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Kindergarteners' gender roles

A cross-sectional study of sex differences in gender stereotypes and gender-typed preferences

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1 Introduction

Although girls and boys, in theory, are presented with equal opportunities in areas such as education and work life, gender segregation persists in the choices made by children and young adults with regard to education and career. Girls predominantly choose to study language, social and health care sciences, whereas boys choose technical or natural sciences (Besenbäck & Tanzberger, 2003). Furthermore, girls and boys still seem to be treated differently by professionals in the education system. Girls are praised for their social behavior, whereas boys are praised for their intellectual performances (Besenbäck & Tanzberger, 2003).

Existing gender segregation in choices provides children with little opportunity of trying out different ways of behaving and being. One could presume that the support of children wishing to try behaviors traditionally not related to their sex is limited. In other words, as children are given little opportunity to challenge traditional gender roles and behaviors, their gender-stereotype choices are not surprising.

Implementing successful gender sensitive efforts would be made easier if the process of how children develop gender roles and behaviors was clearly understood. What is known is that the gender development path includes biologic, cognitive, environmental components, as well as an interaction between the three. More specific knowledge of children's gender roles is essential. It is, for example, not known if boys and girls develop gender roles in the same way. Since gender roles start to develop early, this work focuses on children in kindergarten. Hence, this work gives insight to possible sex differences in gender roles of boys and girls at the first instance of the educational system.

Boys and girls seem to prefer different things and behaviors (Campbell, Shirley, & Candy, 2004; Chick, Heilman-Houser, & Hunter, 2002; O'Brien et al., 2000), but are they alike in the extent of these preferences? There is research covering aspects of kindergarteners' gender stereotypes and gender-typed preferences. However, little of it concerns eventual differences between boys and girls in the levels of these kinds of stereotypes and preferences.

Previous research suggests boys and girls differ in their awareness of gender stereotypes (O'Brien et al., 2000; Poulin-Dubois, Serbin, Kenyon, & Derbyshire, 1994; Serbin, Poulin-Dubois, Colburne, Sem, & Eichstedt, 2001): girls are aware of gender stereotypes for both gender roles, whereas boys mainly are aware of the male gender-role. While maintaining gender stereotypes, children's evaluation of cross-gender behavior varies depending on the specific actions: boys dressing like girls and girls playing like boys, were evaluated most negatively (Owen Blakemore, 2003).

The present study was designed to explore the issue of gender difference in gender stereotypes and gender-typed preferences, which could be expected from results found in previous studies. Specifically, differences in preferences for careers, toys, carnival outfits, and play-partners are explored. Moreover, differences in gender stereotypes of objects, behaviors and personality traits are examined.

To further understand the role of cognitive maturity and parental factors for the development of gender stereotypes and gender-typed preferences, these components were taken into account in the present study. Intelligence tests were used and information about the parents' educational level was gathered. In addition, parent's adherence to their gender-role was examined on personality attributes. In this work, all of these variables are related to the preferences and stereotypes of the children.

In conclusion, this study aims to fill one of the gaps in the knowledge of kindergarteners' gender stereotypes and gender-typed preferences. It aims to clarify whether or not boys and girls differ in the extent of gender-related preferences and stereotypes, taking age, cognitive maturity and parental factors into account.

The purpose of this work is to increase knowledge of gender roles of kindergarteners. The hope being that this will help to further understand gender development. Furthermore, the knowledge can be used to develop gender sensitivity efforts that enable children to challenge gender roles and widen their future education and career possibilities.

This work starts with a theoretical background giving an overview of the concepts of gender stereotypes, gender-typed preferences, and gender development theories. Research findings concerning adult's gender-related cognitions and behaviors toward children and

children's gender related cognitions and behaviors are presented. After an introduction to the research field, the goals and research questions of the present study are presented. A presentation of the empirical work of the present study follows. The methods are explained and results are presented and discussed. Finally, an outlook for future studies is given.

2 Definitions

This work will both theoretically present and empirically explore specific gender development issues. In order to understand the different theories and definitions, the following part will introduce some of the definitions and background information in this vast research field.

Various terms have been used to describe different aspects of differences between men and women. Explanations for these terms follow below:

Gender is a term proposed by Unger in 1979 (Brannon, 1996). The term was meant to be used for traits and behaviors linked by society to a person's sex. It was supposed to be a social label for differences between the sexes, leaving the term *sex* to exclusively stand for the biological components of the sexes (Brannon, 1996). However, the terms gender and sex have ever since been used interchangeably. Though it might seem logical to separate the terms, they may not be totally independent of one another (Maccoby, 1988, from (Golombok, 1995).

Gender roles reflect behaviors and attitudes that each culture considers appropriate for men or women (Golombok, 1995).

Gender typing is used to describe how much a person is conforming to the expected gender role. A gender-typed person is a person that conforms to the prescribed role of his or her sex (Golombok, 1995). Preferences that match the prescribed gender role are referred to as *gender-typed preferences*. Behaviors that match the prescribed gender role are referred to as *gender-typed behavior* or *gendered behavior*.

Gender stereotypes are beliefs about aspects such as characteristics and activities associated with either men or women (Golombok, 1995). In Golombok (1995), a stereotype is defined as "an organized set of beliefs concerning the characteristics of all members of a defined group". Hence, gender stereotypes are *beliefs* about how men and women behave, look and think. It is assumed that a person will behave accordingly, only by knowing his or her sex (Trautner, 1988). Stereotypes make life easier since they simplify complex information (Herkner, 2001). However, with simplified information

interpretations are not made based on all available information. Stereotypes are highly resistant to change (Herkner, 2001). This is partly because stereotypes held by a person lead attention to stereotyped information and partly because stereotyped information is better memorized (Herkner, 2001).

Gender stereotypes seem to be similar both within, as well as between, different cultures (Golombok, 1995). Stereotypically, men are seen as those who make things happen, whereas women are concerned with social interaction and emotions (Golombok, 1995). Male traits have historically been valued higher than the female traits (Golombok, 1995). As for behavior, it is socially desirable to behave in a gender-typed way (Golombok, 1995). In other words, it is the expected behavior, and it is seen in a negative way, when individuals do not behave in a gender-typed manner.

In reality, different combinations of stereotypes (gender, ethnic, socioeconomic, etc.) influence what and to which degree something is expected from an individual (Golombok, 1995). As for all kinds of stereotypes, individuals differ in their extent of gender stereotypes (Golombok, 1995).

The next chapter will present theories of gender development. Since there is an early onset of gender-typed behavior and expression of gender stereotypes, early childhood is of interest in research of gender development. The theories will in more detail describe possible ways in which children acquire gender roles, gender-typed preferences and gender stereotypes.

3 Theories on gender development

The principal approaches explained are prenatal influences, social learning theories and cognitive developmental theories. Although this work focuses on kindergarten-aged children, it is important to bear in mind the gender development before kindergarten. This chapter aims to provide a better understanding of the background of gender studies focusing on children of different ages.

3.1 Prenatal influences

Since results have shown that differences in behaviors between boys and girls appear early (Serbin et al., 2001), assumptions that differences have a biologic component have been discussed. Studying individuals with atypical chromosomal patterns or an unusual prenatal history have generated knowledge of biological components for gender development (Golombok, 1995). Sex chromosomes do not seem to have a direct influence on gender development. Rather, it seems that it is the combination of prenatal hormones and the child's social environment that influence gender development (Golombok, 1995). A study showed that gender-role behavior of kindergarten girls was linearly related to the testosterone levels that they had experienced prenatally (Hines et al., 2002). Factors concerning social environment were not related to the kindergarten girls' gender-role behavior (Hines et al., 2002). A study with twin and non-twin sibling pairs examined genetic and environmental influences on gender-typed behavior among 3 to 4 year-olds (Iervolino, Hines, Golombok, Rust, & Plomin, 2005). The results concluded moderate genetic influences and substantial shared environmental influence on gender-typed behavior of boys. For the girls, however, the pattern was the opposite (Iervolino et al., 2005). The results show, that gender-role development might be different for boys and girls. However, they also show that there is no simple explanation for gender-typed behavior. This work will not further explore the genetic or hormonal components of gender-typed behavior.

3.2 Social learning theories

Social learning theories state two main causes for the development of gender-typed behavior. This section will give an overview of the two ways, namely differential reinforcement and modelling or observational learning. Research that has examined aspects of social learning theories on gender role development will be presented in chapter 5 and 6.

The differential reinforcement theory

According to the differential reinforcement explanation, behavior is modified by its consequences. Reinforced behavior is likely to be repeated, whereas punished behavior is not (Golombok, 1995). Gender-typed behaviors are likely to be acquired similarly (Mischel, 1966 in (Golombok, 1995). Consequently, gender-typed behavior results from boys and girls receiving reinforcement for gender appropriate behavior. However, even if boys and girls receive reinforcement for different behaviors, the possibility that the parent is responding to the child's cues cannot be excluded (Golombok, 1995; Oerter, 1995).

The modelling or observational learning theory

According to the modelling or observational learning explanation people learn behaviors by observing other people. Observation of a behavior can influence a person's behavior, even when it does not involve personal reinforcement (Golombok, 1995). However, the likelihood that a behavior model will be imitated increases if the behavior in question is successful (Kasten, 2001 in Haas, 2006). The observed models can be real or fictional (Kasten, 2001 in Haas, 2006). Both male and female behaviors are learned (Kasten, 2001 in Haas, 2006). Nevertheless, different aspects of the model play a role in whether or not (and to what extent) a behavior is learned and imitated. For example, it is more likely that children imitate a same-sex model than an opposite-sex model (Golombok, 1995). This is because children expect reinforcement from gender-typed behavior and because children value gender-typed behavior (Golombok, 1995).

3.3 Cognitive gender development theories

There are two main cognitive gender development theories: the gender concept and the gender schema theory.

The gender concept theory

Kohlberg's gender concept theory (1966, in Golombok, 1995) is based on Piaget's theory about cognitive development. Amongst other things, Piaget (in Golombok, 1995) suggested that children focus on superficial features to identify things. If something changes its superficial features, children believe the identity has changed as well. The theory describes how logical thinking evolves in four stages (sensorimotor stage, preoperational stage, concrete operational stage, and formal operational stage) (Boyd & Bee, 2006). Each stage involves a significant change in the way the child thinks which is necessary for attaining the following stage (Boyd & Bee, 2006).

Kohlberg extended this theory to the development of the gender concept. The idea is that children are not only affected by, but rather, are active agents in their environment. According to Kohlberg (Martin, 2000 in Eckes, 2000), it is the child's understanding of sex-of-self (a boy knowing that he is a boy or a girl knowing that she is a girl) that motivates him or her to learn more about appropriate behaviors. Children wish to adhere to the expectations of their environment and the social norms, leading the child to remember gender-typed information better (Martin, 2000 in Eckes, 2000). Kohlberg's stages for reaching gender constancy follow below:

Before reaching the first stage, children do not possess a concept of being "male" or "female" (Golombok, 1995). In fact, they may believe that they are a girl or boy, even if this is not the case.

The first stage is called *gender identity*. Usually, this stage is entered at about 2 years of age (Martin, 2000 in (Eckes, 2000; Oerter, 1995). In this stage, children label themselves and others in categories of male and female, but they base their categorizations on superficial characteristics (Golombok, 1995).

Children reach the second stage called *gender stability* earliest at about 3 to 4 years of age (Golombok, 1995). At this point, they understand the consistency of gender over time.

They now know that girls will grow up to become women, and that boys will grow up to become men (Golombok, 1995).

The third stage called *gender constancy* is earliest reached at about the age of 5 years (Golombok, 1995). When reaching this stage children understand that gender is stable across situations, meaning that gender does not change depending on how a person is behaving or dressing (Golombok, 1995). Hence, children understand that they cannot change their sex.

According to Kohlberg's theory, children identify themselves with their own sex when they reach gender constancy (Golombok, 1995). As a result, the child starts to engage in gender appropriate activities and to prefer its own sex (Golombok, 1995).

Research has confirmed some aspects of Kohlberg's theory (Golombok, 1995). Children seem to go through the stages Kohlberg stated, however, the exact ages at which children may pass each stage varies (Golombok, 1995). There is also evidence that undermined Kohlberg's theory. For example, gender-typed behavior has been confirmed in young children who do not have any understanding of gender constancy at all (Fagot & Leinbach, 1989 in Golombok, 1995). Furthermore, in studies conducted on 3-month and 2 year-old children, children's correct or incorrect labelling of themselves as a boy or a girl did not explain their gender-typed preference (Campbell, Shirley, & Caygill, 2002; Campbell, Shirley, Heywood, & Crook, 2000). In addition, earlier results from a study examining 2-5 year-olds concluded that boys developed gender-typed preferences before they developed their gender-role (Perry, White, & Perry, 1984). For females, no clear evidence was found on this question (Perry et al., 1984).

Furthermore, results from a study on 3-7 year-olds showed that children became more flexible in their gender-role attitudes, as a result of gaining knowledge regarding gender-role appropriateness of activities and jobs (Serbin & Sprafkin, 1986). The authors concluded no relationship between a child's knowledge about gender-roles and the child's gender-typed attitudes and behavior (Serbin & Sprafkin, 1986). However, other results have documented an association between the attainment of gender constancy and gender-typed behavior (Warin, 2000). Warin (2000) explains the view of Stangor and Ruble

(1987, in Warin, 2000) stating that attainment of gender constancy does not initiate, but rather, increase the responsiveness for gender-typed behavior.

A re-evaluation of Kohlberg's hypothesis was tested by examining children in the ages between 3 and 7 years (Ruble et al., 2007). The results showed an increase in stereotypical knowledge, positive evaluation of one's own gender category, and rigidity of beliefs between the ages of 3 and 5 years. After age of 5 years, rigidity decreased with age. In contrast, other results have suggested older children's stereotypical judgments to be more extreme in comparison to younger peers' (Trautner et al., 2005). However, the period of rigidity seems to be short-lived (Trautner et al., 2005). In an earlier study, results concluded that the developmental sequence for gender-role stereotypes between the ages of 4 and 9 years moved from unawareness and uncertainty of stereotypes through rigid stereotypes to flexible stereotypes (Trautner, 1988). Behavioral aspects were more consistent with this development sequel theory than personality aspects. Moreover, gender-role stereotypes for children were assessed more flexible than those for adults (Trautner, 1988). In summary, the results do not support gender constancy as necessary for neither gender knowledge nor gender-typed behavior or gender-typed preferences.

