Connections Between Degree of Social Proximity and Gender Typed Play in Mother-Infant Interactions

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Lindahl, L. B., Heimann, M., & Balheden, S. Connections Between Degree of Social Proximity and Gender Typed Play in Mother-Infant Interactions. Göteborg Psychological Reports, 1997, 27, No. 11. The present study explored the occurrence of gender typed play and its covariation with the degree of social proximity in mother-infant interactions with infants at 9 (N = 22) and 14 months (N = 26). Videotaped observations of free-play interactions at 9 months showed that boys played more with masculine toys than did girls at the same age. Gender typed play was found to be related to different degrees of social proximity. Play with masculine toys was negatively related to degree of social proximity, whereas play with feminine toys was positively related to it. These results indicate differences in mutual engagement in mother-infant pairs with respect to the toys used, thus replicating findings by Caldera, Huston and O’Brien (1989) on parent-toddler interactions.

Keywords: Social proximity, mother-infant interactions, non-verbal communication, sex differences, gender typed play.

Previous studies have shown preferences for gender typed toys among infants from about one year of age (e.g., Huston, 1985; Maccoby & Jacklin, 1974; Servin, Bohlin, & Berlin, 1997). In a recent Swedish study (Servin et al., 1997), 12-month-old girls were found to choose feminine toys more often than 12-month-old boys, indicating that gender typed play might exist long before the child is 18 months old, which is the age at which infants are beginning to understand gender as a social construction (Poulin-Dubois, Serbin, Kenyon, & Derbyshire, 1994). Thus, prior to 18 months, there seems to be a discrepancy between the infants’ actual behaviour and their lack of knowledge about gender. However, there is no evidence showing that children’s understanding of gender is necessary for the learning of sex typed behaviours (Poulin-Dubois et al.,

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Furthermore, infants might as well have tacit knowledge about gender long before they are able to show it (Poulin-Dubois et al., 1994). Such knowledge might be related to innate propensities or early experiences relevant to the development of gender identity. In a study with 10- to 14-month-olds, subjects were reported to fixate photographs of same-sex infants for a longer duration than those of the opposite sex, a finding which was interpreted as possibly being associated with their gender identity (Kujawski & Bower, 1993).

**Social proximity in infancy and gender specific play**

Socio-emotional differences related to sex of infant, including more mutual sharing and proximity between mothers and daughters, have been reported in several studies and theoretical reviews (Beal, 1994; Golombok & Fivush, 1994; Gunnar & Donahue, 1980; Goldberg & Lewis, 1969; Lindahl & Heimann, 1996, 1997; Robinson, Little, & Biringen, 1993). However, these findings are not considered to be unequivocal facts, since others have pointed out the inconsistent results in the field (Lytton & Romney, 1991; Siegal, 1987). How can this lack of straightforward results be explained? Since an important connection was found between mothers' beliefs and their children's gender typed behaviour (Fagot, Leinbach, & O'Boyle, 1992), sample differences in parents' gender stereotyped beliefs might explain some of the divergent results. If parents, for instance, chose highly gender stereotyped toys for their infants, one could use this as an indication of the level of gender stereotyped beliefs. Thus, a closer look at parents' toy choices might provide background information which might help to explain why some samples show gender differences and others do not.

Moreover, the toys used for play also have other implications, since they have been found to mediate the social interactions (Liss, 1981). In an experimental study by Caldera, Huston, and O'Brien (1989), mothers with 18- to 23-month-old infants showed more enthusiasm when they found a hidden feminine toy than when they found a masculine or a neutral one. A similar enthusiasm was found in the fathers' reactions, but was instead related to finding a masculine toy. In addition, if a toy matched both the parent's as well as the infant's sex, the reaction was even more positive. The type of toy also influenced the parents' verbalisations and the observed proximity pattern. The amount of time the parents and children spent "far" from one another was attributable to play with masculine toys. In contrast, play with feminine toys resulted in mothers, but not fathers, spending more time "near" their children. Feminine toys also elicited significantly more teaching, praise, and questions from mothers than the masculine toys.

