Socialising Gender: The Role of Parents, Peers, and the Media in Children's

Gender-Typed Preferences and Stereotypes

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Conventions Used in this Thesis

Numbering Studies

All of the studies in this thesis are numbered independently of the chapter in which they appear in.

Numbering Tables and Figures

All tables and figures are numbered in terms of the chapter in which they appear. They are numbered as figure or table *x.y.,* with *x* referring to the chapter number, and *y*, the order that the figure or table is presented within that chapter.

Abbreviations

Abbreviations are described within the text.

Acronyms

SLT: Social Learning Theory (Bandura, Ross, & Ross, 1961)

SRT: Social Role Theory (Eagly, 1987)

GST: Gender Schema Theory (Bem, 1981)

SCT: Social Cognitive Theory (Bussey & Bandura, 1999)

VWP: Visual World Paradigm (Cooper, 1974)

CDT: Cognitive Developmental Theory (Kohlberg, 1966)

AIP: Action Interference Paradigm (Banse, Gawronski, Rebetez, Gutt, & Morton, 2010)

IAT: Implicit Association Test (Nosek, Greenwald, & Banaji, 2007)

PSAI: Pre-school Activities Inventory (Golombok & Rust, 1993)

Abstract

Within this thesis the environmental factors influencing children's gender-related cognitions are examined. Using multiple methods, the roles of parents, peers, and the media were investigated in relation to children's gender related attitudes and behaviour. The research draws on social learning theory (SLT: Bandura, 1986; Bandura, Ross, & Ross, 1961; Mischel 1966), social cognitive theory (SCT: Bussey & Bandura, 1999), social role theory (Eagly, 1987) and cognitive developmental theories of gender development (CDT: Bem, 1981, 1983; Kohlberg, 1966; Martin & Halverson, 1981) to explore how socialising agents in the environment, including children's cognitive selves, contribute to the development of gender-related knowledge and stereotypes. As social cognitive and cognitive developmental theories of gender have evolved they have become more integrative, acknowledging that both cognitive and environmental (as well as biological) factors are important in gender development (Martin, Halverson, & Szkrybalo, 2002). This thesis therefore draws on both approaches to comprehensively examine the role of socialising agents and cognitive processes on children's gender-related cognitions.

Five studies were conducted using varied designs. Studies 1 (*Chapter 6*) and 2 (*Chapter 7*) focused on the role of parents in the socialisation of children's gender-related beliefs. Study 1 examined children's and parents' toy preferences and gender stereotypes in relation to toy colour and toy function. Results revealed that both girls and boys preferred toys stereotypic for their own gender in terms of both function and colour, to toys stereotypically associated with the other gender. Parents did not prefer one type of toy over another, but children predicted that their parents would possess the same toy preferences as themselves. Additionally, parents possessed more flexible gender stereotypes than children, and children's gender flexibility scores were negatively related to their gender constancy scores. Parents' reports of children's everyday play on the pre-school activities inventory (PSAI) revealed that boys engage in more masculine-typed play than girls, and

boys' PSAI scores were negatively related to preference for feminine-function toys included as stimuli.

Study 2 extended Study 1 by examining parents' and children's explicit and *implicit* gender stereotypes. As self-report questionnaires can be affected by social desirability, Study 2 employed eye-tracking techniques to examine whether parents and children displayed looking preferences towards masculine- and feminine-typed objects stereotypically associated with the gender of the character in an audio sentence. Findings supported predictions that parents and children would display similar implicit gender biases, but different explicit gender biases. Specifically, both parents and children displayed looking preferences towards the masculine-typed object when the character in the scene was a boy, and preferences toward the feminine-typed object when the character was a girl. This effect was stronger and more sustained in parents than children. However, in response to explicit measures, parents appeared not to endorse the gender stereotypes related to toys, instead appearing egalitarian as they did in Study 1, whilst children's responses were gender-stereotypic.

Studies 3, 4, and 5, focused on the role of peers and the media in gender socialisation. Studies 3 (*Chapter 8*) and 4 (*Chapter 9*) examined the prevalence of gender stereotypic information in young children's magazines; a popular media format which has received little research attention. In Study 3, the front covers of children's magazines were analysed to examine the prevalence of gender stereotypic messages. A content analysis was performed on 106 magazine front covers across nine different magazines. Gender stereotypic information was coded in relation to colour schemes, number of male and female characters and character behaviour, and themes advertised. Results revealed that magazines aimed solely at boys or girls were presented in gender-stereotypic colours, girls' magazines contained more female than male characters whilst boys' magazines contained more male than female characters, female characters were more likely to demonstrate

passive than active behaviour, and girls' magazine front covers contained no speaking characters. Additionally, the theme of appearance was far more prevalent than the theme of risk on the front of girls' magazines.

Study 4 extended Study 3 by analysing the prevalence of gender stereotypic messages throughout entire magazines issues. A content analysis was undertaken on 42 new issues of the same nine magazines previously examined. Within each magazine, the extensive coding framework analysed the colour scheme, the number of male and female characters, character behaviour, and themes. In addition, how often children were instructed to ask for an adult's help with an activity, and the number of activities identified as educational was coded to examine if this differed according target audience. Key findings were that male characters were more active than female characters, males were more aggressive than females, significantly more activities were explicitly identified as educational in the boys' and neutral magazines compared to the girls' magazines, and instructions to ask for an adult's help were present significantly more in the girls' magazines than in both the boys' and neutral magazines. The themes of fashion and home also appeared significantly more in the girls' than the boys' magazines. Therefore, supporting Study 3, young children's magazines are edited differently in terms of both their style and content depending on whether they are aimed at girls, boys, or both boys and girls, reinforcing gender stereotypes.

Following findings from Studies 3 and 4 that young children's magazines readily depict gender stereotyped content; Study 5 (*Chapter 10*) aimed to examine the impact of such media on the endorsement of gender-typed attitudes and behaviours. Specifically, the effect of stereotypic and counterstereotypic peer models presented in children's magazines on children's gender flexibility was investigated. Children were exposed to either stereotypic or counterstereotypic models via reader's pages of children's magazines and completed a number of measures of gender flexibility. Results revealed significantly

greater gender flexibility around toy play and playmate choice among children in the
counterstereotypic condition compared to the stereotypic condition. However, there was no
difference in children's own toy preferences between the stereotypic and
counterstereotypic condition, with children preferring more gender-typed toys overall.
Therefore, the (counter)stereotypic behaviour of peer models presented in children's
magazines affects gender flexibility in some domains but not others.

The studies presented within this thesis show strong support for the role that social
factors play in children's gender development. Studies 1 and 2 revealed that despite
parents' explicit egalitarian views of gender-typed play, children did not predict that their
parents would endorse cross-gender-typed play and eye-tracking revealed that parents'
implicit gender biases in relation to toys were in fact stronger than their children's. This
suggests that parents may be socialising children's gender stereotypes via verbal and/or
non-verbal behaviour stemming from their unconscious biases. Studies 1 and 2 also
support cognitive developmental theories of gender development in relation to gender
schemas (Bem, 1981, 1983) and children's gender-related knowledge (Kohlberg, 1966),
and highlight the role of toy colour and function in reinforcing gender stereotypes.

Studies 3 and 4 provide further evidence for the socialisation of children's gender
stereotypes via the media. Young children's magazines were found to portray highly
gender-typed messages via colour, character behaviour, and themes, which differed
according to the target audience, suggesting that children's exposure to these magazines
may contribute to the development of gender stereotypes. The findings from these studies
support social cognitive theory and social role theory of gender development, and speak to
media cultivation theory.