The gender schema theory

Gender schema theorists believe that individuals develop theories about gender, and then interpret the environment according to these gender theories (Martin, 2000 in Eckes, 2000). Hence, it is not only the gender-organized environment that leads to the development of gender schemata, but these schemata also affect what information we attend to, perceive and remember (Martin, 2000 in Eckes, 2000). Since we process information according to our schemata, the stereotypes we hold are very resistant to change (Herkner, 2001). Society influences the formation of gender schemata (Martin, 2000 in Eckes, 2000). This influence leads children to include more than the obvious gender associations (for example the color pink with the female gender schema) in their gender schemata (Martin, 2000 in Eckes, 2000).

A gender schema is similar to a gender stereotype. It holds information we acquire about gender (Golombok, 1995). Different aspects, such as traits and behaviors, are organized together and lead us to make assumptions about individuals (Golombok, 1995).

Our knowledge of the male and female gender is separate and we can have a lot of knowledge about one gender without having as much about the other. Similarly, we can hold a lot of knowledge about one aspect without knowing as much about another (Golombok, 1995). Gender schemata not only direct our attention to schema-congruent information, but also distort information so that we remember things in a way that fits our schema (Golombok, 1995).

There is evidence that individuals act and think consistently with the schemata they hold. This process is called schematic consistency (Martin, 2000 in Eckes, 2000). Martin (2000 in Eckes, 2000) present two different types of schemata: one that holds information about both sexes, and another with detailed plans of action for the own sex. This does not, however, explain why some children are more gender schematized than others or why schematization alone does not predict gender typing of an individual (Golombok, 1995).

Basic cognitive processes involved in gender-role formation have been shown to be present in 10 month-old toddlers (Levy & Haaf, 1994). By using a habituation test, in which a male or female face was paired with a specific object, toddlers showed to be able to form simple forms of gender categories (Levy & Haaf, 1994). Furthermore, children's schematization can be associated with their gender-role stereotypes (Levy & Carter, 1989; Martin & Halverson, 1983). In one study 5-6 year-olds were shown pictures of males and females performing gender-typed and gender-inconsistent activities (Martin & Halverson, 1983). Their memory of these pictures was tested one week later. Children tended to distort information by changing the sex of the actor in sex-inconsistent pictures (Martin & Halverson, 1983).

3.4 Summary

All gender development theories have different explanations of why girls and boys behave differently. They all make different assumptions about the influencing factor, which differs between the theories. As theories, they build up easily understandable frameworks. However, they lose their explanatory quality when results do not match theory. Accordingly, there is need for more complex theories to fully understand gender-role development. In this work both cognitive and social variables will be explored.

To improve the existing theoretical framework, it is necessary to optimize and refine measurement techniques for assessing different aspects of gender roles. The quality of the existing theories is as good as the quality of the measurement techniques and measures used. The following chapter will discuss different aspects of measures used in gender research.

4 Measuring gender typing and gender stereotypes

The previous chapter has already mentioned some forms of examining gender roles. This chapter summarizes the most common forms of examinations as well as discusses important factors to have in mind when analyzing results.

As for any research topic, there are many things to consider when planning an examination of gender stereotypes or gender typing. Not only is it necessary to carefully define what to measure, but also to find a suitable measurement technique. Some methodological issues when designing measures of gender-typing were highlighted in the work by Bigler (1997). Amongst other things, there should be a conceptual and operational distinction between the target (self versus others), the form (knowledge versus attitudes), and the domain (job, activity, etc.) of gender-typing (Bigler, 1997).

In studies of adults' gender roles, it is a common procedure to give the test subjects questionnaires with stereotypical male and female attributes, and to instruct the subjects to rate the applicability of the attributes on themselves. However, questionnaires like these seem to measure narrower aspects of masculinity (instrumentality, self assertiveness, or dominance) and femininity (expressiveness, nurturance, or interpersonal orientation) (Golombok, 1995). Furthermore, the rating on an item depends on if the attribute is socially desirable or not (Golombok, 1995). Gender stereotypes of adults can also be assessed by presenting pieces of information about a person and allowing the test subject to decide whether the person is a woman or a man, or what this person might like or act like.

Gender-typing in children can be concluded from their preferred toy, game, or activity. Assessment can be performed by questioning either the child directly, a closely-related adult, or by observing the child. Although observation of children may seem to assess the preferences in a realistic setting, there are many problems associated with this kind of examination. Alternatively, gender stereotypes of children can be assessed with tests. Children can be instructed to organize stereotypical male and female characteristics and behaviors (Trautner, 1988) or objects (O'Brien et al., 2000) as suitable for girls, boys, or both.

When young children are tested it is important to take lower levels of language and cognitive skills into account, in order to ensure that the results are unbiased. In a study of outcomes from different gender-typing measures, support for a multidimensional view of gender-typing in children has been shown (Downs & Langlois, 1988). Hence, caution should be taken when generalizing results based on a single measure (Downs & Langlois, 1988).

Summarized, no result is as good as how it was obtained. Therefore, it is as important to evaluate the measures and measurement techniques as the results themselves. The following chapters present recent gender research involving children. For each study, only the idea behind the measure (as if information was obtained in an optimal way) and the results will be presented. Contradicting results could in some cases be a result from different measurement techniques leading to different conclusions.

The following chapters will present results from recent gender research. In chapter 5, focus lays on the influence of adults on children's gender-typed behavior and gender stereotypes. In chapter 6, focus lays on the children's gender-typed behavior and gender stereotypes, and how gender roles develop with age. These two chapters will present what is known about gender-typed behavior and gender stereotypes of kindergarteners, the differences between boys and girls, and the influence of age, cognitive maturity, and parental factors on gender development. This will in turn lead to the research questions raised in this present work.

5 Adults' gender related cognitions and behaviors toward children

As mentioned in previous chapters, parents and other adults can directly or indirectly influence children's gender development. To understand the ways in which these influences can take place, the next chapter will sum up research results in this area. Many different aspects of adults' gender-related cognitions and behavior have been examined. The results have, therefore, been divided into the following parts: home environment, stereotype behavior and expectations, and play situation.

5.1 Home environment

The family is in many ways influential for the child and therefore an interesting field to study gender development in.

Family system

Gender-typed preferences of 5-13 year-olds have been found to relate more to the gender-typing of the home environment, than their cognitive maturity (Serbin, Powlishta, & Gulko, 1993). There seems to be a relationship between parent and child gender-schemata (Tenenbaum & Leaper, 2002). Similarly, children's gender-typing seem to relate to their families lifestyles (Weisner, Garnier, & Loucky, 1994). Children, especially girls, in non-core families (where the parents were not a married two-parent couple) were less gender-typed than children from conventional (where the parents were a two-parent married couple) families were (Weisner et al., 1994).

Socioeconomic factors

Results have shown that higher social class relates to more maternal gender stereotypes (Brooks-Gunn, 1986) and that higher socioeconomic status groups have more gender-role stereotypes than lower socioeconomic groups (McCandless, Lueptow, & McClendon, 1989). Conversely, it has been found that individuals having more years of formal education are more flexible in their gender stereotypes (Golombok, 1995). However, a

study examining 5 year-olds showed that children with middle and high-educated parents were more gender-typed than children with low educated parents (Bardwell, Cochran, & Walker, 1986).

School-aged children with a non-working mother generally held more gender-stereotypes for activities, than children with a working mother did (Jones & McBride, 1980). In addition, kindergarten boys with a working mother were less gender-typed concerning jobs, than kindergarten boys with a non-working mother were (Blaske, 1984). The conflicting results for working and economic variables may be a result of a third variable that in some way interacts between social class/employment/education of parent and gender typing of the child.

Division of household tasks

Parents' division of children's household work seems to be very gender stereotyped (Blair, 1992). In fact, parents rather gave household tasks to daughters than to sons. Not only did daughters perform more household work than sons, they also performed more female-stereotype type of work. This gender-typed division of household work for the children reflected the household work division for the parents themselves (Blair, 1992). How does parental division of household work influence the children's later participation in routine household work? For very young boys, parental division of household work had a positive effect on the sons' later participation in household work. For young girls the mother's employment was a more important predictor for it (Cunningham, 2001).

5.2 Stereotype behavior and expectations

This part presents research results concerning adults' stereotype behavior toward children and adult's expectations of boys and girls.

Different behavior toward boys and girls

Parents express different emotions at birth of their child, depending on if their baby is a girl or a boy. In birth announcements parents expressed relatively more pride for boys and relatively more happiness for girls (Quintero Gonzalez & Koestner, 2005). Results have

also supported the common assumption that day-care caregivers give more attention to boys than girls (Chick et al., 2002). Moreover, the type of attention given differed. Girls were reinforced for their dress, hairstyle, and helping behaviors, while boys were reinforced for their size and physical skills (Chick et al., 2002).

Different expectations of boys and girls

Similarly, mothers seem to expect different behavior from boys and girls (Morongiello & Hogg, 2004). More specific, mothers expected more risky behavior of sons, while they were more concerned about injuries to daughters (Morongiello & Hogg, 2004). They believed that they could have greater influence on the risk taking behavior of daughters than of sons (Morongiello & Hogg, 2004). In addition, cross-gender behavior seems to be perceived differently for boys and girls (Sandnabba & Ahlberg, 1999). Parents of 5 year-olds regarded cross-gender boys more negatively than cross-gender girls (Sandnabba & Ahlberg, 1999).

Influence of parents

It seems that fathers' attitudes and behaviors could influence their offspring more than the mothers' (McHale, Crouter, & Tucker, 1999; Turner & Gervai, 1995). In a study of parents and their 4 year-olds, fathers who were more involved in childcare had children who played more in female typical activities (such as art or doll play) (Turner & Gervai, 1995). Masculine fathers had less female typical children, and feminine fathers had children who engaged in fewer male typical social interactions (such as show-off or playful fighting) (Turner & Gervai, 1995).

When turned around, the sex of the child also influenced the parents. Fathers of daughters perceived themselves having more expressive traits, than fathers of sons did. Fathers of sons, on the other hand, were more gender stereotyped concerning child rearing expectations (for example that it is more acceptable for a girl to cry, than it is for a boy) than fathers of daughters were (Turner & Gervai, 1995).

Mothers seem to use more comments that challenge stereotypical beliefs to daughters than to sons (Friedman, Leaper, & Biegler, 2007). Although mothers' general gender attitudes seemed to predict gender stereotyping in children between the ages of 3 and 5

years, this was not the case for the children between the ages of 6 and 7 years (Friedman et al., 2007).

5.3 Play situation

Children develop behaviors and skills during play time, which is an optimal situation to try out different behaviors. This part presents the research results focusing on characteristics of the play situation.

Toy stereotypes

Gender-typed toy collections are found even in Sweden, a country that emphasizes gender equality (Nelson, 2005). Relatively, girls had more outfits and baby figures, whereas boys had more tools and sports equipment (Nelson, 2005). This is not surprising, since adults (men more than women) seem to hold stereotyped views of toys (Fisher-Thompson, 1990). In fact, feminine toys were rated as more exclusively appropriate for girls, whereas masculine toys were rated more flexible (Campenni, 1999). The same study suggested that parents were more flexible in their ratings of toys than study participants who were not parents (Campenni, 1999). In addition, parents no longer seem to agree with traditional categorization of some of the toys (Wood, Desmarais, & Gugula, 2002). When playing with boys, parents spent most of the time playing with masculine toys, whereas they were more flexible in their toy choice when playing with girls (Wood et al., 2002). Contrasting evidence suggests that parents do not show a preference for gender appropriate toys for their children in active play (Idle, Wood, & Desmarais, 1993). In general, children accepted most of the toys presented by their parents and showed equal enthusiasm for feminine, masculine and neutral toys (Idle et al., 1993).

Toy choice

Both girls and boys were influenced by familiar persons in their toy choice (Raag, 1999). If children believed that at least one familiar person thought that cross-gender-typed play was bad, they were more likely to choose gender-typed toys (Raag, 1999). Likewise, child toy-preference seems to be related to parental toy-preference (Peretti & Sydney, 1984). A study examined play behavior in pairs of 1.5 year-old toddlers and one of their

parents (Caldera & Sciaraffa, 1998). Same-sex parent-toddler pairs engaged in different style of play than opposite-sex parent-toddler pairs did (Caldera & Sciaraffa, 1998). The different play styles were a result from the parent choosing either a baby doll or a stuffed clown for their toddler to play with. With the selection of type of toy the parent provided their toddler with different play style situation (Caldera & Sciaraffa, 1998). Hence, learning experiences can be based on something as simple as toy choice.

Play styles

Parent-daughter pairs seem to be most active during charade play, while father-son pairs are most active during physical play (Lindsey & Mize, 2001). Moreover, children's play behavior with peers reflected on how they played with their parents (Lindsey & Mize, 2001). A study examined gender-typing behavior in child-parent pairs in free play when the children were 3.8 years old (Jacklin, DiPietro, & Maccoby, 1984). Father-child and mother-daughter pairs were more likely to play in a gender-role appropriate way. Mother-son pairs played in both masculine and feminine ways, whereas father-son pairs showed the highest levels of rough and tumble play (Jacklin et al., 1984).

Story telling

Gender differences in family story telling have been examined (Fiese & Skillman, 2000). No differences were found for parent or child in the strength of affiliation themes. Concerning autonomy themes, fathers told stories with stronger autonomy themes than mothers. Sons were more likely to hear stories with themes of autonomy than were daughters. Concerning achievement themes, traditional gender-typed parents told stories with stronger achievement themes to their sons, and non-traditional gender-typed parents did the same to their daughters (Fiese & Skillman, 2000).

5.4 Summary

Social change does not automatically mean changing of gender-typing and a society emphasizing gender equality does not automatically have more flexible gender stereotypes than other societies. Educational level of parents does not necessarily enhance flexibility of their children's gender stereotypes, but having a working mother seems to do just that.

Grown-ups seem to treat girls and boys differently in time of attention, reinforcement, and linguistic bias. Parents seem to allocate household tasks to their daughters rather than their sons, and to view cross-gender behavior from boys more negatively than girls. Mothers seem to expect more risky behavior from their sons and in the same time believe that they can influence their daughters' behavior to a greater extent than their boys'. Although parental attitudes and personality traits seem to influence children's gender-typing, the gender of the child also influences attitudes of the parents.

Although there seems to be some evidence of a shift in traditionality of stereotyping of toys, grown-ups still seem to gender type children's toys. Toys labelled as "for girls" seem to be perceived more exclusive for girls, than the exclusivity of toys labelled as "for boys". Men seem to stereotype more than women and parents seem to stereotype less than adults who are not parents. Toy choice can affect the play situation but there is evidence this not being the case for active play. Particularly girls seem to enjoy more flexibility in toy choice in play situations with their parents. Lastly, children's behavior with peers seems to be a reflection of how they play with their parents.