In order to replicate the above findings of early gender typed play and social interaction differences related to gender typed play, as well as extend them to observations with younger infants, the present study aimed at investigating the following questions: (1) Do mother-infant pairs show gender typed play patterns at 9 and 14 months of age? (2) Is there a connection between gender typed play and the degree of social proximity? (3) Is the verbal quality as displayed by mothers, positively related to the infant's play with feminine toys?
This study used the data from a longitudinal project on early socio-emotional development. The degree of "Social proximity" (defined in the Method section) and the incidence of "Gender typed play" analyses were done using the same free play interactions. Gender typed play was defined as "the use of masculine toys" in mother-son dyads and "the use of feminine toys" in mother-daughter dyads, and involved both the mother’s presentations of toys and the time the infants spent playing with gender typed toys.

Method

Participants

In this study, twenty-two (11 girls and 11 boys) and twenty-six (11 girls and 15 boys) mother-infant pairs participated at 9 and 14 months, respectively. Twenty of these infants were observed longitudinally at both ages. The participants were selected from an initial sample of thirty-three families, recruited via the maternity ward at Sahlgren’s Hospital in Göteborg, Sweden. The smaller sample in the present study is mostly due to the selection criteria that no father-infant interactions were included. Since it was up to the families to decide whether the mother or the father should participate, the number of mother-infant interactions varied between observations.

All infants were born to families with two parents, were full-term and had a normal delivery (Apgar >7 at 1 minute). The average socio-economic status (SES) of the sample was middle to high (M = 40.8, SD = 16.89) on the Hollingshead ‘Four-factor index of social status’ (1975). Approximately 40 % of the infants were first-borns, 50 % had one sibling and 10 % had two siblings. No systematic differences in SES or in number of siblings were noted between mother-son and mother-daughter pairs.

Procedure

The observations were carried out in a play room at the Department of Psychology, Göteborg University. The mother-infant dyads were videotaped during 5 minutes of free play as part of a longer observation on imitation and socio-emotional development. All mother-infant dyads were to some degree familiar with the setting and the researchers, since they had been observed on at least three earlier occasions. The playroom (about 3 x 4 m) contained a blanket on the floor where the mother and her child were asked to sit and play as they wished. In this situation they had access to a basket with age appropriate toys. Eleven toys were gender neutral (e.g., ball, toy telephone, blocks), three were masculine (one car and two trucks) and two were feminine (cloth doll and plastic baby doll). This categorisation is similar to those made in previous studies (Almqvist, 1989; Fein, Johnson, Kosson, Stork, & Wasserman, 1975). Scoring of social proximity was done from videotapes and by the first
author (See Lindahl & Heimann, 1997). Scoring of play pattern was done by the third author. Neither of the scorers had met the participants.

**Instrument**

*Gender typed play.* This scoring captured information about the mother’s presentations of toys as well as about which toys the infant preferred to play with, the infant’s acceptance of the mother’s initiatives etc. The present description is restricted to items relevant to the purposes of this study. The frequency of presentation of masculine, feminine and gender neutral toys by the mother to the infant was scored. Moreover, the time the infant played with masculine, feminine or gender neutral toys was coded using a 20 second time-sampling procedure (additional information can be obtained from the first author).

*Social proximity.* The videotaped mother-infant play episodes were initially scored according to *The Parent-Child Early Relational Assessment Scale* (ERA; Clark, 1985), although only nine items were used in the current analysis. These items form ”The Social Proximity Scale” (See Appendix A). The Total scale included two subscales: the Parental and the Child scales. The Parental scale included five items measuring the mother’s contribution (physical contact, visual contact, verbal quality, social initiative, and maternal sensitivity1). The Child scale included four items measuring the infant’s contribution (social initiative, social responses, compliance, and visual contact). In this study, we will only use the Total scale, which we consider to be a good overall measure of social interaction. In addition, we will describe the results for the item ”verbal quality” which includes the mother’s verbal imitations, extensions, and elaborations of the infant’s language. This item was selected since it was found to be significant in the study by Caldera et al. (1989). Judgements were made on Likert-type scales where low numbers indicated a lower degree of social proximity and vice versa.

*Inter-rater reliability.* The inter-rater reliability for scoring *Gender typed play* was established by looking at the independent scorings of two trained raters. A random sample of three mother-infant pairs at 9 and 14 months, respectively, was scored. The reliability scores calculated with Cohen’s Kappa were \( \kappa = .79 \) for the 9-month observations and \( \kappa = 1.0 \) for the 14-month observations. Inter-rater reliability for the judgements of *Social proximity* were established by looking at the independent scorings of two trained raters. A random sample of thirty-three and fifteen percent of the 9 and 14 months observations, respectively, was analysed. The reliability scores calculated with Spearman’s correlations for the different observations were \( r_s = .79 \) and \( r_s = .86 \), respectively.