Study 5 uncovered how the behaviour of peer models in children's magazines can
differentially affect children's gender flexibility in different domains, again speaking to
socialisation theories of gender development, and the importance of exposure to

counterstereotypic gender models in increasing gender flexible attitudes. The findings from Study 5 also indicate that children's magazines could be used as a successful basis for future intervention research.

In conclusion, the studies in the present thesis provide strong support for the role of socialising agents in children's gender development. Toys, parents, peer models, and the media have all been shown to portray gender-typed information, and importantly, counterstereotypic models have been shown to encourage greater gender flexibility in children's attitudes. Applying an established eye-tracking paradigm to investigate children and parents' unconscious gender biases for the first time greatly contributes to the literature on implicit gender stereotypes, and the finding that educational activities are promoted significantly more in magazines aimed at boys than girls shows for the first time the impact that this media format may be having on children's aspirations and understanding of gender norms from such a young age. Further implications for theory, marketers, parents, educators, and future research are discussed in *Chapter 11*.

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Chapter 1: General Introduction

Within this general introduction the role of parents, toys, peers, and the media in children's gender development is briefly discussed and social and cognitive theories of gender development are introduced. A rationale for the present thesis and research aims are also presented. Primarily, this thesis aims to further understanding of the socialisation of gender stereotypes in children; how socialising agents play a role in children's understanding of and adherence to gender norms, and the relationship between children's gender flexibility and social and cognitive influences. This involves examining both parents' and children's explicit and implicit stereotypes, an exploration of the prevalence of gender-stereotypic messages in children's media, and testing the effect of stereotypic and counterstereotypic peer models on children's gender-related cognitions. Summaries of theoretical and empirical chapters, along with key findings, are also presented within this general introduction.

Background

Gender equality has proved elusive and gender still continues to define appropriate behaviours for boys and girls, and men and women, leading to a restriction of opportunities (Leman & Tenenbaum, 2014). The unequal roles of men and women in society are evident in the aspirational occupation choices among girls living in the UK, which continue to reflect deeply entrenched gender roles (Gould, 2008), and in actual occupational roles among adults which maintain the gender pay gap (Office for National Statistics, 2016). Gender stereotypes affect children's toy choices, play styles, subject choices, self-esteem, and self-efficacy (Leman & Tenenbaum, 2011), and gender normative characteristics are worryingly endorsed at a young age. For example, middle-school children have been shown to hold the belief that it is fair for mothers, but not fathers, to engage in 'second-shift parenting', i.e. parenting duties in addition to work (Sinno, Schuette, & Killen, 2014).

It is important to understand how beliefs such as these emerge in children, and identify means of challenging these, as research has shown the benefits of gender equal roles, which are linked to more positive outcomes in children (Yeung, Duncan, & Hill, 2000). But greater gender equality will not be achieved if children believe that men and women should have different, unequal roles in society.

It is not only children who possess these differential attitudes about the roles of males and females; Tenenbaum and Leaper (2003) have shown that mothers believe science is more appropriate for boys than girls, with this information being communicated to children during parent-child interactions. Therefore children's gender-related attitudes and schemas are being underpinned by gender stereotypic information via socialising agents such as parents (Baron, Schmader, Cvencek, & Meltzoff, 2014), and further examination of the ways in which parents contribute to children's gender-related attitudes and behaviour is essential (Tenenbaum & May, 2014). This will be examined by Studies 1 and 2 in the present thesis (see *Chapter 4* for a review of the literature examining the role of socialising agents in gender development).

Children's gender-norm understanding is also influenced by the toys they play with, as masculine- and feminine-typed toys facilitate different types of play (e.g. Li & Wong, 2016). Masculine-typed toys are typically associated with building cognitive and visuo-spatial skills, whereas feminine-typed toys are typically associated with developing social and empathy skills (Blakemore & Centers, 2005). Worryingly, children's toys have become more gender-segregated in recent decades, using characteristics such as colour to divide toys into 'girl' and 'boy' categories (Sweet, 2014). Children likely use these characteristics (or shortcuts) to decide which toys are appropriate for boys and girls to play with. Importantly the different ways in which masculine- and feminine-typed toys are played with reinforce gender stereotypes about male and female characteristics and roles (Weisgram, Fulcher, & Dinella, 2014). However, further investigation into the ways in

which toys inform children's gender-related cognitions is required; is toy function or toy colour more important in determining children's toy preference and gender stereotypes around play, and how does gender flexibility around toy play relate to children's cognitive development? These questions will be addressed by Studies 1 and 2 in the present thesis.

The research presented in this thesis also examines the potential role of media in building and strengthening gender stereotypes in young children. A wealth of previous research has documented the extensive gender stereotypic content of children's media presented via children's television shows, advertisements, books, and video games (Kahlenberg & Hein, 2010; Leaper, Breed, Hoffman, & Perlmanm, 2002; Murnen, Greenfield, Younger, & Boyd, 2016; Thompson & Zerbinos, 1995), and exposure to this content is related to the strength of children's gender stereotypes (e.g. Signorelli, 2001). However, to date, only one study has examined the prevalence of gender-typed content in young children's *magazines*, and this study focused on Japanese magazines for young girls only (see Hata, 2014). Given the popularity of this type of media with young children, it is essential that this media format is given further research attention. Therefore the prevalence of gender stereotypes in children's magazines will be examined in Studies 3 and 4 in the present thesis.

In addition, peers have been shown to strongly enforce gender normative behaviour and children readily police one another's actions to maintain gender standards (Martin, 2011). Children regularly choose to play with same-gender over other-gender peers, and imitate same-gender models (Maccoby, 1990), but there is conflicting evidence concerning the likelihood of children imitating gender atypical behaviour and whether gender counterstereotypic peer models present a viable and successful basis for interventions which aim to increase children's gender flexibility. Study 5 in the present thesis therefore aims to address this gap in the literature by experimentally testing the impact of stereotypic and counterstereotypic peer models on children's gender-related attitudes and preferences.

Theoretical Perspectives

It is widely acknowledged that social, cognitive, and biological factors are all influential in children's gender development (Martin et al., 2002), and socio-cognitive accounts in particular have dominated the literature in recent years because of their ability to combine different perspectives and because children are seen to play an active (rather than passive) role in the gender development process (Leman & Tenenbaum, 2014). The empirical research in the present thesis is therefore based on social and cognitive theories of gender development. Drawing on several theories including social learning theory (SLT; Bandura, Ross, & Ross, 1961), social role theory (SRT; Eagly, 1987), cultivation theory (Gerbner, 1998), social cognitive theory (SCT; Bussey & Bandura, 1999), cognitive developmental theory (CDT; Kohlberg, 1966), and gender schema theory (GST Bem, 1981) allows the present thesis to examine a variety of key variables using a mixed methods approach.

Socialisation theories of gender attribute the development of gender-related knowledge, attitudes, and behaviour to external forces in children's environments, perceiving children to readily absorb information via experience (Blakemore, Berenbaum, & Liben, 2008). Cognitive theories also posit that children learn through their environment, but see children themselves as playing a more active role in the information they attend to (Martin, Ruble, & Szkrybalo, 2002). Predictions in the empirical chapters are drawn from both social and cognitive perspectives. A more detailed discussion of the theories outlined here is presented in *Chapter 3.*

Aims of the Thesis

The aim of this thesis is to draw on social and cognitive theories of gender development to examine how children's environments and their own cognitive understanding contributes to and influences their gender stereotypic attitudes and behaviour. Specifically: Studies 1 and 2 will focus on the role of parents and toys in

relation to children's implicit and explicit toy preferences and gender stereotypes; Studies 3 and 4 will examine the prevalence of gender-stereotypic messages in young children's magazines; and Study 5 will examine the impact of exposure to stereotypic and counterstereotypic peer models in children's media on children's toy preferences, gender stereotypes, and playmate choice. Cognitive variables such as gender constancy will also be examined in Study 1, and reference to gender schema theories will be made throughout.