This chapter has focused on the role of adults and parents for the gender development of children, thus testing the theories of social gender development. Parents and adults seem to treat girls and boys differently, from subtle differences in toy choice to more open differences in division of household tasks. This could lead to sex differences in preferences and gender stereotypes. The next chapter will present gender research focusing on children and their gender role development. When do children start showing gender stereotypes and gender-typed behavior? What influencing factors can be assumed?

6 Children's gender related cognitions and behavior

Previous chapters have dealt with gender development theories and research results on the impact of adults and parents on gender-role development of children. This chapter focuses on research results concerning gender role development of children.

Research on children's gender related stereotypes, preferences, and behavior has been conducted on various aspects of their life. The results are divided into the following parts: gender categories, gender preferences, gender stereotypes, toy stereotypes, job stereotypes, play style, influence of siblings and flexibility of stereotypes, and differences in gender knowledge between boys and girls.

Gender categories

1 year-olds have incipient categories for men and women (Driver Leinbach & Fagot, 1993; Levy, 1999; Poulin-Dubois et al., 1994). These categories may include information about gender-typical hair length and clothing styles (Driver Leinbach & Fagot, 1993). However, this awareness does not seem to be related to the ability to label the sexes accurately (Levy, 1999). The skill of correctly label oneself as a boy or a girl is present in over half of 2 and 3 year-old children (Campbell et al., 2004; Campbell et al., 2002).

A relationship between gender stereotyped knowledge and gender-typed behavior has not been concluded (Campbell et al., 2004). However, cognitive maturity measures on 3-6 year-olds have been positively related to both knowledge of gender stereotypes and gender-typed preferences (Rosenberg Coker, 1984). On the other hand, greater cognitive maturity has been found to reduce gender-stereotyping of interests in school-aged children (Emmerich & Shepard, 1982).

Gender preferences

Girls make more eye contact in female-female pairs at 3 months of age compared to at the age of less than 5 days (Leeb & Reijkskind, 2004). Challenging results have concluded that both girls and boys prefer male peers (Campbell et al., 2004; Shirley & Campbell, 2000) as well as masculine activity styles at the age of 3 months (Campbell et al., 2004).

At the age of 3 years, girls and boys seem to prefer different kinds of toys and activities (Chick et al., 2002). Moreover, same-sex peer preference has been concluded in 4 through 10 year-olds (Rosario T. de Guzman, Carlo, Ontai, Koller, & Knight, 2004). Same-sex peers were more often nominated as best friends and cross-sex peers were given more negative ratings, with intensity increasing with age. Likewise, children who engage in more same-sex play seem to be better liked by peers (Colwell & Lindsey, 2005).

Gender stereotypes

In a baby-X study (where an infant is labelled either as a “boy” or a “girl”), both 3 and 5 year-olds stereotyped the baby based on the sex-label given, regardless of the actual sex (Haugh, Hoffman, & Cowan, 1980).

Boys in general distinguish themselves physically from girls, while girls distinguish themselves behaviorally from boys (Biernat, 1991). Likewise, 3-11 year-olds were found to devalue boys with feminine hairstyles and clothes and girls who played in masculine play styles (such as loud and rough play with jumping and yelling) (Owen Blakemore, 2003).

Toy stereotypes

Children in the ages of 3, 4 and 5 years have been found to gender-type toys (Schau, Kahn, Diepold, & Cherry, 1980). Younger children were less stereotype concerning toys than the older children and adults, and girls were less stereotyped than boys (Schau et al., 1980). Furthermore, 3 and 6 year-olds base their toy choice on sex appropriateness rather than activity level (Eaton, von Bargen, & Keats, 1981). Concerning parental influence of play behavior, 3.5 year-old children both initiated gender-typed play with their parents, and played with gender-appropriate toys (Jacklin et al., 1984).

Job stereotypes

Boys between the ages of 3 and 6 years believed men are more competent in masculine jobs (such as car mechanic and airplane pilot), whereas women are believed to be more competent in feminine jobs (such as clothes designer and secretary) (Levy, Sadovsky, & Troseth, 2000). Both sexes were more positive for having a gender-typed job as a grown-

up, than a gender-role inconsistent one (Levy et al., 2000). Girls have been concluded to hold more gender-stereotypes concerning jobs than boys (Blaske, 1984). Moreover, traditional male jobs were more gender-stereotyped than traditional female ones (Blaske, 1984).

Play style

Girls spend more time in feminine activities (such as dancing and writing stories and letters) than masculine activities (such as competitive sports and building) (McHale, Shanahan, Updegraff, Crouter, & Booth, 2004). Moreover, girls engage in charade type of play, whereas boys engage in physical type of play (Lindsey & Mize, 2001). Boys tended to endorse gender-typed activities as much as they reject cross-gender activities, whereas girls tended to reject cross-gender behavior more than they endorse gender-typed behavior (Perry et al., 1984).

School-aged boys seem to have strong masculine preferences (for items such as hammer and nails, driving a truck, and painting a house) whereas girls seem to have strong feminine preferences (for items such as needle and thread, baking, and watering plants) (Brinn, Kraemer, Warm, & Paludi, 1984). 2nd grade boys engage in rough and functional play, as well as involve in group play (Moller, Hymel, & Rubin, 1992). Girls in 2nd grade, however, engaged more in parallel and constructive play and were involved in peer conversations (Moller et al., 1992).

Influence of siblings and flexibility of stereotypes

Children have been found to be the least gender-typed in their activities with siblings (McHale et al., 2004). Boys with older brothers and girls with older sisters were more gender-typed than same-sex singletons (Rust, Hines, Johnston, Golding, & Team, 2000). Singletons, in turn, were more gender typed than children with other-sex siblings (Rust et al., 2000).

Flexibility of behavior of kindergarten-aged children depends on the gender of the play partner (Banerjee & Lintern, 2000; Holmes-Lonergan, 2003), as well as on the type of task (such as structured or more flexible) facing the child (Holmes-Lonergan, 2003).

Even though highly stereotyped kindergarten-aged girls have been shown to vary their behavior in response to counter-stereotypic models, this was not the case for boys (Green, Biegler, & Catherwood, 2004). Both boys and girls in 1st and 2nd grade exposed to counter-stereotype commercials were more flexible in their toy stereotypes than participants in a control condition were (Pike & Jennings, 2005). Interestingly, the effect was stronger for boys than for girls (Pike & Jennings, 2005).

Differences in gender knowledge between boys and girls

Girls possess knowledge of both feminine and masculine household activities (such as vacuuming or shaving) by the age of 2 years (Poulin-Dubois et al., 1994). Boys only started to show limited knowledge around the age of 2.5 years (Poulin-Dubois et al., 1994). Similarly, 1-2 year-old girls were able to associate gender stereotyped toys with girls' and boys' faces but boys were not (Serbin et al., 2001).

3 year-old girls are better at labelling gender than boys of the same age (O'Brien et al., 2000). Girls also know more about female gender stereotypes (such as needle and thread) than do boys, and as much about male gender stereotypes (such as bat and ball) as do boys. Boys know more about male than female gender stereotypes, but as already noted not more than girls (O'Brien et al., 2000).

Summary

It seems that children have the ability to form gender categories at the age of 1. From 2 years of age, girls seem to have greater gender knowledge than boys. There is contradictory evidence of gender-typed preferences of toddlers, and no relationship between gender-typed knowledge and gender-typed behavior has been concluded.

Siblings of kindergarteners seem to have an influence on how gender-typed children are, and it is with their siblings that children seem to be least gender-typed. How flexible kindergarteners are seems to be influenced by the sex of the partner and the type of activity. Children seem to be most gender-typed in presence of same-sex peers. Kindergarteners seem to gender-type on physical attributes rather than behavior. They do not seem to approve of girls playing like boys or boys looking like girls. In this age gender labelling (like in baby-x studies) seems to override actual observations when

kindergarteners make judgements. Children seem to choose their toys based on gender appropriateness rather than activity level and also initiate gender-typed toy play with gender-typed toys. However, they seem to be more flexible than adults in assigning toys exclusively to one sex. Kindergarten-aged girls and boys seem to differ in their style of play, girls involving more in charade play and boys involving more in physical play. Kindergarteners seem to want to have gender-role consistent jobs in the future, also believing that men and women are more competent in a gender-role consistent job.

At school age, gender differences in play styles seem clearer. Media seems able to influence children in this age group in for example how they think about gender appropriateness of toys. With cognitive maturity both girls and boys seem to get more flexible in their gender stereotyping.

From the results in this chapter, it is to assume that kindergarteners will have the cognitive skills for developing gender stereotypes. Kindergarteners will most likely show gender-typed behavior, but with more or less typing depending on their play partner.

The chapters so far have given an introduction to gender research and different gender-role development theories. In conclusion, it seems that there is no simple explanation to for gender-typed preferences, gender stereotypes, or differences between boys and girls. Known is that girls and boys do differ in their behavior but do they also differ in the extent of their stereotypes and limitation to gender-typed behavior? Adults do treat boys and girls differently, but it is still unclear if parental education or employment actually influences gender-role development of kindergarten-aged children. The next chapter will present the research questions for the present study.

7 Goals and research questions

In previous chapters different gender development theories and gender research results have been presented. The development theories have quite different perspectives of gender development, and the results are not always easy to interpret. More specific knowledge is needed to interpret the influence of different variables on gender development. Since kindergarten is the first instance of the educational system, it is especially interesting to gain more specific knowledge of kindergarteners' gender roles. This chapter clarifies which variables are examined in the present study and the research questions that will be explored.

The present study will examine which gender-typed preferences and gender stereotypes kindergarten-aged children hold. Foremost, it will be explored if there is a difference in how gender-typed the world of kindergarten-aged boys and girls is? The research questions follow below.

Do kindergarten-aged boys and girls differ in gender-typed preferences?

Research has shown an early sex difference in which toys, activities, and play partner girls and boys prefer. Are boys' and girls' preferences gender-typed across different areas? Are there areas that are more/less exclusive to one sex? Has one sex more/less gender-typed in their preferences?

Do kindergarten-aged boys and girls differ in gender stereotypes?

Moreover, research has shown sex differences in awareness of gender stereotypes. It seems that girls earlier and more fully are aware of gender stereotypes. Furthermore, girls seem to be aware of gender stereotypes concerning both genders, whereas boys mainly are aware of gender stereotypes concerning the male gender. Can this difference in awareness of different gender stereotypes between the sexes be replicated? Are there areas of gender stereotypes that are more or less flexible?

Is there an age influence on the eventual differences between boys and girls?

In addition, it will be examined if there is an influence of age for eventual differences between the sexes. Children tend to go from flexible gender stereotypes and preferences to more rigid ones, to end up with more flexible ones again. How do the different age groups differ in this present study? Do boys and girls show similar gender stereotypes and preferences over the different age groups? Girls have shown to develop knowledge of gender stereotypes earlier than boys (Poulin-Dubois et al., 1994). Will this sex difference be replicated in the present study?

Do cognitive or parental factors influence kindergarteners' gender-typed preferences or gender stereotypes?

The second goal is to see which factors have an influence on gender-typed preferences and gender stereotypes. It will be examined if education level or gender-role adherence of parents have an influence on gender-typed preferences or gender stereotypes. Furthermore, it will be examined if cognitive maturity of the child influences gender-typed preferences or gender stereotypes.

According to the social gender learning theory children from a gender-role traditional family-environment should show more gender stereotypes and more gender-typed preferences than children from a less gender-role traditional family environment. However, results concerning parental education level and general influence of parents still leave room for speculation.

According to the cognitive gender theories the gender-role traditionality of family and society influences children. Furthermore, children's cognitive skills should have an influence on if the child is either unaware of stereotypes, have rigid stereotypes or have flexible stereotypes. According to the gender concept theory an increase of gender stereotypes and gender-typed preferences is to be expected at about the age of 5 years.

In conclusion, the present study will clarify eventual sex differences in gender-typed preferences and gender stereotypes of kindergarteners. The influence of age, cognitive maturity and parental factors will be explored. The knowledge gained could easily be implemented in gender sensitive efforts in kindergarten settings. Gender sensitive efforts

could be adjusted for relevant factors such as differences in sex, age and background of children.

8 Method

In the following part the procedures of the study, as well as the participants and the measurement instruments will be introduced and explained.

8.1 Study procedures

The study of kindergarteners and their parents was planned and organized by Ms. Gröstenberger, Ms. Haas, and Ms. Höller (students of the University of Vienna, Faculty of Psychology, Educational Psychology and Evaluation).

Ten suitable kindergartens were chosen by Dr. Raffelsberger (Magistrat 11A, Vienna) to be available for the students (Haas, 2006). Two weeks before the examinations were to take place, parents of the children in the chosen kindergartens were informed about the study through a letter (Haas, 2006). The letter is found in appendix C. The parents had time to contemplate about taking part in the study and in case of hesitations given the opportunity to decline participation. The children whose parents declined participation were excluded from the study (Gröstenberger, 2006).

Parents, whose children took part in the study, were politely asked to fill out a questionnaire at home and to return it within two weeks in a sealed envelope to the kindergarten personnel (Haas, 2006). Through information posters and reminders from the kindergarten personnel, parents were motivated to return the questionnaires (Gröstenberger, 2006).

The examination of the children was planned to be carried out in two one on one sessions (Haas, 2006). In the first session the cognitive aspects would be examined and in the second a questionnaire would be completed. The sessions were to be held in a playful way (Gröstenberger, 2006) and were not to take more than 20 minutes to complete (Haas, 2006). The questionnaires and test sheets were coded in a way that a child's questionnaire and test sheet could be combined with the questionnaire from its parent, without compromising anonymity (Haas, 2006).

8.2 Requirements for participation

The following requirements were taken in consideration in forming an optimal sample of participants:

Knowledge of the German language

To ensure that the items in the measurement instruments would be understood, the percentage of children with another mother tongue than German was held low. Children with another mother tongue than German could only take part in the study if their knowledge of the German language was satisfactory for understanding the items (Gröstenberger, 2006; Haas, 2006).

Balance between the sexes

To ensure a valid comparison between the sexes, which is an important goal of the study, the aim was to have a balanced number of participating girls and boys (Gröstenberger, 2006; Haas, 2006).

Age groups

In order to be able to analyze eventual differences between different ages throughout young childhood, four age groups were planned: 4:0-4:5, 4:6-4:11, 5:0-5:5, and 5:6 years and older (Haas, 2006).

The age groups should, due to the criteria of balance of the sexes, also have a balanced number of girls and boys (Gröstenberger, 2006; Haas, 2006).

8.3 Realization of the study

Testing took place between November 2004 and May 2005 (Haas, 2006). Hardly any parent denied their child to participate (Haas, 2006) - there is, however, no information available of how many children this concerned.

