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General Introduction
Gender differences in behavior have been studied systematically since the 1600s (Graunt, 1665), but it was not until the feminist movement in the 1970s that the study of gender in relation to child development emerged (Zosuls, Miller, Ruble, Martin, & Fabes, 2011). A major contribution to the study of gender in relation to child development was the publication of the book, *The Development of Sex Differences*, edited by Maccoby (1966), and Maccoby and Jacklin’s (1974) review, *The Psychology of Sex Differences*. These books laid the foundation for theory and research on gender in developmental psychology (Zosuls et al., 2011). Their most important contributions to the field were the conclusions that 1) there are only a few well-established gender differences in behavior, instead of numerous large differences between the sexes, 2) within-gender differences are often larger than between-gender differences, and 3) there are several potential reasons for gender differences, not only biological but also social.

During the 70s and 80s the study of gender in psychology flourished (Blakemore, Berenbaum, & Liben, 2009). However, with the decline of the feminist movement the interest in gender as an important explanatory variable in developmental psychology decreased. The most widely cited papers on gender development are still from the 1970s and 1980s (Blakemore et al., 2009). Given the rapid changes in gender roles in most Western societies the past decades (Inglehart & Norris, 2003) there is a need for child-development research to incorporate gender as a variable of interest in their studies, to understand the possible consequences of these societal changes for child development. The current thesis focuses on gender and gender-related factors (such as gender stereotypes) as possible explanatory variables of parent and child behavior in the family context. When studying gender within the family context, ‘gender’ applies to all members of the family, including parent gender and child gender, and to all relations between family members’ genders, attitudes, and behaviors.

**Child Gender**

In their book *The Psychology of Sex Differences* (1974, p. 351-352), Maccoby and Jacklin state that there are some “fairly well established sex differences: 1) Girls have greater verbal ability than boys, 2) Boys excel in visual-spatial ability, 3) Boys excel in mathematical ability, 4) Males are more aggressive”. Gender differences in social and emotional behavior are indeed found from an early age onwards. Before 12 months of age, boys already display higher activity levels and lower effortful control than girls (Else-Quest, Hyde, Goldsmith, Van Hulle, 2006), which can be seen as a precursor of their higher levels of disruptive behaviors (i.e., noncompliance, oppositional behavior, aggression) that are generally found at a later age (Koot & Verhulst, 1991; Kuczynski, Kochanska, Radke-Yarrow, & Girnius-Brown, 1987). One of the most pronounced gender differences found in the literature on child
behavioral development is the higher level of aggressive behavior in boys than in girls (Archer, 2004; Hyde, 1984). There is also some evidence of boys showing less empathy and prosocial behavior than girls (Zahn-Waxler, Robinson, & Emde, 1992).

Several biological processes have been linked to gender differences in children’s behavior, with gonadal hormones (i.e., testosterone, estrogens) as the most extensively studied factors (Hines, 2005). Studies examining the association between testosterone levels and gender differences in behavior have demonstrated that girls who are exposed to high levels of testosterone prenatally (i.e., genetic disorder congenital adrenal hyperplasia; CAH) show increased male-typical play and interests and reduced female-typical play and interests (see Auyung et al., 2009; Berenbaum & Beltz, 2011; Hines, 2005). Moreover, natural variations in prenatal testosterone levels have also been linked to variations in girls’, but not boys’, gender-role behavior (see Cohen-Bendahan, van de Beek, & Berenbaum, 2005). This evidence indicates that gender differences in behavior might in part be due to gender differences in androgen levels during early development. However, these studies cannot completely rule out the influence of the social environment (i.e., parents of daughters with CAH may treat these girls differently than parents of daughters without CAH do, because CAH girls look more masculine at birth), nor have they found substantial evidence for a neural substrate that can explain the association between prenatal testosterone levels and gender differences in behavior (e.g., Ciumas, Lindén Hirschberg, & Savic, 2009).