This thesis also aims to employ a mixed methods approach, whereby studies 1, 2, and 5 are experimental, and studies 3 and 4 utilise content analysis techniques. The studies in this thesis therefore aim to make a unique contribution to the literature on children's gender development by taking a holistic approach to examining how gender stereotypic beliefs are socialised. The findings from this thesis will also be informative for parents, educators, marketers, and for future research. Gaining a more nuanced understanding of how environmental and cognitive factors influence gender development will also inform future intervention studies which attempt to increase children's gender flexible attitudes and behaviour.

Thesis Overview

Chapter 2 presents research on the development of children's gender-related knowledge, stereotypes, and gender-typed toy preferences. The age trends in these different domains of gender flexibility are discussed as well as the differences between boys and girls, speaking to socialisation and cognitive theories of gender development. It is concluded that the examination of children's gender flexibility across different domains is imperative because of the impact this has on children's social, cognitive, and gender development.

Chapter 3 provides an overview of socialisation and cognitive theories of gender development, including a discussion of social learning theory, social cognitive theory, social role theory, cultivation theory, cognitive developmental theory, and gender schema

theory. This chapter concludes that both social and cognitive factors play a key role in children's gender development, and that both internal and external influences need to be taken into consideration when investigating the development of children's gender-related cognitions and behaviour. Predictions in the empirical chapters are drawn from the theories discussed here.

Chapter 4 discusses the roles of parents, peers, the media and toys, and children themselves as socialising agents of gender. An overview of the literature evidencing the impact of these drivers on children's gender-related attitudes and behaviour is provided, and it is concluded that each of these sources of influence play an important role in the socialisation of children's gender understanding. The studies in the present thesis aim to further explore how these agents contribute to the development of gender stereotypes.

Chapter 5 is the final theoretical chapter which discusses research demonstrating how children's gender stereotypes have been shown to limit gender flexibility and aspirations. This chapter concludes that gender stereotypic beliefs which develop in childhood have a significant and detrimental impact on wider society, and are particularly damaging to women's progression; therefore further investigation into their origin is warranted.

Chapter 6 presents Study 1. This study examined children's and parents' toy preferences and gender stereotypes in relation to toy colour and toy function. Children aged 3-5 years old ($N = 44$) and parents ($N = 34$) were independently presented with four feminine-typed toys and four masculine-typed toys in either masculine- or feminine-typed colours. Two toys were feminine-typed in both colour and function (i.e. a pink and purple wand and pony); two toys were masculine-typed in both colour and function (i.e. a blue, black, and red jeep and plane); two toys were feminine-typed in colour but masculine-typed in function (i.e. a pink and purple tool set and army figure); and two toys were masculine-typed in colour/appearance but feminine-typed in function (i.e. a blue, red, and

black tea set and a baby doll dressed as a pirate). All participants completed toy preference and gender stereotype endorsement measures. In addition, children rated how much they thought their parents would like them to play with each of the toys and completed a measure of gender constancy, whilst parents completed the Pre-School Activities Inventory (PSAI; Golombok and Rust, 1993). Results revealed that both girls and boys preferred toys stereotypic for their own gender in terms of both function and colour, to toys stereotypically associated with the other gender. Parents did not prefer one type of toy over another, but children predicted that their parents would possess the same toy preferences as themselves. Additionally, parents possessed more flexible gender stereotypes than children, and children's gender flexibility scores were negatively related to their gender constancy scores. Parents' reports of children's everyday play on the PSAI revealed that boys engage in more masculine-typed play than girls, and boys' PSAI scores were negatively related to preference for feminine-function toys included as stimuli.

Chapter 7 presents Study 2. Building on Study 1, Study 2 explored the similarities between children and parents' implicit and explicit gender cognitions. For the first time, the visual world paradigm was used to examine in real-time whether parents (N = 35) and 7 year old boys and girls (N = 33) display looking preferences towards masculine- and feminine-typed objects stereotypically associated with a story character's gender. A self-report questionnaire assessed participants' explicit gender stereotype endorsement of children's toys. Results revealed a dissociation between implicit and explicit gender biases, where parents and children displayed similar implicit gender biases, but different explicit gender biases. Specifically, both parents and children displayed looking preferences towards the masculine-typed object when the character in the scene was a boy, and preferences toward the feminine-typed object when the character was a girl. This effect was stronger and more sustained in parents than children. However, in the explicit measure, parents did not endorse the gender stereotypes related to toys, instead appearing

egalitarian, whilst children's responses were gender-stereotypic. The implications of these findings are discussed in relation to parents' socialisation of gender stereotypes and non-verbal cues of gender norms.

Chapter 8 presents Study 3. In this study, the front covers of children's magazines were analysed to examine the prevalence of gender stereotypic messages. Based on cultivation theory, it is theorised that male and female children are transformed into masculine and feminine adults through gender socialization processes via exposure to media content (Gerbner, 1998). A content analysis was performed on 106 magazine *front covers* across nine different magazines. Three magazines were targeted at girls (Disney's Princess, Disney's Frozen, and Sparkle World); three magazines were targeted at boys (Fireman Sam, Bob the Builder, and Thomas & Friends); and three magazines were gender-neutral, i.e. targeted at both boys and girls (Peppa Pig - Bag O' Fun, CBeebies, and Fun to Learn - Peppa Pig). Gender stereotypic information was coded in relation to colour schemes, number of male and female characters and character behaviour, and themes advertised. Results revealed that magazines aimed solely at boys or girls were presented in gender-stereotypic colours, girls' magazines contained more female than male characters whilst boys' magazines contained more male than female characters, female characters were more likely to demonstrate passive than active behaviour, and girls' magazine front covers contained no speaking characters. Additionally, the theme of appearance was far more prevalent than the theme of risk on the front of girls' magazines. Therefore, young children's magazine covers are edited differently in terms of both their style and content depending on whether they are aimed at girls, boys, or both boys and girls, reinforcing gender stereotypes.

Chapter 9 presents Study 4. This study extended Study 3 by analysing the prevalence of gender stereotypic messages throughout entire magazine issues. A content analysis was undertaken on 42 new issues of the same nine magazines previously

examined (Disney's Princess, Disney's Frozen, Sparkle World, Fireman Sam, Bob the

Builder, and Thomas & Friends, Peppa Pig - Bag O' Fun, CBeebies, and Fun to Learn -

Peppa Pig). For this study the whole magazine (including the front cover) was analysed.

Within each magazine, the extensive coding framework analysed the colour scheme, the

number of male and female characters, character behaviour, themes, how often children

were instructed to ask for an adult's help with an activity, and the number of activities

identified as educational. Key findings were that male characters were more active than

female characters, males were more aggressive than females, significantly more activities

were explicitly identified as educational in the boys' and neutral magazines compared to

the girls' magazines, and instructions to ask for an adult's help were present significantly

more in the girls' magazines than in both the boys' and neutral magazines. The themes of

fashion and home also appeared significantly more in the girls' than the boys' magazines.