As planned, testing took place with one child at a time. The experimenter and child had a reserved testing-room to enable the child to solve the test items without disturbances or

disruptions. Four experimenters took part in the collection of data for this study (Haas, 2006). Testing was, as planned, divided into two parts and realized on two different occasions for each child. The testing material got a good response from the children, who were excited to test the “new games” and the children tried to find the “correct” answers, though the experimenters emphasized that there were no correct answers for some of the items (Haas, 2006).

8.4 Measures

The measures used in the present study have been used in previous studies. In part, the older instruments have been adapted to ensure a more time appropriate standard (Kanka, 2003). The measures will be presented in the following order: measures for children and, then, measures for parents. All measures are found in their presented form in appendix A.

8.4.1 Measures for children

This part presents the measures used for examining the gender-typed preferences, gender stereotypes and intelligence of the children in the present study.

8.4.1.1 Open questions

To evaluate children's gender-typed preferences, the children were asked:

1. *which job they would like to have as an adult,*
2. *what they prefer to dress up like for carnival,*
3. *what their favourite toy is and*
4. *with whom they prefer to play with.*

The questions were answered freely. Each answer was coded as feminine, masculine or neutral according to a coding codex by Kanka (2003). Examples of answers are shown in table 1-3. In a second step the answers were recoded as stereotype, neutral or opposite of stereotype depending on the sex of the child.

Table 1

Coding examples for job preference answers

Female items	Male items	Neutral items
Baby sitter	Astronaut	Doctor
House cleaner	Car mechanic	Dentist
Kindergarten teacher	Builder	Veterinarian
Teacher	Working with computers	Gardner
Horseback rider ^a	Electrician	Store personnel
Dancer ^a	Fireman	Painter
	Soccer player	Writer
	Train/Car/Motorcycle driver	To cook ^a
	Hunter	
	Police man	

Notes. ^aOriginally coded as male by Kanka (2003)

Table 2

Coding examples for toy preference answers

Female items	Male items	Neutral items
Doll/doll accessories	Car/Truck/Motor cycle	Ball
Sewing machine	Action figures	Animal
	Building blocks	Games (cards, board games)
	Computer	Lego
	Play station	Paint
	Dinosaur	

Table 3
Coding examples for carnival outfit preference answers

Female items	Male items	Neutral items
Arielle	Builder	Animal
Bride	Knight	Ghost
Angel	Drake	
Cinderella	Dracula	
Pippi Longstocking	Cowboy	
Witch	Indian	
Dancer ^a /Ballet dancer	Monster	
Princess	Pirate	
	Police man	
	Prince	
	Robin Hood	
	Superman/Spiderman	

Notes. ^aOriginally coded as male by Kanka (2003)

8.4.1.2 Sex Role Learning Index (SERLI)

The measure is found in its complete form in appendix A. Edelbrock and Sugarawa (1978) describe their Sex Role Learning Index as a picture-choice instrument, designed to measure the concepts of gender-role discrimination (knowledge of gender-role stereotypes), gender-role preference (desire to adhere with the stereotypes) and gender-role confirmation (desire to adhere to the personal conceptions of what is gender appropriate). The children in the study of Edelbrock and Sugarawa (1978) were of the ages between 3 and 5 years. In this study, this measure was used to examine gender stereotypes of children. The term “knowledge” of stereotypes will not be used in the present study. Instead, it will be referred to as “gender stereotypes” held by the children.

In the present study 12 from the original 20 objects were portrayed on cards. Some items showed too strong similarity to each other and one of the items in each such pair was excluded (Kanka, 2003). Two of the objects (fire hat and baby bottle) were redesigned to

fit a more modern concept of the objects (Kanka, 2003). All items used in the present study are shown in table 4.

The child was given each card separately and had to choose if the object was more suitable for a boy, a girl or for both. Depending on the answer, the child was to put the card in one of three boxes - either the one with a picture of a boy, a girl, or a boy and a girl on it. Hence, the children in the present study had a male, a female and a neutral possibility to answer. In this work one point was given for every stereotype answer (total of female or male items: 6 points, total of object items: 12 points).

Table 4

Object items from SERLI (Edelbrock, 1978)

Male items	Female items
Hammer and nails	Iron
Shovel	Stove
Boxing gloves	Broom
Saw	Baby bottle
Rifle	Pitcher and glasses
Fire hat	Hairbrush and mirror

8.4.1.3 Gender stereotypical behavior and personality trait items

The measure is found in its complete form in appendix A. In this work SERLI was extended with gender-stereotype items used by Trautner, Helbing, Sahm and Lohaus (1988). Trautner et al. (1988) used similar items as can be found in the Sex Stereotype Measure (Williams and Best, 82 in Trautner, 1988). The items in this measure concern gender-stereotypical behaviors and personality traits. Stereotype-female and stereotype-male items are to be evaluated by the children as feminine, masculine or neutral on a scale from 1 to 5. Trautner et al. (1988) included children between 4 and 9 years of age in their study.

In the present study the behaviors and personality traits were written on cards and read out loud to the child. The child was then to choose if the behavior or personality trait was more suitable for a boy, a girl, or for both (narrowing the scale from the original measure). The card was then, depending on the answer, put in the matching box (with a picture of a girl, a boy, or a boy and a girl). Four items were constructed by Kanka (2003) and these self-made items are the last ones presented in each group in table 5. One original stereotype female behavior item ("to paint a lot") was excluded from the analyzes due to the neutrality of this item, shown in a previous study (Kanka, 2003). In this work one point was given for every stereotype answer and the maximum score was 15 points.

Table 5

Gender stereotypical behavior and personality trait items from Trautner et al. (1988) and Kanka (2003)

Female behavior	Male behavior	Female personality trait	Male personality trait
Play with dolls	Play cowboy and indian	Often cry	Be strong
Play with necklaces and bracelets	Play with trucks	Look beautiful and wanting to please others	Be brave
Dance ^a	Play soccer	Often be anxious	Always wanting to decide
	Climb trees ^a	To comfort others ^a	Be angry ^a

Notes. ^aItems made by Kanka (2003)

8.4.1.4 Coloured Progressive Matrices (CPM)

The Coloured Progressive Matrices (Raven, 1980) is a nonverbal test of general intelligence, which can be used for children between the ages of 5 and 11 years. Since the test is nonverbal and can be presented in a playful way, it was considered suitable for the present study, even though younger children participated. The 36 items are divided into three sets, with 12 items per set. With each item, the difficulty increases (Raven, 1980).

The items consist of colored geometrical patterns. Each pattern has a missing part that is to be completed by one of six given alternatives. This task requires both perceptive skills

and logical thinking (Raven, 1980). One point is awarded for each correct answer (maximum score: 36 points).

8.4.1.5 *Theory of Mind tasks*

The measure is found in its complete form in appendix A and B. According to Miller (2001), "Theory of Mind" refers to the understanding of the feelings, thoughts, and behavior of oneself and others. One aspect of theory of mind is the prediction and explanation of behavior (Miller, 2001). The existence of Theory of Mind can be examined through a comparison between what a person believes another person will expect or behave like with what the person actually expects or behaves like (Miller, 2001). Tasks have been developed for examining this cognitive component. One way is to give the child a "change of location" task (Miller, 2001). In this kind of so called "false belief" tasks, an object is moved from one point to another in absence of another person (who then will have a "false belief" of where the object is). The child is then asked where the other person will look for the object (Miller, 2001). It is from the age of 4-5 years that children begin to understand that it is a person's *belief* of reality that affects his or her behavior, whether this matches objective reality or not (Boyd & Bee, 2006). Hence, children will not until the age of 4-5 answer that the person (in the false-belief task mentioned above) would look for the object where it was initially hidden.

The change of location tasks used in this study, are closely related to the ones used in Miller's (2001) study. The tasks were adapted for two previous studies (Hansbauer, 2002; Maschietto, 2003) and this adapted form is the way the tasks were presented in the present study. The examiner and the child play three situations with hand puppets. The puppet and child hide an object in a specific place. The puppet then "leaves the room". The child and examiner then move the hidden object to another place. The puppet then "comes back into the room". After each situation, the child has to answer three questions. The first question examines whether the child has a theory of mind or not and the two following questions examines the child's understanding and memory of the played situation. The complexity of the answer differs with each situation. The three false belief conditions were built up as explained below:

In the “*show*” condition (the Freddie task) the child has to show with the puppet, what the puppet will do/what will happen. The linguistic demands are minimal in this condition (Miller, 2001). The three questions for this situation are: “Show me what Freddie will do”, “Where did Freddie put the candy?”, and “Where is the candy now?”.

In the “*look*” condition (the Tommy task) the child has to answer, where the puppet will look for the toy. This condition asks about the behavior of the puppet (Miller, 2001). The three questions for this situation are: “Where will Tommy look for the car?”, “Where did Tommy put the car?”, and “Where is the car now?”.

The “*think*” condition (the Susi task) is a basic change-of-location false belief task (Miller, 2001). Here the child is not only asked about the mental state of another, but also has to understand the more complex linguistic demands (Miller, 2001). The three questions for this situation are: “Where does Susi think that the ball is?”, “Where did Susi put the ball?”, and “Where is the ball now?”.

The child has to answer all three questions per situation correctly to receive one point. Thus, the maximum score is 3 points for this test.

8.4.2 Measures for parents

This part presents the measures used for examining the education level and gender-role adherence of the parents in the present study.

8.4.2.1 Demographic information

The questionnaire is found in its complete form in appendix A. The questionnaire for parents includes questions about who fills out the questionnaire, family structure and education level of the parents.

8.4.2.2 German version of the Bem Sex-Role Inventory (BSRI)

The measure is found in its complete form in appendix A. In the present study, the German version of the BSRI (Bem, 1974 in Schneider-Düker & Kohler, 1988) by

Schneider-Düker (1988) was used. The BSRI was developed to measure masculinity and femininity as two independent dimensions, as opposed to being opposites of a continuum (Schneider-Düker & Kohler, 1988). The German version of the BSRI consists of 20 masculine, 20 feminine and 20 neutral personality trait items. For each item, one is to rate oneself on a 7-point scale from 1 (never or almost never true) to 7 (almost always true). Of interest in the present study is a person's gender-role adherence, and therefore the score for a person is the sum of points on the scale of his or her sex. Maximum score for each category is: (20x7=) 140 points.

Table 6

Examples of BSRI items (Schneider-Düker & Kohler, 1988)

Feminine items	Masculine items	Neutral items
Yielding	Self reliant	Helpful
Cheerful	Defends own beliefs	Conscientious
Shy	Independent	Happy
Affectionate	Athletic	Reliable
Flatterable	Assertive	Truthful

8.5 Description of participants

This part describes the participants that took part in the present study.

Participating children

Approximately 291 children and their parents took part in this study. Participating children were all enrolled in kindergartens, they were between 4.0 and 7.0 years old ($M=5.2$, $SD=0.7$, $N=269$). For the analyzes of the present study the sample shown in table 7 has been used.

Children, whose cognitive testing results could not be matched with a corresponding children's questionnaire ($N=19$) and participants, whose results were not reliable due to difficulties in testing the participant ($N=3$), were excluded from the analyzes.

Table 7

Participating children, divided by age group and sex

		Sex of child		Total
		Girl	Boy	
Age group	4.0-4.9	57	46	103
	5.0-5.9	65	53	118
	6.0-7.0	23	25	48
Total		145	124	269

Participating parents

The return quote of the questionnaires was over 57% (Haas, 2006). From the 160 returned questionnaires for parents, 132 (83%) of them were completed by mothers alone. Therefore, only the gender-role adherence results from the mothers were analyzed. However, information about education level of mother was taken from all available questionnaires. The question of education level was presented as mainly for the mother, but also valid for female caregivers other than the mother. Controlled for family structure,

there is a possibility that one of the education level answers could be based on information of the female caregiver of the child, other than the mother.

8.7 Analyze groups

For the analyzes of gender-typed preferences and gender stereotypes, many variables were taken into account. This part will explain the categories for the variables used in this work.

Sex of the participating children

The results of 124 boys and 145 girls were taken into the analyzes.

Age of the participating children

Age in years at testing date has been categorized into three groups (compared to the 4 that were planned initially). As seen in table 7, the number of participants in each age group, from youngest to oldest group, is 103, 118, and 48.

Coloured Progressive Matrices-scores (CPM)

The CPM-score is the total score of all CPM-items (0-36 points) and for the sample the mean was 16.8 ($SD=4.9$, $N=250$).

Theory of Mind-score groups (ToM)

Participants could only score between zero and 3 points in the ToM-test. For the sake of equal number of participants in each group the scores were divided into three groups. The three groups also reflect meaningful differences in understanding of ToM. The first group with no points at all ($N=66$) is the group with no understanding of ToM at all, the second group with one or two points ($N=79$) is the group with some understanding of ToM, and lastly the group with the maximum score of three points ($N=107$) is the group with total understanding of ToM (as measured in this study).

Education level of mother

Education level is divided into two groups, one group with mothers having a high school diploma ($N=52$) and the other group with mothers with less education than a high school diploma ($N=90$).

Bem Sex-Role Inventory-scores (BSRI)

The BSRI-score is the total score of all feminine items of BSRI (0-140 points) and for the sample the mean was 99.1 ($SD=19.8$, $N=110$).

8.8 Statistical analyzes

The analyzes in this work were performed with the Statistical Package for Social Sciences (SPSS) 10.0. For the presentation of the results, Word 2007 and Excel 2003 were used.

For the gender preference items, χ^2 - and t -tests were performed. Pearson's and Fischer's coefficient were interpreted.

For the gender-stereotype scores, univariate analyzes of variances – with and without covariates- were performed. The univariate approach was preferred over a multivariate approach, since the combination of missing data over the different variables would have decreased the sample size significantly. In the analyzes of cognitive and maternal variables for all gender stereotype items, two separate univariate analyzes of variance with covariates were performed. One with the cognitive variables as covariates and a second with the maternal variables as covariates. This ensured the sample sizes to be held as high as possible.

The level of significance was set by $\alpha=5\%$.

9 Results

The presentation of the results of the statistical analyzes will follow the order of the research questions. First, the results for differences between the sexes for gender-typed preferences and gender stereotypes will be presented. Then, the effect of age, cognition and education level of mother on gender-typed preferences and gender stereotypes will be presented.

9.1 Influence of sex on gender-typed preferences

The results from the analyzes of the preference items will be presented in the following order: job preference, toy preference, carnival-outfit preference and play-partner preference.

Job preference

As figure 1 shows, a large majority of boys (71%) prefer to have a gender-stereotype job in the future, compared to only a minority of the girls (27%). A χ^2 -test was performed and Pearson's coefficient was interpreted. The relationship between sex of child and job preference was significant: $\chi^2(1, N=102)=20.485, p<0.0001$. Girls answered more flexible than the expected count, whereas boys answered more stereotype than the expected count.

