers, B. (1984). The development of sex role stereotypes in the third year: Relationships to gender labeling, gender identity, sex-typed toy preference, and family characteristics. Child Development, 55, 1493-1503.

Weinraub, M., & Frankel, J. (1977). Sex differences in parent-infant interaction during free play, departure, and separation. Child Development, 48, 1240-1249.

Whitley, B.E. (1983). Sex role orientation and self-esteem: A critical meta-analytic review. Journal of Personality and Social Psychology, 44, 765-778.

Will, J.A., Self, P.A., & Datan, N. (1976). Maternal behaviour and perceived sex of infant. American Journal of Orthopsychiatry, 46, 135-139.

Worchel, F., Nolan, B., & Willson, V. (1987). New perspectives on child and adolescent depression. Journal of School Psychology, 25, 411-414.

Yalom, I.D., Green, R., & Fisk, N. (1973). Prenatal exposure to female hormones. Effect on psychosexual development in boys. Archives of General Psychiatry, 28, 554-561.

Zar, J.H. (1984). Biostastical analysis (2nd ed.). New Jersey: Prentice Hall.

Zelazo, P.R., & Kearsley, R.B. (1980). The emergence of functional play in infants: Evidence for a major cognitive transition. Journal of Applied Developmental Psychology, 1, 95-117.

# APPENDIX A

# CHILD BEHAVIOURS

# APPENDIX A

## CHILD BEHAVIOURS

Touches Tempting Objects
Initiates Holding
Sits with Parent
Initiates Proximity
Stays Close to Parent
Gives Toy to Parent
Gives Toy to Sibling
Plays with Doll
Plays with Rainbow Doll
Plays with Truck
Plays with Grader
Plays with Vacuum
Plays with Robot
Plays with Pop-Up-Toy
Plays with Cuddly Toy
Plays with Ball
Wants Doll
Wants Rainbow Doll
Wants Truck
Wants Grader
Wants Vacuum
Wants Robot
Wants Pop-Up-Toy
Wants Cuddly Toy
Wants Ball
Takes Toy From Sibling
Changes Toy
Inactive
Explores Room
Vocalizes

# APPENDIX B

# PARENT BEHAVIOURS

# APPENDIX B

## PARENT BEHAVIOURS

Verbal Prohibition
Physical Prohibition
Initiates Proximity
Stays Close to Child
Initiates Holding
Holds Child
Gives Doll
Gives Rainbow Doll
Gives Truck
Gives Grader
Gives Vacuum
Gives Robot
Gives Pop-Up-Toy
Gives Cuddly Toy
Gives Ball
Shows Doll
Shows Rainbow Doll
Shows Truck
Shows Grader
Shows Vacuum
Shows Pop-Up-Toy
Shows Robot
Shows Cuddly Toy
Shows Ball
Encourages Activity
Discourages Activity
Inactive
Joins Play
Changes Toy
Verbalizes

# APPENDIX C

# CHILD BEHAVIOUR QUESTIONNAIRE

# APPENDIX C

## CHILD BEHAVIOUR QUESTIONNAIRE

Name:_____

Please indicate whether the listed behaviour is more appropriate for a boy, a girl, both, or neither.

| | Mostly Boy | Mostly Girl | Both | Neither |
|---|---|---|---|---|
| 1. Painting. | ---- | ---- | ---- | ---- |
| 2. Drawing. | ---- | ---- | ---- | ---- |
| 3. Playing with clay. | ---- | ---- | ---- | ---- |
| 4. Playing in sandbox. | ---- | ---- | ---- | ---- |
| 5. Playing with water. | ---- | ---- | ---- | ---- |
| 6. Playing with puzzles. | ---- | ---- | ---- | ---- |
| 7. Stringing beads. | ---- | ---- | ---- | ---- |
| 8. Building with blocks. | ---- | ---- | ---- | ---- |
| 9. Hammering. | ---- | ---- | ---- | ---- |
| 10. Playing with trucks and trains. | ---- | ---- | ---- | ---- |
| 11. Playing with steering wheel. | ---- | ---- | ---- | ---- |
| 12. Playing in kitchen. | ---- | ---- | ---- | ---- |
| 13. Playing with dolls. | ---- | ---- | ---- | ---- |
| 14. Playing with doll house. | ---- | ---- | ---- | ---- |
| 15. Dress up like superhero. | ---- | ---- | ---- | ---- |
| 16. Dress up like grown up. | ---- | ---- | ---- | ---- |
| 17. Play with make-up. | ---- | ---- | ---- | ---- |
| 18. Use construction tools. | ---- | ---- | ---- | ---- |
| 19. Play with iron and ironing board. | ---- | ---- | ---- | ---- |
| 20. Listen to music. | ---- | ---- | ---- | ---- |
| 21. Sing. | ---- | ---- | ---- | ---- |
| 22. Look at books, listen to story. | ---- | ---- | ---- | ---- |
| 23. Play with microscope. | ---- | ---- | ---- | ---- |