Therefore, supporting Study 3, young children's magazines are edited in line with gender

norms, purveying recurrent gender stereotypes.

Chapter 10 presents Study 5. Following the findings of studies 3 and 4, and

previous literature documenting the gender stereotypic content of children's media, this

experimental study examined the precise impact of children's media on the endorsement of

gender-typed attitudes and preferences. The impact of stereotypic and counterstereotypic

models presented in children's magazines on children's gender flexibility around toy play

and preferences, playmate choice, and social exclusion behaviour was investigated (N =

82, age 4-7 years). Children were randomly assigned to view a boy and girl model of a

similar age on a magazine page playing with either a gender stereotypic or

counterstereotypic toy. In the stereotypic condition, girl models were portrayed with a toy

pony and boy models were portrayed with a toy car; these toys were reversed in the

counter-stereotypic condition for the girl and boy models. Results revealed significantly

greater gender flexibility around toy play and playmate choices among children in the

counter-stereotypic condition compared to the stereotypic condition, and boys in the stereotypic condition were more accepting of gender-based exclusion than girls. However, there was no difference in children's own toy preferences between the stereotypic and counter-stereotypic condition, with children preferring toys stereotypic for their own gender overall.

Chapter 11 summarises the findings of the studies presented in this thesis in relation to the thesis aims. Limitations of the research and key avenues for future research are discussed alongside theoretical and practical implications. It is concluded that parents, toys, peers, and the media all play key roles in the socialisation of children's gender stereotypes, attitudes, and preferences, but that cognitive development must also be considered in order to understand when and how these cognitions emerge, and at what stage in development they can be optimally challenged.

Chapter 2: The Development of Children's Gender-related Knowledge, Stereotypes,

and Gender-typed Toy Preferences

Children have been shown to respond differently to images of males and females at just 1

year of age (Leinbach & Fagot, 1993), but it is not until after the age of two that children

begin to verbally identify girls and boys using gender labels (Etaugh, Grinnell, & Etaugh.,

1989; Kohlberg, 1966; Sandnabba & Ahlberg, 1999). During the pre-school and primary

years there is rapid development in gender-related knowledge as children begin to display

gender stereotypic behaviour, attitudes, and preferences in relation to toys, activities, and

occupations (Blakemore et al., 2008). During this time children are also significantly more

likely to play in same- than other-gender groups (Leaper, 1994), and play styles amongst

boys and girls begin to diverge; girls' peer groups facilitate co-operation and

collaboration, whereas boys' peer groups foster independence and dominance (Kyratzis,

2001). This chapter presents research on the development of children's gender-related

knowledge, stereotypes, and gender-typed toy preferences, speaking to cognitive theories

of gender development (see Chapter 3 for a detailed description of these theories). A

summary outlines the importance of understanding these developmental trajectories and

their relevance to the current thesis.

Gender-related Knowledge and Stereotypes

Acquiring the knowledge that you are a boy or a girl forms the basis of gender

identity (Blakemore et al., 2008), and according to cognitive theories of gender

development, this knowledge triggers children's interest in and adherence to gender

stereotypes (Martin & Halverson, 1981). Stereotypes are a set of beliefs about the

characteristics of a particular group (Biernat & Kobrynowicz, 1999), and children have

been shown to learn stereotypes about gender before learning stereotypes about other

social groups (Zemore, Fiske, & Kim, 2000). Gender stereotypic beliefs can be expressed

in many domains, such as expectations about the occupations and interests that men and

women should have, their personality traits, and their behaviour (Zemore et al., 2000). For instance, stereotypes about men purport them to be physically and emotionally strong, independent, and competent, whereas stereotypes about women portray them as kind, caring, graceful, and empathetic (Deaux & Kite, 1993; Kite, 2001).

These stereotypes about males and females apply to children too; it is common for boys to be described as 'boisterous' and 'active' and for girls to be described as 'quiet' and 'obedient' (Blakemore et al., 2008), and there is indeed evidence to show that boys and girls fulfil these stereotypic roles. For example, Best and Williams (1997) found that boys are socialised to be self-reliant high-achievers, whereas girls are socialised to be nurturing and compliant. Social role theory (Eagly, 1987) suggests that male and female stereotypes reflect societal roles and thus there is some accuracy to gender stereotypes (see *Chapter 3* for further information). But it is unsurprising that men and women possess different roles when gender stereotypes are so salient throughout the lifespan, with children being exposed to toys and activities divided along gender lines, and girls and boys having different expectations enforced upon them (Liben & Bigler, 2002).

The effect of these gender stereotypes on children can be seen in their gender differentiated toy preferences, gender-related attitudes, and gender-typed behaviour (Leman & Tenenbaum, 2014). Disparities between boys and girls in these domains emerge at different ages; this chapter will discuss the developmental trajectory of gender-related knowledge and stereotype acquisition, and how this surfaces in children's preferences, attitudes, and behaviour.

Developmental Trajectory. Gender-related knowledge is acquired early in childhood. Children begin to develop and seek out gender-related knowledge between the ages of 2 and 3 years (Zosuls et al., 2009), and by 3 years of age children freely categorise themselves and others as male or female, and associate objects with boys or girls, men or women (Edelbrock & Sugawara, 1978; Stennes, Burch, Sen, & Bauer, 2005; Thompson,

1975). Once children become aware of their own gender, interest in same-gender behaviours and avoidance of other-gender behaviours begins to occur in relation to colour, toy, and activity preferences (Golombok et al., 2008; LoBue & DeLoache, 2011; Ruble et al., 2007), with children verbally expressing a preference for their own gender from 2 years of age (Yee & Brown, 1994).

Previous research reveals that it is uncommon for children to display such preferences prior to this point. For example, Jadva, Hines, and Golombok (2010) found that 12 month old boys, unable to label their gender, showed looking preferences for dolls over vehicles, supporting the notion that gender-typed preferences only begin to develop *after* gender identity has been achieved. Findings such as these refute evolutionary arguments about the basis of gender-typed preferences (see Alexander, 2003; Hurlbert & Ling, 2007) as children only begin to exhibit behaviours in line with own-gender norms once they are aware of the category they belong to (see *Chapter 3* for further discussion in relation to gender schema theory; Bem, 1981).

Pre-verbal Children. However, research using preferred-looking and habituation paradigms has demonstrated that pre-verbal children begin to differentiate male and female faces between 6 and 9 months of age. This indicates that infants are aware of gender categories from a very young age, even though they are not able to explicitly label their own gender at this point, and very few studies have demonstrated gender-typed preferences in this age group (Cornell, 1974; Leinbach & Fagot, 1993; Younger & Fearing, 1999). Although exceptions include studies by Campbell, Shirley, and Heywood (2000) who found gender-typed toy preferences among boys, but not girls, aged between 9 and 18 months of age using a visual preference paradigm, and to date, only one observational study has shown gender-typed toy preferences in children younger than 18 months of age; Todd, Barry, and Thommessen (2017) found that children as young as 9 months of age displayed gender differences in toy preferences when parents were not present, which may

suggest that such preferences emerge before children can label their gender. However, the authors highlight that own-gender awareness may be implicit at this age, even if the infants are unable to explicitly label their gender, and this implicit knowledge may be guiding toy choices.