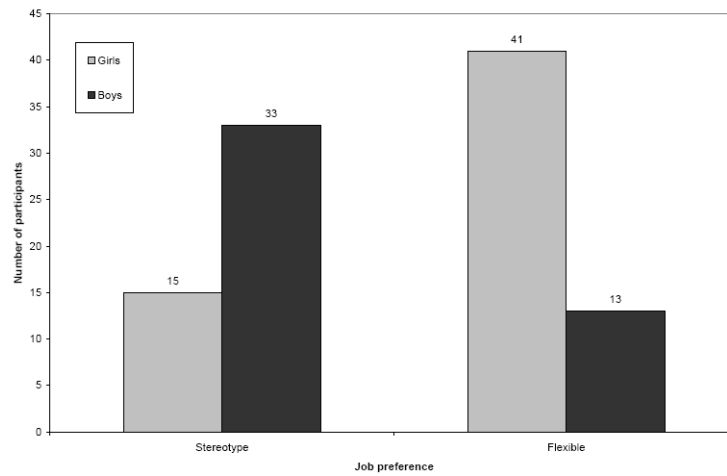


Figure 1. Distribution of stereotype and flexible answers for job preference, separate for boys and girls.

Toy preference

As figure 2 shows, a majority of both girls and boys (52% and 71% respectively) have a gender stereotype toy as their favourite toy, with boys having a higher rate of stereotype answers. There was a significant relationship between sex and toy preference: $\chi^2(1, N=246)=9.520, p=0.002$. Girls answered more flexible than the expected count, whereas boys answered more stereotype than the expected count.

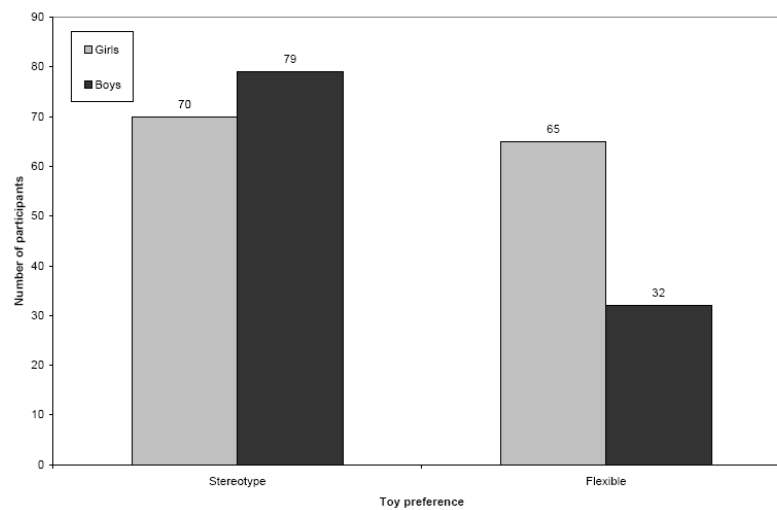


Figure 2. Distribution of stereotype and flexible answers for toy preference, separate for boys and girls.

Carnival outfit preference

As figure 3 shows, a majority of both girls and boys (66% and 70% respectively) prefer to dress up for carnival in a gender stereotype outfit. Girls and boys do not differ in their answers for carnival outfit preference.

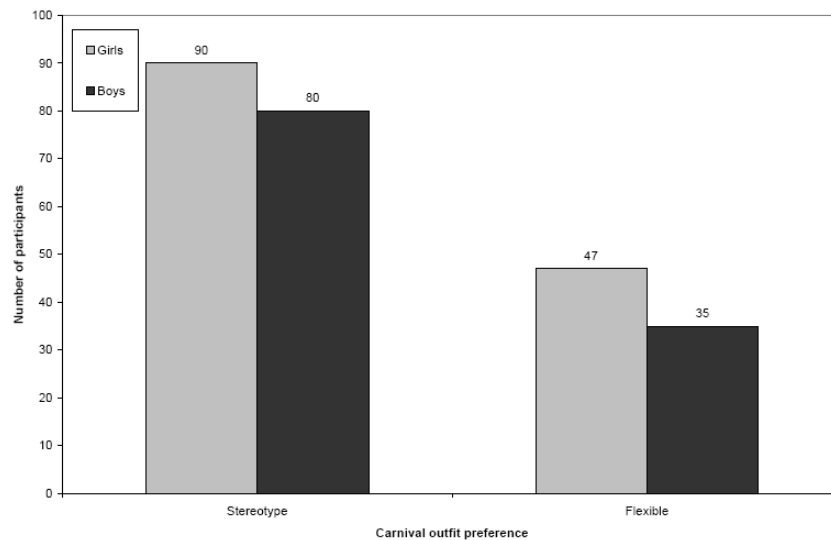


Figure 3. Distribution of stereotype and flexible answers for carnival outfit preference, separate for boys and girls.

Play partner preference

As figure 4 shows, a large majority of both girls and boys (80% and 72% respectively) prefer a same-sex play partner. Girls and boys do not differ in their responses for play-partner preference.

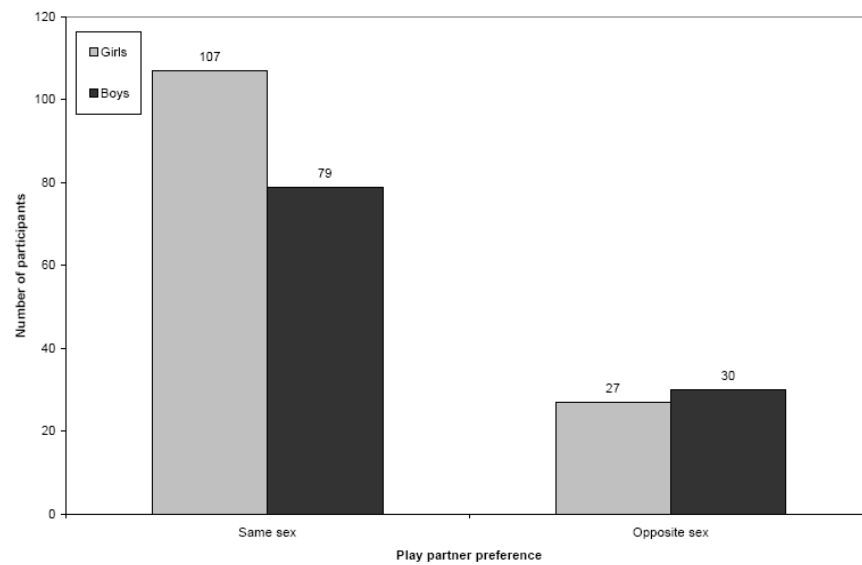


Figure 4. Distribution of answers for play partner preference, separate for boys and girls.

9.2 Influence of sex on gender stereotypes

The results of the analyzes of the influence of sex for the different groups of gender stereotypes will be presented in the following order: all items, female items, male items, personality and behavior items, and object items.

All items

The mean for all participants is 16.5 ($SD=4.6$, $N=269$) items and with a total of 27 items, that means that the participants rate 61% of all items in a stereotypic way.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of sex was not significant.

Female items

With a mean of 7.1 ($SD=2.3$, $N=269$) items and a total of 13 feminine items, the participants in total rate 55% of the items as more appropriate for girls. The mean for the girls is 7.4 ($SD=2.3$, $N=145$) and for the boys is 6.7 ($SD=2.4$, $N=124$).

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of sex was significant: $F(1,263)=6.692$, $p=0.010$, partial $\eta^2=0.025$. The mean for the girls was 0.7 points higher than the mean for the boys.

Male items

With a total of 14 male items and a mean of 9.4 ($SD=2.7$, $N=269$) items, the participants rate 67% of the items as more appropriate for boys.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of sex was not significant.

Personality and behavior items

With a total of 15 personality and behavior items and a mean of 8.4 ($SD=2.9$, $N=269$) items, the participants rate 56% of the items in a stereotypic way.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of sex was not significant.

Object items

With a mean of 8.1 ($SD=2.6$, $N=269$) items from a total of 12 object items, the participants rate 68% of the items in a stereotypic way.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of sex was not significant.

9.3 Influence of age on gender-typed preferences

Boys and girls differ in their job and toy preferences. χ^2 -tests were performed for each of the preferences with age and sex as variables. Fischer's and Pearson's coefficient were interpreted.

For job preference boys and girls differ in their stereotype and flexible answers in the youngest group (Fischer's Exact Test, 2-sided, $p=0.018$ with $N=28$) and the second youngest group (χ^2 (1, $N=50$)=11.458, $p=0.001$). In both of the youngest age groups girls answer more flexible than expected, whereas boys answer more stereotype than expected.

For toy preference boys and girls differ in their stereotype and flexible answers in the youngest age group (χ^2 (1, $N=85$)=5.076, $p=0.024$). Girls answer more flexible than expected, whereas boys answer more stereotype than expected.

For the outfit and play partner preferences χ^2 -tests were performed with the variable age. Pearson's coefficient was interpreted. The relationship between age of child and outfit and play partner preference were not significant for the participants.

9.4 Influence of age on gender stereotypes

The results of the analyzes of the influence of age for the different groups of gender stereotypes will be presented in the following order: all items, female items, male items, personality and behavior items, and object items. Of special interest are the female items, where a gender difference was found.

All items

Figure 5 shows the means of the stereotype answers for all stereotype items combined.

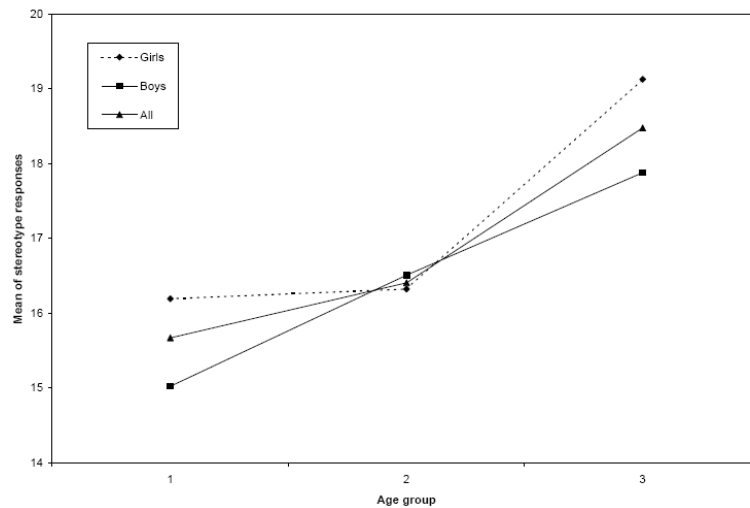


Figure 5. Means of stereotyped answers for all items for the three different age groups, separate for all participants, for boys, and for girls.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of age was significant: $F(2,263)=6.7$, $p=0.001$, partial $\eta^2=0.048$. The means for the youngest group is 15.7 ($SD=5.1$, $N=103$), middle group is 16.4 ($SD=4.3$, $N=118$) and oldest group is 18.5 ($SD=3.7$, $N=48$).

The effect of age, tested with a Bonferroni post-hoc test, is due to that the youngest children and the children in the middle group both significantly differ from the oldest children ($p=0.001$ and $p=0.024$ respectively). The oldest children give more stereotype answers than both the children in the middle group (difference in means of 2.1 points) and the youngest children do (difference in means of 2.8 points).

For the analyzes there were in total $N=269$ (145 girls and 124 boys) participants.

Female items

Figure 6 shows the means of the stereotype answers for the female items.

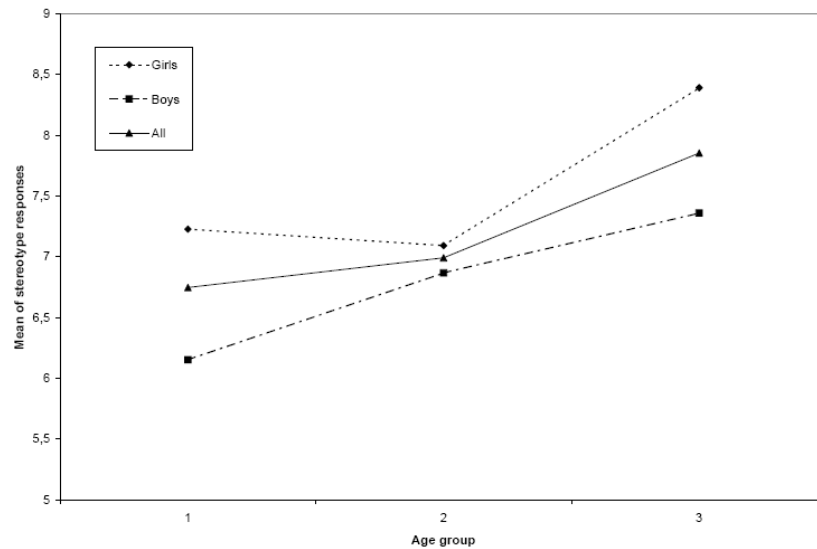


Figure 6. Means of stereotype answers for female items for the three different age groups, separate for all participants, for boys, and for girls.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect for age was significant: $F(2,263)=4.476$, $p=0.012$, partial $\eta^2=0.033$. The interaction between sex and age was not significant. The mean for the youngest group is 6.8 ($SD=2.6$, $N=103$), middle group is 7.0 ($SD=2.2$, $N=118$) and oldest group is 7.9 ($SD=2.1$, $N=48$).

The age group difference, explored with a Bonferroni post-hoc test, was between the youngest and oldest children ($p=0.017$). The oldest children differ significantly from the youngest and give more stereotype answers than do the youngest ones (difference of means of 0.9 points).

For the analyzes of female items there were a total of $N=269$ (145 girls and 125 boys) participants.

Male items

Figure 7 shows the means of the stereotype answers for the male items.