In addition to potential biological influences, gender differences in child behavior may arise because of parental differential treatment of boys and girls (Chaplin, Cole, & Zahn-Waxler, 2005; Mandara, Murray, Telesford, Varner, & Richman, 2012). There is meta-analytic evidence that parents use more physical punishment with boys than with girls, encourage sex-typed behaviors (i.e., expected or normative for one sex) more in boys than in girls (Lytton & Romney, 1991), and use more supportive speech with daughters than with sons (Leaper, Anderson, & Sanders, 1998). However, it is unclear whether this differential treatment of boys and girls can explain gender differences in behavior. Moreover, little is known about the mechanisms underlying this differential treatment of boys and girls. As already proposed by Maccoby and Jacklin in 1974, parents treat boys and girls differently “1) To shape them toward the behavior deemed appropriate for their sex, 2) Because of innate differences in characteristics manifested early in life, boys and girls stimulate their parents differently and hence elicit different treatment from them” (Maccoby & Jacklin, 1974, p. 305-306).

More recent theories such as role theory and social role theory provide a more extensive explanation for differential parenting of boys and girls (Eagly, Wood, & Diekman, 2000; Hosley & Montemayor, 1997). Both theories focus on the historical division in gender roles, that is the female role of homemaker and the male role of economic provider. It is proposed that these roles and the characteristics
associated with these roles lead to stereotypical ideas and expectations about men and women, which lead to differential treatment of men and women, which in turn leads to gender differences in behavior. When applied to parenting and child aggression, for example, mothers and fathers are expected to use different parenting strategies with boys and girls in accordance with boys’ and girls’ divergent gender roles. Parenting girls would be more likely to focus on affiliation and interpersonal closeness, whereas parenting boys would be more likely to focus on assertiveness and dominance.

On the other hand, child-effect models (i.e., children are not only passive recipients of parenting behaviors, but also influence the parent by their own behaviors, Bell, 1968) and studies of gene-environment correlation (rGE, Plomin, DeFries, & Loehlin, 1977; Scarr & McCartney, 1983) have demonstrated child-driven effects on parenting (Klahr & Burt, 2013). Given this evidence and the fact that boys have shown a higher genetic tendency to disruptive behavior problems than girls (Buckholtz et al., 2008; Kim-Cohen et al., 2006; Meyer-Lindenberg et al., 2006), they may also be more likely to elicit more negative behaviors from their parents or actively seek conflict with their parents.

**Parent Gender**

Gender of the parent is also an important factor in research on parenting and child development. As Maccoby and Jacklin stated: “A parent’s behavior toward a child will depend, in some degree, upon whether the child is of the same sex of himself” (Maccoby & Jacklin, 1974, p. 306). However, most studies on child development in the family context include only mothers. Fathers are still sorely underrepresented in these studies, although they play an important role in the socialization of their children (Lamb, 2010). According to role theory and social role theory, mothers are traditionally viewed as homemakers and primary caregivers of the children whereas fathers are seen as economic providers (Eagly et al., 2000; Hosley & Montemayor, 1997). The male role is characterized by competence, independence, assertiveness, power, and leadership, whereas females are seen as kind, considerate, helpful, nurturing, and caring. Although gender roles have changed dramatically over the last decades in most Western societies, mothers in the Netherlands are still the primary caregivers of children in the vast majority of families (Sociaal en Cultureel Planbureau [SCP], 2011). It has been suggested that these gender roles and the characteristics associated with these roles may result in differences in parenting between mothers and fathers (Bem, 1981).

Evolutionary theories, and especially the concept of parental investment, may also provide rationales for the differences between mothers and fathers (Hyde, 2014). Parental investment addresses any parental behavior or investment directed to the offspring that benefits the offspring, but may also be detrimental to the parent’s own future condition, survival, or further reproductive output (Trivers, 1972). Human
mothers biologically invest more in their children than human fathers (e.g., sperm cells are less precious than egg cells, nine-month pregnancy, delivery). At birth, it is to the advantage of the person who already invested most in the offspring to take care of it. This may explain why mothers’ involvement in child care is much more intensive than that of fathers. This difference in child-care involvement may in turn lead to differences in other domains (e.g., gender roles, working outside the home, behavior repertoires, Hyde, 2014).

Mothers and fathers not only differ in the amount of involvement in child care, but they may also use different parenting strategies. There is meta-analytic evidence that fathers use more directive and informative speech and less supportive speech than mothers, and talk less to their children in general than mothers (Leaper et al., 1998). Moreover, fathers show lower levels of sensitivity and higher levels of intrusiveness than mothers do (see Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Hallers-Haalboom et al., 2014; Lovas, 2005). With regard to discipline there is some evidence that mothers are more concerned with disciplining their children than fathers are. Mothers have been found to use more verbal control, guidance, commands, and physical discipline strategies in reaction to children’s noncompliance than fathers (e.g., Gunnoe & Mariner, 1997; Power, McGrath, Hughes, & Manire, 1994; Tulananda & Roopnarine, 2001).