Early to Middle Childhood. Beyond 3 years of age, up to the age of 5, children's gender stereotype knowledge has been shown to rapidly increase (Serbin & Sprafkin, 1986; Signorella, Liben, and Bigler, 1993), and by the age of 5, children have rigid definitions of how girls and boys should behave in terms of the activities they engage in and the toys they should play with (Martin & Ruble, 2004). Indeed, by 6 years of age most children avoid engaging in gender atypical behaviours and have negative views of nonconformity (Jewell & Brown, 2014).

However, whilst acquiring gender-related knowledge, i.e. that gender remains constant over time and despite changes to appearance (Kohlberg, 1966; see *Chapter 3* for further information), children have been found to simultaneously achieve greater stereotype *flexibility* in their attitudes towards others. This is the understanding that stereotypes are not necessarily accurate and do not determine fixed male and female behaviours (Banse, Gawronski, Rebetez, Gutt, & Morton, 2010; Serbin & Sprafkin, 1986; Trautner et al., 2005). For example, children come to understand that despite the stereotype that pilots are male, females can do this job too if they wish.

In fact, many studies show a curvilinear trajectory of gender stereotype flexibility, whereby flexibility decreases until 6 years of age, then increases when children reach 6 to 7 years of age. Trautner et al. (2005) found that children whose gender stereotype rigidity peaked early had an earlier subsequent onset of stereotype flexibility, and those who peaked later had a delayed onset of stereotype flexibility, suggesting that all children follow the same developmental trend of stereotype rigidity/flexibility but at different points in early childhood. Therefore, whilst gender stereotype *knowledge* appears to follow a

linear trajectory, with ceiling levels being reached around 7 years of age, gender stereotype *flexibility*, follows a curvilinear trajectory, starting with high levels of flexibility aged 2 – 3 years when stereotype knowledge is first developing, becoming increasingly more rigid until the ages of 5 – 7 years, then becoming more flexible again after this point, with stereotype flexibility peaking and remaining consistent from around 10 years of age (Banse et al., 2010; Trautner et al., 2005). Explanations for this trend are attributed to the development of children's general cognitive abilities (See *Chapter 3* for further elaboration on cognitive theories of gender development).

Further evidence of pre-school children's gender rigidity shows that children of this age readily apply gender stereotypes to behaviour when asked how their parents, peers, and teachers would like to them act (Raag & Rackliff, 1998), or when in front of an audience (Banerjee & Lintern, 2000), thus demonstrating awareness of societal expectations (see *Chapter 4* for a more detailed discussion of audience effects).

Furthermore, studies examining children's gender-typed colour preferences support hypotheses that children achieve more flexible gender stereotypes post 5 years of age. For example, it has been demonstrated that whilst girls aged 2.5 to 4 years show a strong preference for pink over other colours, this preference no longer exists by 5. Therefore, as children's gender-typed knowledge increases, not only do gender stereotypes appear to decrease in rigidity but gender-typed preferences (at least in relation to girl's colour preferences) also appear to decline (LoBue & DeLoache, 2011; Trautner et al., 2005), supporting gender schema theories (see *Chapter 3*).

Implicit Gender Stereotypes. Most of the studies discussed so far have used explicit measures of gender stereotyping, knowledge, and preferences. However, it is incredibly useful to also examine these factors using implicit measures as these are able to capture unconscious gender biases and stereotypes which are far more resistant to social desirability influences (Nosek, 2005).

Recently, researchers have begun to focus on implicit gender stereotypes in children and find evidence of bias in children as young as 5 years of age (Banse et al., 2010). Using the Action Interference Paradigm (AIP) to examine spontaneous gender stereotyping, children are required to assign gender-typed toys to boy and girl categories as quickly as possible in stereotype-congruent and incongruent trials. Banse et al. (2010) found that spontaneous stereotyping remains stable in children between 5 and 11 years of age, i.e. children throughout this age group were able to assign the toys to the 'correct' categories during the congruent trials more rapidly than during the incongruent trials, thereby demonstrating the implicit stereotypes which children must possess in relation to gender-typed toys. The researchers also measured gender flexibility by asking children who could use a variety of gender-typed objects – only men/boys, only women/girls, or both men women/boys and girls. The proportion of 'both' was used as an indicator of gender flexibility. It was found that explicit gender flexibility increased greatly from 5 to 11 years of age, but gender stereotype knowledge and implicit spontaneous stereotyping remained consistent across age groups, suggesting that spontaneous stereotyping is separate from gender flexibility, and more closely linked with stereotype knowledge. The influence of implicit gender stereotypes on behaviour is discussed further in *Chapter 5*.

Gender differences. Whilst boys and girls display *similar* age trends in relation to gender development they are not the *same* (Blakemore et al., 2008)*;* thus, it is important to make clear the discordance between the gender norms for boys and the gender norms for girls, as these are not simply opposites of one another. As a likely result of the feminist movement, girls now have a bigger range of acceptable toys, activities, and interests than boys, i.e. boys are less free to behave gender-atypically than girls because unlike the definition of femininity, the definition of masculinity remains largely unrevised from earlier decades (Fagot & Littman, 1975). Therefore, whilst girls are now encouraged to engage with masculine toys and activities, boys are still discouraged from engaging with

feminine toys and objects (Cahill & Adams, 1997). This is likely linked to the status of

males and females and masculine and feminine activities in wider society. Hierarchically,

females possess a lower social status than males. Therefore boys are discouraged from play

aligned with feminine stereotypes, whereas girls are encouraged to play in masculine-typed

ways to raise their status (Cahill & Adams, 1997). This could explain why boys have been

shown to increasingly avoid pink during the early years of development, but the reverse of

girls avoiding blue has not been evidenced (LoBue & DeLoache, 2011).

Boys and girls also adhere to gender norms in different ways. When Halim et al.

(2014) examined children's gender rigidity in relation to their appearance they found that

girls in particular showed a strong interest in dressing in gender-typed ways between the

ages of 3 and 4 years. This was evident in boys too, but revolved more around *avoiding*

girls' clothes, suggesting that even from this young age boys may be starting to understand

status differences between males and females by avoiding feminine clothes (Rudman &

Glick, 2012). Stereotypes about girls often focus on their appearance, whereas stereotypes

about boys often focus on their behaviour (Miller, Lurye, Zosuls, & Ruble, 2009).

Therefore girls may display more appearance rigidity than boys because for girls to adhere

to female stereotypes it is important that they *look* feminine, whereas for boys to adhere to

male stereotypes they need to *behave* masculine (Halim et al., 2014). Furthermore, despite

children becoming more flexible about gender norms as they age, they have been shown to

remain less flexible around cross-gender play in boys, with reasoning often based on

gender role norms (Schuette & Killen, 2009).

Greater gender norm flexibility for females than males has also been evidenced in

relation to careers. Whilst pre-school children have been shown to gender-type occupations

(Blakemore, 2003; Liben & Bigler, 2002), young children often permit women to occupy

masculine-typed occupations but not men to occupy feminine-typed occupations (Ruble et

al., 2007; Schuette, Ponton, & Charlton, 2012). This trend continues into early

adolescence, with both males and females showing more interest in gender-typed occupations and pertaining to have higher self-efficacy in these roles, but both males and females also display less tolerance of males occupying typically female roles (Sinno, Schuette, & Killen, 2014).

Current Research. In the current thesis, Studies 1, 2, and 5 aim to further the understanding of the development of children's gender-related knowledge and stereotypes by examining gender stereotyping, toy preferences, and gender-based exclusion using multiple methods in children aged 3-7 years. This age range was chosen because this is a period of childhood when gender development, and more general cognitive abilities, progress rapidly (Martin & Halverson, 1981). The cognitive developmental theory of gender identity focuses on gender development stages through which children progress in early childhood, ending around the ages of 6 to 7 years (Kohlberg, 1966). This dominant and well evidenced theoretical perspective was therefore used to inform the choice of age range in the present empirical studies.