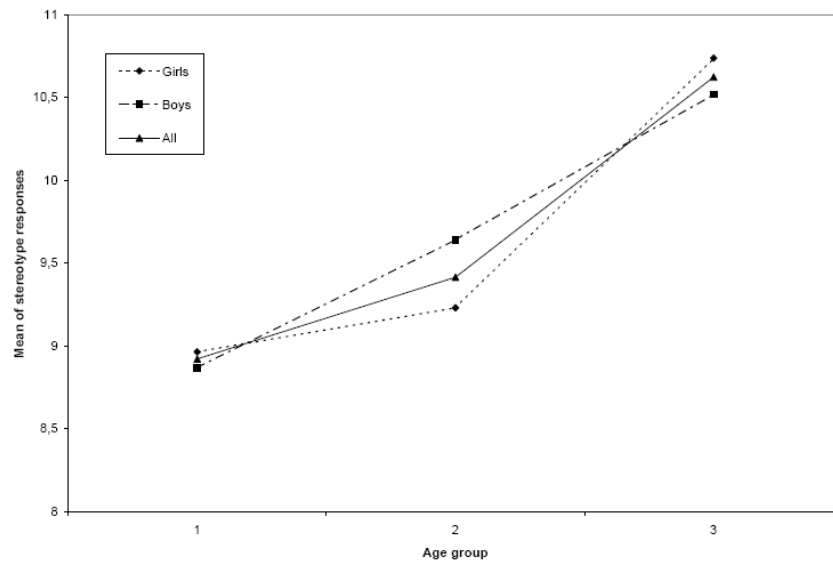


Figure 7. Means of stereotype answers for male items for the three different age groups, separate for all participants, for boys, and for girls.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of age was significant: $F(2,263)=6.583$, $p=0.002$, partial $\eta^2=0.048$. The mean for the youngest group is 8.9 ($SD=3.0$, $N=103$), middle group is 9.4 ($SD=2.6$, $N=118$) and oldest group is 10.6 ($SD=2.0$, $N=48$).

A Bonferroni post-hoc test shows that the youngest children and the children in the middle group significantly differ from the oldest children ($p=0.001$ and $p=0.028$ respectively). The oldest children give more stereotype responses for the male items than both the children in the middle group (difference of means is 1.2 points) and the youngest children (difference of means is 1.7 points).

For the analyzes of male items there were a total of $N=269$ (145 girls and 124 boys) participants.

Personality and behavioral items

Figure 8 shows the means of the stereotype answers for the personality and behavioral items.

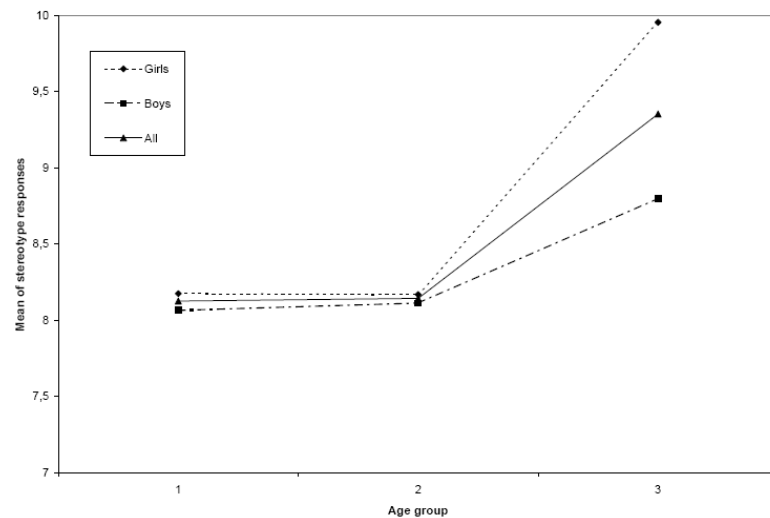


Figure 8. Means of stereotype answers for personality and behavior items for the different age groups, separate for all participants, for boys, and for girls.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of age was significant: $F(2,263)=3.672$, $p=0.027$, partial $\eta^2=0.027$. The mean for the youngest group is 8.1 ($SD=3.1$, $N=103$), middle group is 8.1 ($SD=2.8$, $N=118$) and oldest group is 9.4 ($SD=2.7$, $N=48$).

A Bonferroni post-hoc test shows that the youngest children and the children in the middle group significantly differ from the oldest children ($p=0.047$ and $p=0.045$ respectively). The oldest children give more stereotype responses for the male items than both the children in the middle group (difference of means is 1.3 points) and the youngest children (difference of means is 1.3 points).

For the analyzes of personality and behavior items there were a total of $N=269$ (145 girls and 124 boys).

Object items

Figure 9 shows the means of the stereotype answers for the object items.

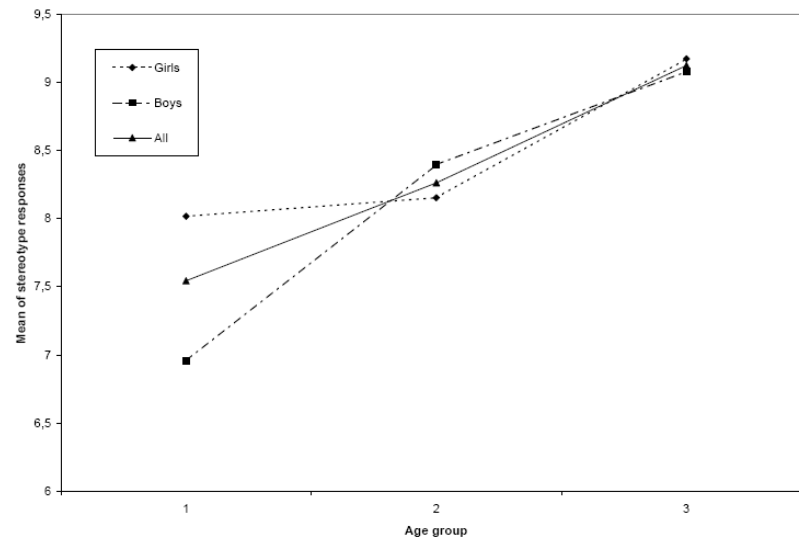


Figure 9. Means of stereotype answers for object items for the three different age groups, separate for all participants, for boys, and for girls.

A 2*3 (sex*age) two-way between factors ANOVA design was employed. The main effect of age was significant: $F(2,263)=7.305$, $p=0.001$, partial $\eta^2=0.053$. The mean for the youngest group is 7.5 ($SD=2.8$, $N=103$), middle group is 8.3 ($SD=2.5$, $N=118$) and oldest group is 9.1 ($SD=1.8$, $N=48$).

A Bonferroni post-hoc test showed that the youngest children differ significantly from the oldest children in how stereotype they respond to object items ($p=0.001$). The oldest participants give more stereotype responses (the difference of means is 1.6 points).

For the analyzes of object items there were a total of $N=269$ (145 girls and 124 boys) participants.

9.5 Do other factors influence gender-typed preferences or gender stereotypes?

Cognitive factors

For each preference item a χ^2 -test was performed for the ToM score of the child. Pearson's coefficient was interpreted. The relationships between ToM score of the child and job, toy, or play partner preference of child were not significant.

However, a significant relationship was found between ToM score and answers for carnival outfit preferences: $\chi^2(1, N=215)=7.641, p=0.022$. The lowest ToM scoring group answered more flexible than the expected count, the middle ToM scoring group answered more stereotype than the expected count, and the highest ToM scoring group answered more stereotype than the expected count. Table 8 shows the answers for carnival outfit preference.

Table 8

Distribution of answers for carnival outfit preference for the different ToM groups

		Carnival outfit preference		Total
		Stereotype	Flexible	
ToM group	No understanding	26	24	50
	Some understanding	51	18	69
	Full understanding	69	27	96
Total		146	69	215

For each preference item a t -test was performed with type of preference of child (stereotype or flexible) as an independent variable and the CPM score of the child as the dependent variable. The relationships between type of answer of the child and the CPM score of the child were not significant for either job, toy, outfit, or play partner preference.

For the gender stereotype items a 2*3 (sex*age) two-way between factors ANCOVA design, with the covariates ToM score of child and CPM score of child, was employed.

Even after taking in count the effect of sex and age, there was significant association between ToM score of child, $F(1,218)=4.466$, $p=0.036$, partial $\eta^2=0.020$, as well as CPM score of child, $F(1,218)=4.649$, $p=0.032$, partial $\eta^2=0.021$, on how stereotype the child responded to the gender stereotype items.

The mean of stereotype responses of the no understanding of ToM group is 14.6 ($SD=5.1$, $N=55$), of the some understanding of ToM group is 16.4 ($SD=4.4$, $N=71$), and of the full understanding of ToM group is 17.3 ($SD=4.0$, $N=100$).

A Bonferroni post-hoc test showed that the children with no understanding of ToM differ significantly from the children with full understanding of ToM in how stereotype they respond to object items ($p=0.001$). The children with full understanding of ToM give more stereotype responses (the difference of means is 1.7 points).

Looking at a scatter plot of the CPM score over the score of stereotype answers to the stereotype items, there is a positive correlation between the variables, $R^2=0.07$. Thus, a higher CPM score is associated with a higher score of stereotype answers.

Factors concerning the mother

For each preference item a χ^2 -test was performed for the education level of mother. Pearson's coefficient was interpreted. The relationships between education of mother and job, toy, outfit or play partner preference of child were not significant.

For each each preference item a t-test was performed with type of preference of child (stereotype or flexible) as an independent variable and the BSRI score of the mother as the dependent variable. The relationships between type of answer of the child and the BSRI score of the mother were not significant for either job, toy, outfit, or play partner preference.

For the gender stereotype items a 2*3 (sex*age) two-way between factors ANCOVA design, with the covariates education level of mother and BSRI score of mother, was employed. There was no significant association between education level of mother or of the BSRI score of the mother on how stereotype the child responded to the gender stereotype items.

This chapter has presented all results, and the next chapter will summarize the results for each research question.

9.6 Summary of results

This part sums up the results and answers the research questions, which will be answered in the order they were presented in.

Question 1: Do boys and girls differ in gender-typed preferences?

Boys and girls differ in their responses for job and toy preference. Girls answered more flexible than expected for both job and toy preference, whereas boys answered more stereotype than expected. For carnival outfit and play partner preference boys and girls do not differ in stereotype responses. For boys the stereotype response rate is 70% and over for all four preference items. Girls, however, respond to the four items differently. For girls, the item with the highest stereotype response rate is play partner preference (80%), followed by carnival outfit preference (66%), toy preference (52%) and finally job preference (27%).

Question 2: Do boys and girls differ in gender stereotypes?

Girls and boys do not differ in how they respond to all items in total, male items, behavior and personality items or object items. However, girls and boys do differ in the way they respond to female items. Of all the female items, 55% were rated as “for girls” by all participants. There is a small but significant difference between the sexes of 0.7 points (5%), with girls responding more stereotype than the boys.

The participants rate 61% of all attitude items as stereotype. Female items in total were rated least stereotype by all participants (55%), followed by personality and behavior items (56%), male items (67%), and lastly object items (68%).

Question 3: Is there an age influence on the eventual differences between boys and girls?

Differences between girls and boys were found for the job and toy preference items. The sex differences are found in the two youngest age groups for job preference and the youngest group for toy preference.

As for the stereotype items, girls and boys only differ in their stereotype responses for female items but age has no influence on this difference.

However, age seems to be an influential factor for gender stereotypes. For the stereotype items in total, the oldest age group gave more stereotype responses than the younger groups.

Question 4: Do cognitive or maternal factors influence gender-typed preferences or gender stereotypes?

The association between ToM score, CPM score, education level of mother, as well as BSRI feminine score of mother and gender-typed preferences and gender stereotypes were analyzed.

For the preference items, the ToM score is associated with how the participants respond to outfit preference. Results indicate that participants with no understanding of Theory of Mind give less stereotyped answers for outfit preference, than the participants with some or full understanding of Theory of Mind do.

No significant associations were found for job, toy, outfit or play partner preference and CPM score, education level of mother, or BSRI feminine score of mother.

For the stereotype items, a higher general-intelligence score and better Theory of Mind skills increase the stereotype responses.

No significant associations were found for education level of mother or BSRI-feminine score of mother on how stereotype the children answered.

10 Discussion

This work is set out to explore sex differences in gender-typed preferences and gender stereotypes held by kindergarteners. Relevant theoretical ideas, previous gender research results, as well as the build up of and results from the present study have been presented. This part will discuss the results from this study and relate it to the existing literature. Furthermore, strengths and weaknesses will be commented on.

This study involved a relatively large sample of children and hardly any parent denied their child to participate. The requirement of language skills made sure that the measures of the present study were understood.

Boys and girls differ in how gender typed they are in toy and job preferences. Boys have gender-typed toy and job preferences. Girls' preferences, however, are more flexible. Girls do not seem to prefer gender-typed toys, and even prefer gender-flexible jobs over gender-typed ones. Both girls and boys have similar gender-typed play partner and outfit preferences.

Results from this study do not support previous results that showed girls being more gender-typed than boys in their job preference (Blaske, 1984). The pattern was quite the opposite, and girls' flexible job preferences support results claiming that job preference is seen quite flexible (Owen Blakemore, 2003). The toy preference results do not fully support that boys and girls choose gender-typed toys (Chick et al., 2002) or that toy preference is seen quite flexible (Owen Blakemore, 2003), but rather partly show similar results to boys preferring gender-typed toys while girls prefer neutral toys (Schau et al., 1980). The results for outfit preference partly support previous results of children devaluating boys that dress like girls (Owen Blakemore, 2003). Girls' high gender-typing might come from the play style that depends on the chosen outfit, and in part support previous results of children devaluating girls that play like boys (Owen Blakemore, 2003). Results for play partner preference supported evidence of gender-typing for both sexes (Chick et al., 2002; Rosario T. de Guzman et al., 2004) and did not find evidence supporting that both sexes prefer a male peer (Shirley & Campbell, 2000).

Girls and boys differ in their female gender stereotypes. Girls stereotype female items more than do boys. Otherwise, both girls and boys hold similar gender stereotypes of objects, male items, personality and behavior. Results therefore support previous results in that girls are more stereotype for female items than are boys (O'Brien et al., 2000). However, results do not support the notion that girls generally stereotype more than boys (O'Brien et al., 2000).

An age influence was found for the sex differences in job and toy preferences. The sex differences mentioned above were found in the two youngest (for job preference) and the youngest (for toy preference) age groups.

Age does not influence the sex differences found in gender stereotypes. There is no influence of age on the difference in gender stereotyping of the female items for boys and girls. However, results of show differences in gender stereotyping between the age groups. Since the present study is a cross-sectional study, it is not possible to describe how gender stereotyping develops with age. However, in this study, the oldest children hold more gender stereotypes than the younger ones.

Cognitive variables have an influence on gender-typed preferences and gender stereotypes. A gender-typed outfit preference is associated with higher Theory of Mind skills. This supports previous results where children scoring higher on a general cognitive test and on a theory of mind test, seemed to be more gender-typed in their outfit preferences (Rosenberg Coker, 1984). Higher general intelligence and Theory of Mind skills are associated with higher gender stereotyping in this study, and thus does not support results of cognitive maturity leading to flexible gender stereotypes (Emmerich & Shepard, 1982) but rather the opposite (Rosenberg Coker, 1984).