Mothers and fathers not only differ in their general parenting practices, but they may also differ in the extent to which they treat their sons and daughters differently. According to social role theory fathers are more inclined than mothers to socialize their children, especially their sons, into the gender roles proposed by society (Eagly et al., 2000). Because gender roles and gender stereotypes are generally more restrictive for boys than for girls (i.e., it is deemed more appropriate for girls to play soccer than it is for boys to do ballet), fathers are more concerned with their boys conforming to gender roles (Eagly et al., 2000). Thus, fathers are expected to use more gender-differentiated parenting than mothers. Meta-analytically there is indeed some evidence that fathers differentiate more between boys and girls than mothers (Lytton & Romney, 1991). However, this meta-analysis has been criticized for using too-broad categories of socialization behaviors, including few observational studies, and not weighing study results by sample size (Keenan & Shaw, 1997).

Another important issue with regard to differences between mothers and fathers is whether mothers and fathers have a different influence on child development. Evidence from a meta-analysis shows that mothers’ parenting strategies have a stronger influence on children’s disruptive behaviors than fathers’ parenting (Rothbaum & Weisz, 1994). An explanation for this finding is that in most families mothers are the primary caregivers, and therefore might influence their children more than fathers (Rothbaum & Weisz, 1994). In addition, meta-analytically the positive association between maternal sensitivity and infant-mother attachment security is
markedly stronger than the association between paternal sensitivity and infant-father attachment security (De Wolff & Van IJzendoorn, 1997; Lucassen et al., 2011). However, fathers still have an important influence on children’s behavior above and beyond mothers’ influence (e.g., Kosterman, Haggerty, Spoth, & Redmond, 2004). Especially in older children and adolescents the father-child relationship becomes increasingly important for child well-being, probably because father involvement tends to increase during this period (Connell & Goodman, 2002; Rothbaum & Weisz, 1994).

With regard to the combination of parent and child gender it has been suggested that boys and girls might be primarily socialized by the same-sex parent (Bandura, 1977). One would therefore expect the highest levels of parent-child influence to be found in either the mother-daughter dyad or the father-son dyad. However, results from the small body of empirical studies are inconsistent. Some studies find no differences between the four possible parent-child dyads (i.e., mother-daughter, mother-son, father-son, father-daughter; Russel & Saebel, 1997), whereas other studies find the strongest link between mothers and daughters behaviors and attitudes (Blair, 1992). Yet another study has found that the father-son dyad is characterized by the least optimal interaction patterns, whereas the mother-daughter dyad could be characterized by the most optimal interaction patterns (Lovas, 2005).

### Sibling Gender Combination

Sibling gender combination is a structural family characteristic that refers to the combination of gender and ordinal position of siblings in a family. In 1956 Helen Koch already pointed to “the sib’s-sex variable as a very important one (i.e., in child development) that, in the main, has been relatively neglected in the experimental...literature.” (Koch, 1956, p. 309). Even though the lack of studies on the effects of sibling gender combination (i.e., boy-boy, girl-girl, boy-girl, girl-boy) was noted more than 5 decades ago, there are still very few studies addressing its influence on parent or child behaviors. In the Netherlands the majority of children grow up in families with at least one sibling (Sociaal en Cultureel Planbureau [SCP], 2011). According to family system theories, family structure may influence the behavior of individual family members, but also the way in which family members relate to each other (Hinde & Stevenson-Hinde, 1987; Minuchin, 1985; Schoppe, Mangelsdorf, & Frosch, 2001). Indeed, there is some evidence that sibling gender combination plays a role in child social-emotional development and parent-child interactions (e.g., McHale, Crouter, & Tucker, 1999; Rust, Golombok, Hines, Johnston, & Golding, 2000). However, the results are mixed with regard to the direction of effects. Some studies find that families with mixed-gender siblings constitute a less gender stereotypical environment than families with same-gender siblings, because siblings reinforce characteristics of their own sex in their sisters and
brothers (e.g., Brim, 1958; Rust et al., 2000). These studies indicate that the presence of an opposite-gender sibling may work as a gender neutralizer on the family environment. On the other hand, some studies provide evidence for the proposition that families with mixed-gender siblings provide a more gender stereotypical environment than families with same-gender siblings, because parents in families with mixed-gender siblings have the opportunity to emphasize differences between boys and girls (McHale et al., 1999). In this case the presence of an opposite-gender sibling may work as a gender intensifier on the family environment.