Children's Toy Preferences

Gender differentiation is evident in children and adults, and can be seen in the toys children play with, the activities they take part in, the preference for same-sex friendship groups, and in the career choices and behaviour of adults (Blakemore et al., 2008). The differential toy play of boys and girls is particularly important to examine because play is a major feature in young children's daily lives, and the toys they play with are one of the primary facilitators of their social and cognitive development (Cherney, Kelly-Vance, Glover, Ruane, & Ryalls, 2003; Weisgram et al., 2014). According to Blakemore and Centers (p.620, 2005) "the fact that boys and girls prefer to play with different toys is one of the most well-established features of gender development in children's early years."

Infants. From around the age of 2 years it becomes apparent that there are gender differences in children's toy preferences; boys prefer playing with vehicles and girls prefer

playing with dolls (Blakemore et al., 2008; Caldera, Huston, & O'Brien, 1989; Wood, Desmarais, & Gugula, 2002). There is an abundance of research which has demonstrated these preferences during the toddler years, and using preferential looking techniques some researchers have found that these gender differences are apparent at an even younger age, between 1-2 years old, when children may not yet explicitly apply gender labels but implicitly understand their own gender category (see Alexander, Wilcox, & Woods; 2009; Campbell et al., 2000; Jadva et al., 2010). Serbin, Poulin-Dubois, Colburne, Sen, and Eichstedt (2001) examined boys and girls aged 12, 18, and 24 months using an adapted preferential looking paradigm. The children were shown photos of vehicles or dolls, and significant preferences were found for gender stereotyped toys at 18 months of age. The researchers also discovered that the girls were able to associate the gender-stereotyped toys with girls' and boys' faces by 18 months of age, but this was not the case for the boys, attributing this finding to several possibilities, including more developed gender schemas and greater stereotype knowledge in girls (see Bem, 1989; Signorella, Bigler, & Liben, 1993), or lack of attention to feminine-typed activities among boys due to such strong masculine-typed preferences (see Sen, 1999).

Pre-school Children. In experimental studies of verbal children, when given the choice children choose gender-typed over non-gender-typed toys (Wood et al., 2002), and observational studies, parental reports, and children's own statements reveal that the magnitude of gender differences in toy preferences increases significantly during the pre-school years (Ruble et al, 2007). By the age of 5 there is a very clear preference for gender-typed toys, particularly amongst boys. From the ages of 3-4 years, boys tend to focus more heavily on playing with vehicles and engage in fantasy play that involves aggressive behaviour, elements of danger, and often a superhero, whereas girls of the same age use fantasy play to explore household roles such as completing chores, and mimic romantic relationships using dolls and kitchen sets as props (Bussey & Bandura, 1992; Fagot,

Leinbach, & Hagan, 1986). O'Brien and Huston (1985) found through observational studies that children's toy preferences are gender-typed from a young age (14-35 months old) but also that girls' play with feminine toys actually increases with age. Boys' play with masculine toys did not vary with age, but the researchers explain that this is because even the youngest boys most frequently choose masculine toys, so there is a ceiling effect. Investigating activity preferences in older children, Cherney and London (2006) surveyed 120 5-13 year old boys and girls regarding their favourite toys, activities, and television shows. They found that overall, boys spent more time playing sports, computer games, and watching television, and boys' leisure preferences became slightly more masculine-typed with age. For girls, preferences for television shows became more feminine-typed with age, but preferences for toys, computer games, and sports became less feminine-typed (Cherney & London, 2006). It therefore appears that there is a shift in both boys' and girls' preferences toward more masculine-typed toys and activities through middle childhood to adolescence.

Toy Colour. Boys and girls have also been shown to display divergent toy preferences in relation to toy colour. In a study by Chiu et al. (2006) examining colour preferences in children with and without Gender Identity Disorder (GID), typically developing 3 – 12 year old girls chose pink and purple as their favourite colour more often than boys, but in children with GID, boys chose pink and purple more than the girls. Therefore children appear to possess colour preferences in line with their identifying gender, following gender norms. LoBue and DeLoache (2011) also found that when given the choice, girls chose pink objects more often than boys, and by 2.5 years of age girls prefer pink over any other colour, whereas boys increasingly avoided this colour.

Gender differences. However, Banerjee and Lintern (2000) found that 4-9 year old girls possess more flexible gender attitudes than boys. When asked to predict toy preferences for fictional characters, girls were much better than boys at recognising that

gender atypical characters would have different toy preferences from gender stereotypic characters, and young boys held particularly rigid gender stereotypes about appropriate toy play. This can be explained by the interplay of cognitive and social factors as gender norms are stricter for boys; boys are more likely to be punished for cross-gender play, particularly by fathers (Bussey & Bandura, 1999), and therefore boys' own gender schemas are formed from this social information, in turn guiding their gender-rigid behaviour (Martin, Ruble, & Szkrybalo, 2002).

Changes over Time in Toy Preferences. Reflecting societal changes in gender equality, during the last two decades researchers have reported a slight shift in children's toy preferences. For example, an early study by Rheingold and Cook (1975) coded the toys and objects which were present in 1-6 year old girls' and boys' bedrooms. It was found that not only did boys have a greater variety of toys, but they also had more toys overall. The difference in the types of toys that the children owned was clear to see; boys' rooms contained significantly more vehicles, sports equipment, and 'spatial-temporal' toys e.g. clocks and puzzles, whereas girls' rooms contained more domestic items such as tea sets, dishes, and dolls. Other researchers have investigated which toys are requested by boys and girls by analysing their letters to Santa Claus. The findings are consistent: boys request and receive more male gender-typed toys, such as guns, cars, and action-figures, whereas girls request and receive more female gender-typed toys, such as clothes, dolls, and domestic objects (Almqvist, 1989; Bradbard, 1985; Richardson & Simpson, 1982). However, more recent studies using similar methodology reveal different findings. Examining children's toy requests, Marcon & Freeman (1996) found that girls were just as likely as boys to ask for sports equipment and male dolls, and similarly, boys were just as likely as girls to request clothes and art materials. But there were still significant gender differences in relation to requests for military and outer-space toys, girl dolls, and domestic items. Therefore, perhaps societal shifts towards greater gender equality are filtering down

to fewer gender differentiated toy requests in children, highlighting the influence of the social environment on children's gender-related norms.

Current Research. Examining gender differences in children's toy preferences is imperative because toy play forms a significant part of young children's day-to-day experiences, therefore contributing to their development in social, cognitive, and physical domains (Cherney et al., 2003). Thus, if children choose to play with only gender-typed toys, they may only be developing skills associated with such toys, leading to a developmental disadvantage (Weisgram et al., 2014). A key aim of the current thesis is to experimentally examine children's toy preferences in relation to socialising agents including parents, peer models, and the media, including children's magazines and the function and colour of toys themselves. Children's cognitive development linked to their gender-related knowledge and stereotypes will also be investigated to gain further understanding of what may be driving gender differences in toy play.