Maternal factors were not associated with gender-typed preferences or gender stereotypes. Results did not show any association of education level of mother or female gender-role of mother on any of the preferences or gender stereotyping in total. Thus, it did not support unclear results of the traditionality of mother on gender stereotyping (Turner & Gervai, 1995) but rather support results where such an association was not found (O'Brien et al., 2000).

Since boys and girls differ in some of their gender-typed preferences, they might differ in their acquirement of them. However, the present study is not able to answer this question. The main results are that boys hold gender stereotypes and are gender typed in their behavior, while girls hold gender stereotypes but are not gender-typed in all of their preferences.

A strength of this study is the relatively large sample size which made it possible to analyze different age groups. Furthermore, representativity can be assumed due to the high rate of participation of children. In addition, gender-typed preferences as well as gender stereotypes have been measured instead of observed, which leaves less room for interpretation and influence of the observer. For the influencing factors there were not one variable, but two variables for cognitive maturity as well as two variables for gender-role adherence of mother.

A weakness, on the other hand, is that the age groups have different participants. It is not a longitudinal study and therefore it lacks the power of explaining developments of gender stereotyping and gender-typed preferences. For gender-typed preferences, the format of open questions also leaves room for a degree of interpretation (which was held low by using a coding codex by Kanka, 2003). There were also only four items of gender-typed preferences, which is quite low for making any generalized statements about gender-typed preferences. The strength of having many variables focusing on one underlying variable also has its weakness- there are many analyzes that can be made, and for the interpretations they are separate variables, that in fact might be connected to each other. Some variables might also have been diluted (some variables had a small number of participants in each category) in the general analyzes, and would need to be looked on in refined analyzes. The long questionnaire might have led to a decreased motivation, which could explain the missing answers for some of the questions. Lastly, the influence of fathers was not considered in this study, since the returned questionnaires were to such a high degree filled out by the mothers. This could have been controlled for in advance.

In conclusion, this work has found that boys seem to have a very stereotyped preference-world, whereas girls in some areas already have flexible preferences. However, boys and girls do not generally differ from each other in gender stereotypes. Cognitive

maturity leads to increased stereotyping and within the age span of 4-7 years older children have more gender stereotypes than the younger ones. However, gender-typed preferences do not seem to follow this age trend. The influence of mothers was not significant in this work.

These results point to different possibilities of working with gender in a kindergarten setting. The high level of gender-typed preferences and gender stereotypes obviously needs to be attended to. That children, at the beginning of school-age, hold the most gender stereotypes in the whole kindergarten age-span is a bit worrisome. Not so unexpected, there still seem to be factors in the system of kindergarten that enforce gender stereotypes.

The results of this work point to an early onset of gender-typed preferences and gender stereotypes, and that older children hold more gender stereotypes than the younger children. Both sexes are stereotyped and are so across different areas of life. Hence, successful gender sensitivity efforts needs to be set in early, focus on cognitive as well as behavioral parts, and work with both sexes.

11 Outlook for future research

Research seems to focus on the individual level of gender-role conformity. It has been noted that this might not be the only way of examining gender roles. Examinations of pairs or group-level interaction may also contribute to the explanation of gender separation and segregation (Maccoby, 2000; Powlishta, Serbin, & Moller, 1993). Studies with siblings and peers having to solve tasks have shown that there is flexibility in the way children think and act, depending on the sex of the sibling or peer (Banerjee & Lintern, 2000; Holmes-Lonergan, 2003; McHale et al., 2004).

Furthermore, longitudinal studies are needed to explain the developmental stages of gender-role learning. Do girls and boys follow different paths of gaining gender-role knowledge? Moreover, do gender-typed preferences and gender stereotypes of children determine how gender-typed the children will be as adults?

12 Summary

The focus of this work was to examine gender-typed preferences and gender stereotypes of kindergarteners. One goal was to see if boys and girls differ in their gender-typed preferences and gender stereotypes. Furthermore, it was of interest to investigate the influence of the factor age, cognitive maturity, education level and gender-role adherence of mother on gender-typed preferences and gender stereotypes.

Gender development theories present many ways of acquiring gender-typed preferences and gender stereotypes. Cognitive maturity and gender-role adherence of the home environment are two possible factors that influence gender development. Research has been carried out widely in the gender field, but for the larger part, children have been seen as one group and results of eventual gender differences are lacking.

For this study 291 children in the ages of 4 through 7 were tested. Testing took place during the period of November 2004 through May 2005.

Gender-typed preferences were measured with open questions about the children's favourite job, toy, carnival outfit and play partner. Gender stereotypes were tested with a combination of the "Sex Role Learning Index" (Edelbrock, 1978) and Gender stereotypical behavior and personality trait items (Trautner, 1988). Furthermore, cognitive skills were tested with the "Coloured Progressive Matrices" (Raven, 1980) and Theory of Mind items (Miller, 2001).

Parents of the participating children filled out a questionnaire with information about their education level and the German version of "Bem Sex-Role Inventory" (Bem, 1974 by (Schneider-Düker & Kohler, 1988) which was used as a measure of the gender-role adherence of the parents.

For the analyzes some participants were excluded, and the analyzes are based on 269 children (145 girls and 124 boys). Of the 132 questionnaires returned an overwhelming majority (83%) was filled out by the mothers. This is the reason why only the information about the mothers was used for this study.

The gender preferences were analyzed with χ^2 - and t-tests, for all of the independent variables separately. The gender stereotypes were analyzed with univariate analyzes of variances tests, with the independent variables age and sex. For the total score of gender stereotype items two additional univariate analyzes of variances with cognitive and maternal covariates separately, were performed.

Results show that boys have gender-typed preferences, whereas girls have both gender-typed (play partner and outfit) and flexible (toy and job) preferences. The sex differences were found in the two youngest groups for job preference and the youngest group for toy preference. Girls and boys generally do not differ in their gender stereotypes. An exception is female gender-stereotypes where girls are more stereotype than boys. The oldest participants have more female gender-stereotypes than the younger ones, but age does not have an effect on the sex difference found.

Cognitive maturity seemed to increase gender-typed outfit preference and gender stereotypes but adherence and education of mother were not associated with either gender-typed preferences or gender stereotypes.

Results could only partly support the idea of sex differences in gender-typed preferences and gender stereotypes between girls and boys. Boys and girls differ in their gender preferences, which support previous results. However, boys and girls do not differ extensively in their gender stereotypes. Furthermore, the assumption that older children hold more gender stereotypes was supported by the results.

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Appendix

A. Measures

B. Theory of Mind measure guideline

C. Letter to the parents

D. Abstract

E. Abstract in German

E. Curriculum Vitae in German

Appendix A: Measures

Questionnaire for children (shortened from original)

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Fragebogennummer:

Fragebogen für Kinder

Testleitung: _____

Testdatum: _____ Testbeginn: _____ Uhrzeit

Vorname des Kindes: _____ Gruppe: _____

Gruppenleitung: weiblich ☐ männlich ☐ Hilfskraft: weiblich ☐ männlich ☐Geschlecht des Kindes: weiblich ☐ männlich ☐

Geburtsdatum des Kindes: _____

Wenn du groß bist, was willst du einmal arbeiten? max. 1x Nachfragen: "Gibt es sonst noch Lieblingsarbeiten von dir?" (An erster Stelle wird der wichtigste Beruf notiert usw.; weibliche und männliche Sprachformen der Kinder notieren!)

1. _____
2. _____
3. _____

Als was möchtest du dich im Fasching am liebsten verkleiden? max. 1x Nachfragen: "Gibt es sonst noch Lieblingsverkleidungen von dir?" (An erster Stelle wird die erste Nennung notiert usw.; weibliche und männliche Sprachformen der Kinder notieren!)

1. _____
2. _____
3. _____

Mit welchem Spielzeug spielst du am liebsten? max. 1x Nachfragen: "Gibt es sonst noch Lieblingsspielsachen von dir?" (An erster Stelle wird die erste Nennung notiert usw.; weibliche und männliche Sprachformen der Kinder notieren!)

1. _____
2. _____
3. _____

Mit wem spielst du am liebsten? max. 1x Nachfragen: "Gibt es sonst noch Lieblingsspiel-partner von dir?" (An erster Stelle den wichtigsten Spielpartner notieren; falls das Kind einen Namen nennt, nachfragen: "Wer genau ist das?" Einzutragen sind Bruder, Schwester, Cousine, Freundin im Kindergarten, Freund in der Nachbarschaft, etc.)

1. _____
2. _____
3. _____

Wer kocht bei euch zu Hause? _____

Wer bügelt bei euch zu Hause? _____

Wenn bei euch etwas kaputt ist, wer repariert es dann? _____

Von wem läßt du dich am liebsten trösten? _____

Spielst du manchmal Fußball mit deinen Eltern? Und wenn ja, mit wem? _____

Spiel mit den Boxen

Ich habe hier verschiedene Karten. Auf der ersten Karte steht "Mit Puppen spielen". Zu wem, glaubst du, passt das am besten? Wirf die Karte in die Box, wo du meinst, dass sie am besten hineinpasst (Mädchen, Beide, Bub)! Zum Beispiel mit Puppen spielen.

Zu wem passt das am besten?

Boxenaufstellung				
	Mäd.	Beide	Bub	missing
1. Mit Puppen spielen	Mäd.	Beide	Bub	missing
2. Viel malen	Mäd.	Beide	Bub	missing
3. Cowboy/Cowgirl und Indianer/Indianerin spielen	Mäd.	Beide	Bub	missing
4. Tanzen	Mäd.	Beide	Bub	missing
5. Mit Lastautos spielen	Mäd.	Beide	Bub	missing
6. Mit Halsketten und Armbändern spielen	Mäd.	Beide	Bub	missing
7. Auf Bäume klettern	Mäd.	Beide	Bub	missing
8. Mit dem Fußball spielen	Mäd.	Beide	Bub	missing
9. Schön aussehen und anderen gefallen wollen	Mäd.	Beide	Bub	missing
10. Mutig sein	Mäd.	Beide	Bub	missing
11. Weinen	Mäd.	Beide	Bub	missing
12. Zornig sein	Mäd.	Beide	Bub	missing
13. Angst haben	Mäd.	Beide	Bub	missing
14. Immer bestimmen wollen	Mäd.	Beide	Bub	missing
15. Andere trösten	Mäd.	Beide	Bub	missing
16. Stark sein	Mäd.	Beide	Bub	missing
17. Bügeleisen	Mäd.	Beide	Bub	missing
18. Hammer und Nägel	Mäd.	Beide	Bub	missing
19. Schaufel	Mäd.	Beide	Bub	missing
20. Krug und Gläser	Mäd.	Beide	Bub	missing
21. Säge	Mäd.	Beide	Bub	missing
22. Herd	Mäd.	Beide	Bub	missing
23. Gewehr	Mäd.	Beide	Bub	missing
24. Besen	Mäd.	Beide	Bub	missing
25. Boxhandschuhe	Mäd.	Beide	Bub	missing
26. Feuerwehrlhelm	Mäd.	Beide	Bub	missing
27. Babyfläschchen	Mäd.	Beide	Bub	missing
28. Haarbürste und Spiegel	Mäd.	Beide	Bub	missing

sehr verlässlich

wenig verlässlich

1	2	3	4	5
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Intelligence tests for children (shortened from the original)

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Fragebogennummer:

Intelligenztestbatterie für Kinder

Testleitung: _____ Testdatum: _____
 Testbeginn: _____ Testende: _____ Testdauer: _____
 Vorname des Kindes: _____ Gruppe: _____
 Gruppenleitung: weiblich ☐ männlich ☐ Hilfskraft: weiblich ☐ männlich ☐
 Geschlecht des Kindes: weiblich ☐ männlich ☐
 Geburtsdatum des Kindes: _____ Alter: _____

CPM													
Aufgabe	1	2	3	4	5	6	Aufgabe	1	2	3	4	5	6
Item A 1							Item A 7						
Item A 2							Item A 8						
Item A 3							Item A 9						
Item A 4							Item A 10						
Item A 5							Item A 11						
Item A 6							Item A 12						
Item Ab 1							Item Ab 7						
Item Ab 2							Item Ab 8						
Item Ab 3							Item Ab 9						
Item Ab 4							Item Ab 10						
Item Ab 5							Item Ab 11						
Item Ab 6							Item Ab 12						
Item B 1							Item B7						
Item B 2							Item B8						
Item B 3							Item B9						
Item B 4							Item B10						
Item B 5							Item B11						
Item B 6							Item B12						

TOM-Aufgaben				
		R	F	
1	Wo wird Tommy nach dem Auto suchen?			
2	Wo hat Tommy selbst sein Auto hingegeben?			
3	Wo ist das Auto jetzt?			
4	Wo denkt Susi, dass ihr Ball ist?			
5	Wo hat Susi selbst den Ball hingegeben?			
6	Wo ist der Ball jetzt?			
7	Zeig mir was Freddi jetzt tun wird!			
8	Wo hat Freddi selbst die Schokolade/das Zuckerl hingegeben?			
9	Wo ist die Schokolade/das Zuckerl jetzt gewesen?			

Questionnaire for parents (shortened from original)

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Fragebogennummer: **Fragebogen für Mütter und Väter**

Sehr geehrte Mutter, sehr geehrter Vater!

Dieser Fragebogen ist Teil des Ihnen (aus dem Elternbrief) bereits vorgestellten Forschungsprojekts, das derzeit im Kindergarten Ihres Sohnes bzw. Ihrer Tochter durchgeführt wird. Sie finden im Folgenden eine Reihe von Fragen zu Ihrer Person, zum Kindertagesheim und zum Verhalten Ihres Kindes.

Die Beantwortung der Fragen erfolgt auf freiwilliger Basis, wir wären Ihnen aber für Ihre Mithilfe sehr dankbar.

Lassen Sie bitte keine Frage unbeantwortet. Wir möchten noch betonen, dass es keine "richtigen" oder "falschen" Antworten gibt; es geht um *Ihre Ansichten und Einschätzungen*. Sollten Sie sich bei einer Antwort nicht sicher sein, so nehmen Sie bitte die, die am ehesten Ihrer Einschätzung entspricht.

Den ausgefüllten Fragebogen geben Sie bitte innerhalb einer Woche wieder im Kindertagesheim ab.

Vielen Dank im Voraus!

Die folgenden Angaben beziehen sich alle auf das Kind, für welches Sie diesen Fragebogen erhalten haben. Die Angaben zum anderen Elternteil bitte auch dann ausfüllen, wenn er nicht im selben Haushalt lebt.

Wer füllt diesen Fragebogen aus (z.B. Vater, Mutter)?