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1 ”Maternal sensitivity” differs from the other items, since it is not an original ERA-item, but instead a construction based on the raw scores of four interrelated parental items (\( r > .70 \)): contingent responsivity, reads cues, connectedness, and mirroring.
Statistical analyses

Results of the larger sample \((N = 22-26)\), and not of the smaller longitudinal sample were analysed, since effects are harder to discern in a smaller sample. However, separate analyses of the longitudinal sample revealed a similar overall pattern as for the larger sample.

Independent t-tests (two-tailed) were used for comparing the play pattern in mother-daughter and mother-son interactions with respect to the toy-categories (masculine, feminine or gender neutral) presented by the mother, and played with by the infants. As a second step, analyses of variance were conducted with repeated measures, looking for both main and interaction effects of sex of infant (between) x toy-category (the infant’s play with masculine and feminine toys) at 9 and 14 months, respectively. Correlations were used to measure the relationship between the mother’s presentation and the infant’s play within the same toy-category. When significant correlations were found, we used ANCOVAs to control for effects of the mother’s presentations.

As a third step, analyses of variance of sex of infant (2) x age of infant (2) x toy-category (masculine and feminine toys) were conducted. The fourth step analysed the relationship between the degree of social proximity, the verbal quality, and the infant’s play with toys from different toy-categories, using Pearson’s product moment correlations.

Since the number of available feminine and masculine toys were not equal to the number of neutral toys, we also tested whether or not weighting the scores of gender typed toys (x 2 for play with masculine toys and x 3 for play with feminine toys) would reveal a different picture. However, since it did not, analyses were performed with unweighted scores. An alpha-level of .05 was accepted for all statistical tests.

Results

The results of gender typed play are first described using an overall analysis of the mother-daughter and mother-son interactions. Next, analysis of variance of the separate observations at 9 and 14 months are described. Then effects of both observations are displayed. Lastly, analysis of the relationship between degree of social proximity and play with gender typed toys is described.

Gender typed play

Gender typed play at 9 months. As displayed in Table 1, 9-month-old boys played more with masculine toys than did 9-month-old girls. This was especially surprising since mothers with boys did not show their infants masculine toys more often than did mothers with girls, and also since the gender neutral toys were used most frequently (by mothers and infants).
However, no differences were found in the play with feminine or neutral toys between mother-daughter- and mother-son pairs.

Table 1
The Mother’s Presentation of and the Infant’s Play with Gender neutral, Masculine and Feminine toys at 9 (N = 22) and 14 Months (N = 26) of Age

<table>
<thead>
<tr>
<th>Item</th>
<th>Mothers and 9-month-olds</th>
<th>Mothers and 14-month-olds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daughters</td>
<td>Sons</td>
</tr>
<tr>
<td>The mother’s presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(frequency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral toys</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>3.8</td>
<td>2.75</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Masculine toys</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>1.48</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Feminine toys</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>0.8</td>
<td>1.08</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The infant’s play (in minutes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral toys</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>3.4</td>
<td>1.34</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Masculine toys</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>0.3</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Feminine toys</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>0.8</td>
<td>1.38</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

* p < .05
1) Two tailed t-tests.

A tendency towards an interaction effect between infant’s sex and time spent in gender typed play was found (F(1, 20) = 4.14, p < .06), indicating that girls played more with feminine than masculine toys while boys played more with masculine than feminine toys (See Figure 1).

Correlations between the mother’s presentation and the infant’s play with the same toy-category were not high for masculine toys (r = .14, p < .53) but were indeed high for feminine toys (r = .57, p < .01). Thus, an analysis of sex of infant x play with feminine toys, covarying the mother’s presentation of feminine toys, was conducted. The results revealed a significant effect due to the mother’s presentation (F(1, 19) = 10.26, p < .01), but not due to the infant’s sex (F(1, 19) = 1.27, p < .26) which indicate that infant’s play with feminine toys was affected by the mother’s presentation of the same toy-category and not by sex of infant.