Chapter 3: Social and Cognitive Approaches to Gender Development

Children are raised in a world permeated with gendered information. Therefore, at a young age, gender can provide children with some understanding of social identities, social relationships, and inform them of how to think and behave (Leman & Tenenbaum, 2014). Although it is now widely acknowledged that social, cognitive, and biological factors are all influential in children's gender development, each approach retains its emphasis on environmental or internal drivers of development (Martin et al., 2002). As this thesis takes a socio-cognitive approach to examining gender development, this chapter will provide an overview of socialisation theories including social learning theory and social cognitive theory, social role theory, and cultivation theory, which focus on the social sources of information about gender and their role in children's gender development. Cognitive theories of gender development which emphasize how information is processed within gender knowledge structures, including Kohlberg's cognitive developmental theory and gender schema theory, will also be discussed.

Social Role Theory

The role of caretaker is associated with women more often than men, and the role of breadwinner is associated more often with men than women (Wood & Eagly, 2012). Based on social role theory, stereotypes are posited to develop based on the characteristics deemed necessary to successfully complete these divergent roles, i.e. to be a successful caretaker, a woman must be nurturing and caring, and to be a sufficient breadwinner a man must be autonomous and intelligent. The stereotypes about men and women therefore reflect the prominent roles they fulfil in society, and these can change over time (Diekman & Eagly, 2000). Thus, according to this theory, gender stereotypes are somewhat 'accurate' representations of males and females because the stereotypes reflect the dominant gender roles of the specific culture. The extension of these stereotypes to objects and activities is proposed to emerge because of their differential use by men and women,

girls and boys, e.g., women use the hoover and men use the tools; boys play with vehicles and girls play with dolls (Diekman & Eagly, 2000). Therefore, gender roles reinforce stereotypes, and stereotypes accurately reflect men and women's differential roles (Eagly, 1987). Eagly, Wood, and Diekman (2000) explain that gender roles are self-fulfilling prophecies whereby certain behaviours are expected of men and women, and individuals are rewarded for complying with these expectations, therefore they are repeated in response to positive outcomes. Research has indeed shown that people approve of gender stereotypic characteristics such as nurturance in women and autonomy in men (Eagly et al., 2000), which link directly with their societal roles. Eagly et al. (2000) argue that these reinforcement processes operate at subtle verbal and non-verbal levels of which most people are likely unaware; thus gender roles are readily maintained as even if individuals explicitly reject gender differentiated roles and stereotypes, subtle behaviour reinforcing these is extensive and often stemming from unconscious processes.

Recent research evidence for social role theory comes from Koenig and Eagly (2014) who tested how stereotypes can develop from observations. They found that participants were accurate at predicting group stereotypes from group social roles, and also identified a causal relationship between roles and stereotypes whereby when participants were told about groups' social roles changing in the future, projected stereotypes were influenced more by these future roles than current stereotypes, supporting the theory that stereotypes develop from everyday observations of social roles in the environment. An important hypothesis of social role theory is that people's attitudes and expectations about groups should change as social roles themselves change, and there is evidence that this is the case. Twenge (2001) has demonstrated that attitudes in relation to gender norms, particularly for women, have become increasingly flexible in recent decades as women's roles in society have become more similar to men's. These promising findings suggest that

gender stereotypes could change relatively quickly if gender roles continue to become less divided.

The present thesis draws on social role theory when examining the role of parents (Studies 1 and 2) and the media (Studies 3, 4 and 5) in the development of children's toy preferences and gender stereotypes. If gender stereotypes are learned through direct observation of social roles as the theory suggests, then children will be developing gender-related cognitions in line with what they experience in their everyday environment. Arguably the most salient features in children's environments are their parents' and the media (including toys, magazines, and television). Therefore, the studies in the current thesis will examine parents' gender stereotypes and gender-typed toy endorsement, and gender stereotypic messages in children's magazines to investigate whether stereotypic gender roles are being portrayed, leading to the development of gender stereotypes in children as a result of exposure to these environmental sources.

Cultivation Theory

Cultivation theory argues that the repetition of themes and stereotypes over time in the media, specifically television programming, leads viewers to internalise norms and beliefs about the real world that match with the media content, even if they are disproportionate to what is experienced in daily life (Gerbner, 1998; Morgan & Shanahan, 2010; Shanahan & Morgan, 1999). It is proposed that the effect of cultivation manifests in two ways: firstly, cultivation leads to a positive relationship between heavy media viewing and distorted perceptions about the world, and secondly, cultivation involves a relationship between media viewing, and attitudes in line with prominent media messages (Morgan & Shanahan, 2010). Evidence for these relationships exists across cultures in relation to overestimation of crime rates and thin female body ideals (Shanahan & Morgan, 1999). It is thought that cultivation arises as a result of repeated exposure to media messages which are consciously or unconsciously encoded. The information these messages portray is then

stored in the long-term memory (Shrum, Burroughs, & Rindfleisch, 2004). Thus, in relation to gender norms, cultivation theory proposes that male and female children are transformed into masculine and feminine adults through gender socialization forces in the media.

Content analyses have revealed the prevalence of gender stereotypes in children's media (e.g., Levinson, 1975; Sternglanz & Serbin, 1974) and the effects of viewing these stereotypes on related attitudes and behaviours (Davidson, Yasuna, & Tower, 1979; McArthur & Eisen, 1976a; McArthur & Eisen, 1976b). However, much focus has been placed on children's television and less so on other forms of media. Therefore, drawing on cultivation theory, Studies 3, 4, and 5 in the present thesis examine the extent of gender stereotypic messages in young children's magazines, a popular media format, and the effect that the presentation of gender stereotypic and counterstereotypic peers in these magazines may have on gender flexibility. See *Chapter 4* for a review of gender stereotypes in the media and their effects on children's gender-related attitudes and behaviour.

Social Learning and Social Cognitive Theory

Social learning theory (Bandura, 1977; Bandura, Ross, & Ross, 1961; Bandura & Walters, 1963; Mischel, 1966) emphasizes the role of the environment in gender development, suggesting that gender roles are learned via observation of models, such as older siblings, parents, teachers, and peers, and imitation of rewarded behaviour. For example, if a boy's older brother (a role model) is praised for choosing to play with a car over a doll (adhering to gender norms) then the younger boy is likely to imitate this behaviour. Conversely, behaviour observed being punished or ignored is not imitated, and modelling in this way allows children to learn rules about social behaviour which they can apply to other contexts. Therefore, the theory suggests that children closely watch and

interact with others of the same gender in order to understand appropriate behaviour and attitudes to 'perform' in their environment.

Indeed, parents have been found to reward different behaviours in sons and daughters; Fagot and Hagan (1991) found that among 18 month old children, boys were positively reinforced for choosing masculine-typed toys and for behaving assertively, whereas girls were reinforced for endeavouring to communicate. Parent-child play has also been shown to differ depending on the child's gender, with parents facilitating more co-operative play with daughters but more aggressive play with sons (Lindsey, Mize, & Pettit, 1997). Studies such as these demonstrate that children are learning gender-differentiated behavioural expectations from a young age, and when they perform gender normative behaviours they are rewarded for doing so, encouraging repetition in the future.

Support for social learning explanations of gender development also comes from studies which have examined *which* models children imitate. In their classic research, Bussey and Bandura (1984) found that girls were more likely to imitate female role models, and boys more likely to imitate male role models, despite evidence that children still attend to what the other-gender models did as they were equally knowledgeable about their actions. The likelihood of children imitating same-gender models increases when there are multiple models (Perry & Bussey, 1979; Ruble, Balaban, & Cooper, 1981), and boys are more likely to imitate same-gender models than females. Boys have been shown to be particularly reluctant to imitate female models, or male models if they are performing gender-atypical behaviours (Bauer, 1993; Slaby & Frey, 1975). In addition, children have been found to increasingly imitate gender-atypical behaviours if the model they are observing is rewarded for doing so (Katz & Walsh, 1991), supporting SLT hypotheses. The gender of the experimenter is also important, as boys were more likely to imitate behaviour if the experimenter was male, but this difference was not observed amongst girls. This led the researchers to conclude that male adults are "the custodians of gender norms" (p.349),

and when it comes to changing children's (especially boys') gender-typed behaviour, male adults were likely to have the biggest influence (Katz & Walsh, 1991).