Appendix C (Con't)

| | Mostly Boy | Mostly Girl | Both | Neither |
|---|---|---|---|---|
| 24. Play with stuffed animals. | ---- | ---- | ---- | ---- |
| 25. Follow mother around. | ---- | ---- | ---- | ---- |
| 26. Help teacher at school. | ---- | ---- | ---- | ---- |
| 27. Climb. | ---- | ---- | ---- | ---- |
| 28. Ride trike. | ---- | ---- | ---- | ---- |
| 29. Swing or slide. | ---- | ---- | ---- | ---- |
| 30. Throw rocks. | ---- | ---- | ---- | ---- |
| 31. Hit or push. | ---- | ---- | ---- | ---- |
| 32. Ask for help. | ---- | ---- | ---- | ---- |

# APPENDIX D

## FAMILY CONSENT FORM

# APPENDIX D

## FAMILY CONSENT FORM

We, the undersigned, voluntarily agree to participate in a study being conducted by Gary Campagnola, a graduate student at the University of Calgary. We have been informed that the purpose of the study is to examine sex-of-child differences in the play of one-year-old twins and to examine parent-child interaction in a play situation and that we will be completely debriefed at the end of the sessions. We further understand that:

-participation in the study will involve ourselves and our twin children and will consist of two visits to our home by Gary Campagnola, the first session lasting 15 minutes and the second session lasting 30 minutes.

-These sessions will be videotaped and the videotapes will be erased at the completion of the study.

-All information collected by interviews and by videotape will be held in strictest confidence and that we, as participants, along with this information will remain completely anonymous.

-We need not answer any question or give any information we do not wish to.

-There is no danger of physical or psychological risk to any participant in this study.

-We have a right to a summary of the results of this study.

-We are free to withdraw from this study at any time.

Date:_____ Mother_____

Father_____

Witness_____

# APPENDIX E

# DESCRIPTIONS OF CHILD BEHAVIOURS

# APPENDIX E

## DESCRIPTION OF CHILD BEHAVIOURS

| | |
|---|---|
| Touches Tempting Objects: | Touches equipment or something parent has or is prohibiting. |
| Initiates Holding: | Moves close to parent (within 2 feet) unless moving to obtain toy and wants to be held. |
| Sits with Parent: | Sits on parents lap. May also be coded together with playing with toy. |
| Initiates Proximity: | Moves close to parent (within 2 feet) unless moving to obtain toy. |
| Stays close to parent: | Stays within 2 feet of parent after parent or child has initiated proximity. |
| Gives toy to Parent: | Willingly or reluctantly. |
| Gives toy to Sibling: | Willingly or reluctantly. |
| Plays with _____: | Manipulates object or toy. |
| Wants _____: | Holds out hands, watches intently, vocalizes or otherwise indicates that wants toy. |
| Takes toy from Sibling: | Forcefully and not coded if toy offered. If toy offered - change toy. |
| Changes Toy: | At exact second of coding child has left one toy and is moving towards another toy but does not have it in possession. |
| Inactive: | Sitting with no movement toward or interest in any particular object or wandering aimlessly. |
| Explores Room: | Touches objects in room not considered toys or tempting objects. |
| Vocalizes: | Vocalizations not including wanting toys or wanting to be held. Eg. to sibling, to parent, sounds of toys. Usually coded in conjunction with other activity. |

# APPENDIX F

# DESCRIPTIONS OF PARENT BEHAVIOURS

# APPENDIX F

## DESCRIPTION OF PARENT BEHAVIOURS

| | |
|---|---|
| Verbal Prohibition: | Asks or tells child not to do something or yells at child to stop behaviour. |
| Physical Prohibition: | Moves child away from prohibited object or activity, or spanks child. |
| Initiates Proximity: | Moves to within 2 feet of child other than to show toy or join play without child making initial move. |
| Stays Close to Child: | Remains within 2 feet of child and may be coded in conjunction with play of show activity. |
| Initiates Holding: | Picks child up to sit on lap without child asking first. |
| Holds Child: | Holds child on lap and may be coded with additional activity. |
| Gives _____: | Gives child toy. |
| Shows _____: | Shows child toy. Once child touches toy and parent persists then code joins play. |
| Encourages Activity: | Tells child to play with certain toy. |
| Discourages Activity: | Removes toy from child or asks child not to play with toy. |
| Inactive: | No action or involvement except to change position or watch child. |
| Joins Play: | Plays with child when child is already engaged in play with toy. |
| Changes Toy: | At moment of coding parent is in process of obtaining new toy or has new toy but has not shown or given it. |
| Verbalizes: | Talks to child, makes toy sounds. Usually coded with other activity. |

# APPENDIX G

## CODING SHEET

# APPENDIX G

## CODING SHEET

| Time Inter. | Parent | Boy | Girl |
|---|---|---|---|