**Gender Stereotypes**

As stated by Maccoby and Jacklin: “Parents base their behavior toward a child on their conception of what a child of a given sex is likely to be like” (Maccoby & Jacklin, 1974, p. 306). This implies that parents’ stereotypes about gender differences might influence their behavior. Gender schema theory (Bem, 1981) suggests that the way parents behave towards boys and girls is indeed guided by their gender schemas that consist of gender-typed information and experiences. According to this theory, parents with gender schemas consisting of strong stereotypical notions about gender roles might be more likely to socialize their boys and girls in a gender-role consistent way, for example by gender-differentiated parenting or by emphasizing that certain behaviors are more appropriate for boys or girls. Children will internalize these early gender-typed experiences in gender schema’s (Gelman, Taylor, Nguyen, Leaper, & Bigler, 2004; Witt, 1997) and these gender schema’s will influence the processing of subsequent gender-related information and thereby bias future actions (Bem, 1981). When children’s gender concepts are composed of stereotypical information about gender roles they are more likely to show gender-typed behavior (Fagot, Leinbach, & O’Boyle, 1992; Liben & Bigler, 2002). These propositions suggest that parental gender stereotypes might be important factors in parenting and child development.

Although gender schema theory provides theoretical underpinnings for the intergenerational transmission of gender stereotypes via the behaviors of parents, there is surprisingly little empirical evidence for a link between parents’ and children’s attitudes about gender (see Tenenbaum & Leaper, 2002), nor for a link between parents’ gender stereotypes and parents’ actual gender-related behavior towards their children (e.g., Fagot et al., 1992; Tenenbaum & Leaper, 2002), with most studies finding no significant associations. This may be partly because parents’ attitudes are often assessed explicitly (i.e., overtly expressed ideas about men and women), whereas for controversial subjects like gender and race, implicit stereotypes (i.e., operate largely outside conscious awareness) may be better predictors of behavior than explicit self-reported stereotypes (Nosek, Benaji, & Greenwald, 2002a). Self-report of gender stereotypes may be biased by social desirability and a lack of awareness of own stereotypes (White & White, 2006).
**Aim and Outline of the Dissertation**

The general aim of the studies presented in this dissertation is to provide more insight into the role of child gender, parent gender, and sibling gender composition in the socio-emotional development of children. The relevance of gender in the study of child development has been signaled since the 1950s, but the effects of gender on parenting and child development are still poorly understood. Moreover, there is a lack of studies investigating parenting factors as a possible mechanism underlying the gender differences in child behavior (see Hyde, 2014). The focus of the current dissertation is on gender (of parent, child, sibling) and gender-related factors (i.e., gender stereotypes) as possible explanatory variables for child development. A systematic meta-analysis was conducted to examine possible differences in the extent to which mothers and fathers use differential control strategies with boys and girls. Moreover, in three empirical studies the intergenerational transmission of gender stereotypes from parents to children via parental messages about gender and parents’ gender-differentiated parenting practices is examined, with a focus on the effects of child, parent, and sibling gender. We also investigate the possible consequences of mothers’ and fathers’ differential treatment of boys and girls for gender differences in behavior.

In Chapter 2 the extent to which mothers and fathers use differential control strategies with their sons and daughters is examined meta-analytically. Chapter 3 reports on the implicit gender stereotypes of preschoolers and their parents within the family context, focusing on the role of implicit and explicit parental gender stereotypes, parent gender, child gender, and sibling gender. Chapter 4 focuses on our newly developed picture book that was specifically designed to elicit parental statements about gender. Mothers’ and fathers’ gender talk towards their young sons and daughters are examined, by taking into account sibling gender composition, and the association between parental gender talk and parental gender stereotypes is tested. In Chapter 5 a moderated mediation model is tested in which the link from child gender, via parental use of physical discipline strategies, to the child’s aggressive behavior a year later, is moderated by parents’ gender stereotypes. Chapter 6 presents a review of the literature on gender-related processes in the family context and the newly developed Gendered Family Process model. Finally, in Chapter 7 the main findings of these studies are integrated and discussed. Limitations, suggestions for further research, and theoretical and practical implications are addressed.