Gender typed play at 14 months. The infants’ play with masculine toys was significantly related to the mother’s presentation of the same toy-category (r = .52, p < .01), but play with feminine toys was not (r = .32, p < .12). An analysis of the relationship between infant’s sex and time spent in play with masculine toys, covarying the mother’s presentation of the same toy-category, revealed a strong effect due to the mother’s presentation (F(1, 23) = 8.02, p < .001).
However, the infant’s sex did not seem to have influenced the play with masculine toys ($F(1, 23) = 0.48, p < .50$).

A visual inspection of the mean scores for play with masculine or feminine toys showed the same trend at 14 as at 9 months, but the calculated interaction effect was clearly non-significant at 14 months of age ($F(1, 24) = 2.42, p < .14$; See Figure 1).

![Figure 1. The interaction between play with masculine and feminine toys at 9 and 14 months.](image)

**Effects of the sex and age of the infant.** When analysing the effects of sex of infant and age on the toy-category used, a main effect was found due to the infant’s age ($F(1, 17) = 4.70, p < .05$), but not due to sex of infant ($F(1, 17) = 0.14, p < .71$). Instead, we found an interaction between sex of infant and age ($F(1, 17) = 7.37, p < .02$), indicating differences between boys’ and girls’ toy choices at the different observations. As displayed in Figure 1, the 14-month-olds played less with gender typed toys than did 9-month-olds.

**Correlations between Gender typed play and Social proximity**

At 9 months of age we found a negative relationship between the time spent in play with masculine toys and the overall proximity score (Total scale; See Table 2). Separate analyses within the group of boys ($r = -.42$) and girls ($r = -.32$) also revealed negative correlations. The relationship between social proximity and play with feminine toys was instead positive but non significant.

At 14 months, the relationship between social proximity and play with feminine toys was significantly positive (See Table 2). Separate analyses of the
groups of boys (r = .34) and girls (r = .48) showed relationships in the same direction. The play with feminine toys was also specifically related to the verbal quality of the mother’s communication. However, the infant’s play with neutral toys was negatively related to the verbal quality, e.g. indicating less verbal imitations and elaborations from the mother (See Table 2).

Table 2
Correlations Between Gender Typed Play and Degree of Social Proximity at 9 (N = 22) and 14 Months (N = 24) of age

<table>
<thead>
<tr>
<th></th>
<th>Gender neutral toys</th>
<th>Masculine toys</th>
<th>Feminine toys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9 &amp; 14 months</td>
<td>9 &amp; 14 months</td>
<td>9 &amp; 14 months</td>
</tr>
<tr>
<td>Verbal quality(^1)</td>
<td>-.14</td>
<td>-.53*</td>
<td>-.19</td>
</tr>
<tr>
<td>Total scale</td>
<td>-.12</td>
<td>-.36</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) = of the mother’s communication, \(* p < .05\); \(** p < .01\).

Discussion

Indications of gender typed play were found at both 9 and 14 months of age, although the infants played mostly with gender neutral toys. At 9 months, the boys played more with masculine toys than the girls, a difference which was found to be independent of the maternal influence. At both ages, the boys played more with masculine than feminine toys while girls showed the opposite pattern. This pattern was more distinct at 9 months than at 14 months of age, even though the trend was in the same direction at both ages. Compared to the recent study by Servin et al. (1997) which reported significant gender differences between 12-month-olds, the incidence of gender typed play was not as predominant in our study. The fact that we found a more frequent incidence of gender typed play when the infants were 9 months compared to at 14 months of age, was in contrast to their findings. It is hard to explain the age-related differences, but it might be related to the mother’s more frequent presentations of gender typed toys at 9 months in our study. Furthermore, the differences between the studies, might also be explained by the way the toys were presented: In the study by Servin et al. (1997), all toys were presented in a semicircle in front of the infants, but in the present study, toys were instead picked up by the mother, one by one from a basket.

One might expect that gender typed play among infants would be influenced by the mothers’ toy presentations. We found divergent results concerning this, which makes drawing conclusions more complicated. Gender typed play with feminine toys at 9 months and with masculine toys at 14 months was related to
the mothers’ presentations of the same toy-categories. But gender typed play with masculine toys at 9 months and with feminine toys at 14 months was not. If the mother’s influence is not the whole answer, what else could explain this? If we were instead to look at the infants' initiatives, there are reasons to believe that they choose same-sex toys as a result of having developed notions of which toys are associated with their own sex. Findings showing intermodal knowledge about gender already at 9 months of age, do in fact support such an idea (Poulin-Dubois et al., 1994). Furthermore, previous results showing 10-14-month-old infants’ ability to identify same-sex infants, might indicate a capacity to represent self and others at a higher-order level (Kujawski & Bower, 1993). In sum, the infant’s level of understanding seem to be underestimated in general.