Familiäre Situation:

Mutter und Vater in der Familie	<input type="radio"/>
Mutter - Alleinerzieherin	<input type="radio"/>
Vater - Alleinerzieher	<input type="radio"/>
Mutter und männliche Bezugsperson in der Familie	<input type="radio"/>
Vater und weibliche Bezugsperson in der Familie	<input type="radio"/>

Alter der Mutter (bzw. weiblichen Bezugsperson): (in Jahren)

Alter des Vaters (bzw. männlichen Bezugsperson): (in Jahren)

Derzeitiger Beruf der Mutter (bzw. weiblichen Bezugsperson):

Wenn Sie sich derzeit in Karenz befinden, welchen Beruf haben Sie bis dahin ausgeübt?

Derzeitiger Beruf des Vaters (bzw. männlichen Bezugsperson):

Wenn Sie sich derzeit in Karenz befinden, welchen Beruf haben Sie bis dahin ausgeübt?

Höchste abgeschlossene Ausbildung der Mutter (bzw. weiblichen Bezugsperson):	Höchste abgeschlossene Ausbildung des Vaters (bzw. männlichen Bezugsperson):
Hauptschule <input type="radio"/>	Hauptschule <input type="radio"/>
Berufsschule <input type="radio"/>	Berufsschule <input type="radio"/>
berufsbildende mittlere Schule <input type="radio"/>	berufsbildende mittlere Schule <input type="radio"/>
Matura <input type="radio"/>	Matura <input type="radio"/>
Studium <input type="radio"/>	Studium <input type="radio"/>

Geburtsdatum des Kindes: Muttersprache des Kindes:

Geschlecht des Kindes: weiblich ☐ männlich ☐

Wer nahm den Karenzurlaub nach der Geburt des Kindes in Anspruch und wie lange?

Mutter	<input type="radio"/>	von <input type="text"/> (JJ;MM)*	bis <input type="text"/> (JJ;MM)*
Vater	<input type="radio"/>	von <input type="text"/> (JJ;MM)*	bis <input type="text"/> (JJ;MM)*
Keiner	<input type="radio"/>	* bezogen auf das Alter des Kindes	

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e

Auf dieser Seite sind eine Reihe Eigenschaften aufgeführt. Sie sollen sich mit Hilfe dieser Eigenschaften selbst beschreiben. Kreuzen Sie bei jeder Eigenschaft anhand der folgenden 7-Punkte-Skala an, wie sehr die jeweilige Eigenschaft auf Sie zutrifft!								
		1	2	3	4	5	6	7
		nie/ fast nie zutreffend	gewöhnlich nicht zutreffend	manchmal aber selten zutreffend	gelegentlich zutreffend	oft zutreffend	meistens zutreffend	immer zutreffend
1	hat Führungseigenschaften							
2	romantisch							
3	gesellig							
4	tritt bestimmt auf							
5	abhängig							
6	nervös							
7	ehrgeizig							
8	weichherzig							
9	gesund							
10	respekteinflößend							
11	bemüht sich, verletzte Gefühle zu besänftigen							
12	steif							
13	kann andere kritisieren ohne sich dabei unbehaglich zu fühlen							
14	glücklich							
15	gründlich							
16	verteidigt die eigene Meinung							
17	feinfühlig							
18	teilnahmslos							
19	entschlossen							
20	sinnlich							
21	vertrauenswürdig							
22	sachlich							
23	fröhlich							
24	überspannt							
25	nicht leicht beeinflussbar							
26	nachgiebig							
27	zuverlässig							
28	unerschrocken							
29	bescheiden							
30	unpraktisch							
31	intelligent							
32	empfänglich für Schmeicheleien							
33	fleißig							
34	hartnäckig							
35	empfindsam							
36	niedergeschlagen							
37	ist bereit, etwas zu riskieren							
38	selbstaufopfernd							
39	geschickt							
40	kraftvoll							
41	benutzt keine barschen Worte							
42	eingebildet							
43	furchtlos							
44	verspielt							

		nie/ fast nie zutreffend	gewöhnlich nicht zutreffend	manchmal aber selten zutreffend	gelegentlich zutreffend	oft zutreffend	meistens zutreffend	immer zutreffend
45	gesetzentreu	1	2	3	4	5	6	7
46	scharfsinnig	1	2	3	4	5	6	7
47	verführerisch	1	2	3	4	5	6	7
48	stumpf	1	2	3	4	5	6	7
49	wetteifernd	1	2	3	4	5	6	7
50	achtet auf die eigene äußere Erscheinung	1	2	3	4	5	6	7
51	gewissenhaft	1	2	3	4	5	6	7
52	sicher	1	2	3	4	5	6	7
53	leidenschaftlich	1	2	3	4	5	6	7
54	unhöflich	1	2	3	4	5	6	7
55	zeigt geschäftsmäßiges Verhalten	1	2	3	4	5	6	7
56	herzlich	1	2	3	4	5	6	7
57	aufmerksam	1	2	3	4	5	6	7
58	konsequent	1	2	3	4	5	6	7
59	liebt Sicherheit	1	2	3	4	5	6	7
60	vergesslich	1	2	3	4	5	6	7

Appendix B: Theory of Mind measure guideline

WORTLAUT DER AUFGABEN ZUR THEORY OF MIND

1. Tommy-Aufgabe (look condition)

Material:

- männliche Handpuppe
- Auto
- Eckige Dose mit Deckel
- blauer Stoffsack

TL: „Das ist Tommy. Tommy spielt sehr gern mit diesem Auto. Es ist sein Lieblingsspielzeug.“

(Der TL spielt für eine Weile um es mit Tommy und der Situation vertraut zu machen.)

Tommy: „Ich muss jetzt kurz weg gehen. Mein Auto lasse ich inzwischen hier, so dass ich es gleich wieder habe, wenn ich zurückkomme.“

(Tommy legt das Auto in die Dose und gibt den Deckel drauf.)

TL: „Ich habe eine Idee. Wir erlauben uns einen Spaß mit Tommy, okay! Wir nehmen sein Auto aus der Dose und verstecken es in diesem Stoffsack. Das wird lustig, wenn Tommy wieder kommt und sein Auto sucht.“

(Der TL nimmt das Auto aus der Dose und versteckt es im Stoffsack.)

Testfrage: Wo wird Tommy nach dem Auto suchen?

Gedächtnisfrage: Wo hat Tommy selbst sein Auto hingegeben?

Wo ist das Auto jetzt?

Wo ist das Auto jetzt?

2. Freddi-Aufgabe (show condition)

Material:

- Tier-Handpuppe
- Zuckerl
- Roter Stoffsack
- Runde Dose mit Deckel

TL: „Das ist Freddi. Freddi liebt Süßigkeiten. Zuckerl isst er am allerliebsten.“

(Das Kind darf mit Freddi spielen.)

Freddi: „Ich muss kurz etwas erledigen. Mein Zuckerl lasse ich inzwischen hier, so dass ich sie gleich wieder habe, wenn ich zurückkomme.“

(Freddi legt das Zuckerl in den roten Stoffsack.)

TL: „Ich hab eine Idee. Wir erlauben uns auch einen Spaß mit Freddi, okay? Wir nehmen sein Zuckerl aus dem Sack und verstecken es in dieser Dose. Das wird lustig, wenn Freddi wieder kommt und sein Zuckerl sucht.“

(Der TL versteckt das Zuckerl nun in der Dose.)

Testfrage: Du bist jetzt Freddi (man gibt dem Kind die Handpuppe).

Zeig mir was Freddi jetzt tun wird!

Oder: Zeig mir was jetzt passieren wird!

Gedächtnisfragen: Wo hat Freddi selbst sein Zuckerl hingegeben?

Wo ist das Zuckerl jetzt?

3. Susi (think condition)

Material:

- weibliche Handpuppe
- Ball
- Kübel
- Täschchen

TL: „Das ist Susi. Susi spielt sehr gerne mit diesem Ball. Es ist ihr Lieblingsspielzeug.“
(Jetzt spielt der TL mit dem Kind)

Susi: „Ich muss mich jetzt ein bisschen hinlegen, ich bin müde. Meinen Ball lasse ich inzwischen hier, so dass ich ihn gleich wiederfinde, wenn ich aufwache.“
(Susi legt den Ball in das Täschchen.)

TL: „Ich habe eine Idee. Lass uns Susi einen Streich spielen, okay? Wir nehmen ihren Ball aus dem Täschchen und legen ihn in den Kübel. Das wird lustig, wenn Susi wieder aufwacht und den Ball sucht.“

(TL nimmt den Ball aus dem Täschchen und legt ihn für das Kind sichtbar in den Kübel.)

Testfrage: Wo denkt Susi, dass ihr Ball ist?

Gedächtnisfrage: Wo hat Susi selbst den Ball hingetan?

Wo ist der Ball jetzt?

Appendix C: Letter to the parents

ELTERNBRIEF

Diplomandin an der Abteilung für
Bildungspsychologie & Evaluation
Psychologisches Institut der Universität Wien

Email: @unet.univie.ac.at

Wien, im November 2004

Sehr geehrte Mütter! Sehr geehrte Väter!

Meine beiden Kolleginnen, und ich führen
im Rahmen unserer Diplomarbeiten am psychologischen Institut der Universität
Wien eine Studie an Kindern im Kindergartenalter durch.
Die Leiterin Ihres Kindergartens, Frau, hat sich bereiterklärt,
uns bei unserem Projekt zu unterstützen und uns dafür Ihren Kindergarten zur
Verfügung zu stellen.

Da wir auch auf die Mithilfe der Eltern angewiesen sind, möchten wir Sie herzlich
einladen, an unserer Studie mitzuwirken.

Sie werden in den nächsten Tagen von der Gruppenleiterin Ihres Kindes, Frau
....., einen Fragebogen erhalten, den entweder Mutter oder
Vater wahrheitsgemäß ausfüllen sollen.

All Ihre Angaben sind völlig anonym und werden selbstverständlich vertraulich
behandelt.

Wir bitten Sie, den ausgefüllten Fragebogen bei Frau ab-
zugeben (oder ihn in die dafür vorgesehene Box einzuwerfen).

Ihr Kind wird im Laufe der nächsten Wochen mit Hilfe spielerischer Testverfahren
von uns getestet. Die KindergartenpädagogInnen wurden mit dem Inhalt der ein-
zelnen Tests vertraut gemacht und haben Ihr Einverständnis dazu gegeben. Der
Test ist so gestaltet, dass Ihr Kind dies als Spielsituation erleben wird. Ihr Kind
kann dabei nichts falsch machen, da es weder richtige noch falsche Antworten
gibt. Selbstverständlich werden auch die Angaben Ihres Kindes völlig anonym und
vertraulich behandelt.

Die Testsituation wird ungefähr eine Stunde in Anspruch nehmen.

Um etwaige Unklarheiten zu beseitigen, können Sie uns jederzeit unter der oben
angeführten Telefonnummer bzw. E-Mail-Adresse erreichen.

Sollten Sie mit der Teilnahme Ihres Kindes an unserem Projekt nicht einverstan-
den sein, setzen Sie sich bitte mit der Leiterin, Frau, in
Verbindung.

Vielen Dank für Ihre Unterstützung!
Mit freundlichen Grüßen

Appendix D: Abstract

This work examines gender differences in gender-typed preferences and gender stereotypes. Kindergarteners in the ages from 4 to 7 years ($M=5.2$, $SD=0.7$ and $N=269$) were asked for their occupation, toy, carnival outfit, and play partner preferences. Gender stereotypes were examined with the "Sex Role Learning Index" (Edelbrock, 1978) and gender stereotypical behavior and personality trait items from Trautner et al. (1988). For the examination of cognitive skills "Coloured Progressive Matrices" (Raven, 1980) and "Theory of Mind" items (Miller, 2001) were used. The parents were asked about their education level and answered the German version of the "Bem Sex-Role Inventory" (Bem, 1974 from Schneider-Düker & Kohler, 1988). Results show that younger boys have more stereotype occupation and toy preferences than younger girls. Girls have more female gender stereotypes than boys and this gender difference is not influenced by age. However, older children generally hold more gender stereotypes than younger ones. In addition, cognitive maturity is associated with stereotype preferences for carnival outfit and more gender stereotypes in general. Maternal education level and female gender-role adherence were not associated with either gender-typed preferences or gender stereotypes held by the children.

Appendix E: Abstract in German

Diese Arbeit untersucht Geschlechtsunterschiede bei geschlechtertypischen Präferenzen und Geschlechterstereotypen. Kindergartenkinder im Alter von 4-7 Jahre ($M=5.2$, $SD=0.7$ und $N=269$) wurden nach Lieblingsarbeit, -spielzeug, -faschingsbekleidung und -spielpartner gefragt. Geschlechterstereotypen wurden mit "Sex Role Learning Index" (Edelbrock, 1978) und dem "Entwicklungsmodell der Geschlechtsrollenstereotypisierung" (Trautner, 1988) gemessen. Zur Messung kognitiver Fähigkeiten wurden "Coloured Progressive Matrices" (Raven, 1980) und "Theory of Mind" Items (Miller, 2001) herangezogen. Eltern wurden über ihre Ausbildung gefragt und beantworteten die Deutsche Version des "Bem Sex-Role Inventory" (Bem, 1974 von Schneider-Düker & Kohler, 1988). Resultate zeigen, dass jüngere Jungen mehr stereotype Arbeit- und Spielzeugpräferenzen haben als jüngere Mädchen. Mädchen haben mehr weibliche Geschlechterstereotypen als Jungen und dieser Unterschied ist nicht vom Alter beeinflusst. Ältere Kinder haben allerdings mehr Geschlechterstereotypen als jüngere. Kognitive Reife geht mit stereotypen Präferenzen für Faschingsbekleidung und mehreren Geschlechterstereotypen einher. Es wurde kein Einfluss von Bildungsstand oder ein traditionellere Geschlechtsrolle der Mutter auf Präferenzen oder Stereotype gefunden.

Appendix F: Curriculum Vitae in German

Persönliche Daten

Name: Elina Salonen
Geboren: Stockholm, 19.03.1979
Staatsbürgerschaft: Schweden/Finnland
Email: Elina.Salonen@ki.se

Schulausbildung

06/1998 Matura, Södra Latins Gymnasium, Stockholm, Schweden

Studium

03/2001 - 10/2002 Psychologiestudium, Karl-Franzens Universität Graz
02-06/2005 Auslandssemester, Universidad Complutense de Madrid, Spanien
06-07/2008 European Educational Programme in Epidemiology, 21st Residential Summer School in Firenze, Italien
10/2002 - heute Psychologiestudium, Alma Mater Rudolphina Universität Wien
04/2010 - heute PhD-Studentin, Karolinska Institutet, Stockholm, Schweden

Berufspraxis

12/2007 - 03/2010 Projektkoordinatorin für OCTOPUS II, Karolinska Institutet, Stockholm, Schweden

Stockholm, am 29.07.2010