The socialisation of gender might be bi-directional, influenced by both parents and infants, from a very early starting point (Russell & Saebel, 1997). But is the content of boys and girls socialisation related to their play with toys? Play with different toys seems to be related to different levels of mutual engagement in the dyad, which has been shown by Caldera et al. (1989). Our results showed a pattern similar to their findings and did also extend them; since their study in contrast to our investigation included older children (toddlers) and was experimental in it’s design. In their study, it was found that parents’ were more enthusiastic when interacting with a toy that matched both their own and the child’s gender. Moreover, they found that the infants’ play with feminine toys was related to increased physical proximity and an elaborated verbal communication in mothers. In line with this we found that the degree of social proximity was positively related to play with feminine toys (at 14 months), specifically that the mothers’ verbal quality (imitations, extensions, and elaborations) was related to play with feminine toys. When the infants played with masculine toys (at 9 months) it was instead negatively related to the degree of social proximity. Thus, our results confirm previous findings of parents’ lower enthusiasm with cross-sex toys. Our impression from the observations is that mothers give a certain meaning to the play with dolls, which often includes themes of nurturance and interrelationship (See e. g. Liss, 1981). The verbalisations of higher quality might be a reflection of this.

There are methodological disadvantages to this study due to the fact that its original purpose was not the study of gender typed play. Firstly, the number of gender neutral toys available at the play interactions was higher than the number of gender typed toys. Even if we have tried to diminish the effects of this imbalance by testing whether or not differential weighting would change the pattern, it is perhaps unlikely that any statistical manipulations could change patterns originating from restrictions in the procedure. Secondly, since we lack information about which toys the infants usually played with at home, we do not know whether infants might simply have preferred toys familiar to them. If so, their play might reflect long-term influences from the home environment.

The topic investigated here might have further implications, since it is possible that the different toys used during childhood stimulate different social and cognitive development (Miller, 1987). Differences between boys and girls play might not only encourage them to develop different ways of relating to the
world, but also stimulate different interests. Further research investigating early parent-infant interactions is suggested to outline the development of different gender-related orientations to the world.

References


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Appendix A

*The Social Proximity Scale*

The Social proximity scale is a short scale containing some of the items from the Parent-Child Early Relational Assessment (Clark, 1985). The criterias below are quotations from the scale manual (pp. 10-28).

**Parental scale**

1. Physical contact: The amount and quality of the mother's positive physical contact with the child.

2. Visual contact: The amount and quality of the mother's visual contact with the child. With quality means, if the mother is looking at the child through caring visual contact. Rater should attempt to differentiate between blank staring and genuine visual regard.

3. Verbalisations with quality: The amount of verbal communication characterised by high quality, includes imitating, extending and elaborating the child's language. With very young infants verbalisation may be used to help the infant regulate.

4. Social initiative: The amount and quality of the mother's social initiatives, e.g. introducing social activities but not task directives. High quality is characterised by the timing, the clarity, and if the level of the initiatives suits the child.

5. Maternal sensitivity: The mother's sensitivity to the child's needs, as measured by (1) if and how the mother reads the child's cues in a sensitive and appropriate way, (2) if and how the mother responds contingently on the child's positive actions, (3) if and how the mother is mirroring the child's cognitive and emotional state, and (4) a judgement of the mother's connectedness with child.

**Child scale**

6. Social initiatives: The degree to which a child acts to initiate social interaction with parent. For infants under 12 months, initiations include more non-verbal acts such as touching, vocalising and reaching towards the mother.

7. Social responses: The degree to which the child responds to social stimuli. Both the frequency and the showed interest in responding the mother are assessed. Not ratable if there are no parental initiatives to respond to.

8. Visual contact: The extent to which the child uses visual contact with parent as a means of communication. Includes frequency and duration of looking, gazing, and eye-to-eye contact as situationally appropriate.

9. Compliance: The degree to which child cooperates with suggestions, requests, directions, and/or structure provided by mother.

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1 For more information about this scale, please contact the first author.

2 This variable is constructed from four highly interrelated items of the ERA-scale: ”connectedness”, ”mirroring”, ”positive contingent responsivity” and ”reads cues”.