Research demonstrates that children's play becomes increasingly stereotypic with age following cumulative interactions with role models such as peers, teachers, and siblings (Goldberg & Garcia, 2016). Studies specifically investigating sibling influence have found that children who spend more time with brothers score higher on masculine-typed traits, whereas those who spend more time with sisters score lower on masculine-typed traits (McHale, Kim, Whiteman, & Crouter, 2004), suggesting that these traits may be socialised by siblings. Meta analyses have also revealed small but significant effects of older siblings on girls, whereby girls imitate older brothers' or sisters' behaviour and attitudes, with the effect always being in the direction of the older sibling's gender (Farkas & Leaper, 2014). This effect was not evident among boys. Interestingly, boys and girls were more likely to display masculine-typed characteristics if they had an older brother (than older sister), but they were not more likely to possess feminine-typed characteristics if they had an older sister (than older brother). Therefore, although the findings from this meta-analysis provide some support for SLT and the notion of older siblings as role models, the societal status of males and females appears to moderate this effect as lower-status feminine-typed behaviours are not imitated as much as higher-status masculine-typed behaviours, across both boys and girls (see Ridgeway & Bourg, 2004).

Despite being a prominent and influential theory of gender development in the 1960s (Mischel, 1966), SLT has undergone significant modifications in recent decades following critiques of over-emphasis on environmental determinants and failure to acknowledge the role of biological and cognitive factors in gender development (Martin et al., 2002). SLT therefore evolved to place much greater emphasis on cognition, with the introduction of social cognitive theory in 1999 (Bussey & Bandura, 1999). This updated theory synthesises learning mechanisms with children's cognitive development by

proposing three key interacting factors which influence behaviour, with a model known as triadic reciprocal determinism (Bandura, 1992). This model emphasizes behaviour, perceptions, and environment as three factors which consistently influence one another throughout children's gender development. The theory proposes that gender knowledge is acquired in three key ways: firstly, via imitation and modelling, e.g., through observation of other boys' and girls' play; secondly, through the consequences of gender-related behaviour, e.g., being rewarded for gender-typed play but punished or ignored for cross-gender play; and thirdly, through direct teaching e.g., a boy being told by a parent that "boys do not like Barbies". As a result of this process, children are believed to develop inner self-sanctions to ensure their behaviour adheres to gender norms, but these are thought to become more flexible with age and are dependent on children's individual environments (Bussey & Bandura, 1999). SCT therefore bridges the gap between environmental and constructivist theories of gender, as although it takes in account children's cognitive factors, i.e. their perceptions, these are still attributed to environmental origins, and behaviour is still thought to precede cognitions (Mischel, 1966). For example, the model would propose that children's self-sanctions are linked to internalisations of earlier reward and punishment consequences, and being rewarded for engaging in masculine-typed activities leads to the knowledge that 'I must be a boy', rather than the other way round.

SCT also extends earlier social learning theories by no longer suggesting that children learn from one homogenous environment, instead proposing three types of environment in which they are immersed. Firstly, the imposed environment is one in which children have no choice, i.e. an environment where surroundings are determined by parents and teachers, including the toys which they are bought, how their bedrooms are decorated, and the schools which they attend. Secondly, the selected environment is one which children choose for themselves, and one which develops with age as children become more

independent; and thirdly, the constructed environment refers to how children think about different concepts and how they use objects in their environment, and this is linked to their self-sanctions. For example, boys and girls have been shown to play with gender-atypical toys but in non-traditional ways (see O'Brien, Huston, & Risley, 1983). A girl may play with a masculine-typed toy such as an action figure, but use it during pretend play in a doll's house. Therefore, in constructed environments, children decide for themselves what to play with but also *how* to play with it.

This thesis draws on social cognitive principles in two key ways. Firstly, environmental influences including, parents, peers, and the media are examined to uncover the extent of gender stereotypes in children's environment portrayed by these environmental agents, and how they affect children's gender-related cognitions. Secondly, the notion of an imposed environment is particularly important to this research as parents' gender-typed toy preferences and stereotypes are examined. Studies 1 and 2 will explore parents' attitudes towards gender-typed toys to establish whether stereotypic play in children is endorsed (implicitly and explicitly) and therefore reinforced through verbal or non-verbal cues. Study 5 will examine the effect of peer models demonstrating stereotypic and counterstereotypic play on children's gender-related cognitions. Therefore the influence of role models, in line with SCT hypotheses, is explored in the present research.

Kohlberg's Cognitive Developmental Theory

Cognitive developmental theorists Martin et al. (2002) criticise Bandura and Bussey's (1999) social cognitive theory for containing oversights and inconsistencies. Although social and cognitive theories of gender development have each evolved since their origins in the 1960s and have now reached some middle ground, social theories still emphasise the importance of environmental factors and cognitive theories still focus on internal influences. This thesis draws on both social and cognitive theories of gender

development to examine how external forces and internal processes influence children's gender-related knowledge, stereotypes, and preferences.

Both Kohlberg's cognitive-developmental theory (1966) and Bandura's (1986, 1992, 2001) social cognitive theory of gender development stress the role of cognition, but two key differences separate the two. Firstly, the origins of cognitions regarding gender are proposed to develop in different ways; according to Bandura's theory, cognitions are internal consequences of prior experiences. For example in Bandura's classic Bobo doll study (Bandura et al., 1961) a child may internalize how the same-sex model treated the doll and whether they were rewarded or punished for this behaviour. Witnessing this event will then guide future behaviour as the child will store a symbolic representation of what is 'appropriate' and 'inappropriate' behaviour, and Bandura suggests that this can also be applied to gender-role behaviour. Kohlberg however, suggests that cognitions are the product of self-driven processes, i.e. children develop gender beliefs using their own conceptions of the world; learning is selective and organised by schemata and gender-typed behaviour results from these cognitive processes.

A second key difference between the two theories is in relation to how behaviours and concepts evolve over time. As social cognitive theory is derived from SLT, it is similarly founded in the notion of stability; that is that behaviour is steady over time and is changed by external forces such as new experiences. Kohlberg's theory, on the other hand, assumes that change occurs naturally and is integral to the individual (Overton, 1984). Therefore theories such as Kohlberg's credit change as a premise rather than a consequence, and when applying this idea to gender development it is clear to Kohlberg that gender-role attitudes that change with age are a natural part of the developmental process. In sum, Kohlberg's CDT stresses the constructive cognitive processes which lead to children's gender stereotypes, attitudes, and behaviours rather than considering the acquirement of these as passive (Kohlberg, 1966).

Kohlberg describes gender development as occurring in three distinct stages. During the first stage, 'gender identity', children come to understand their own gender and begin labelling the gender of others. This occurs between the ages of 2-3 years. The second stage, 'gender stability', is when children begin to understand that gender remains stable over time (i.e. that a girl will grow into a woman and a boy into a man). This occurs at 3-5 years of age. The final stage, 'gender consistency' (sometimes referred to as 'gender constancy'), occurs between the ages of 5-7 years. Here, children develop the understanding that gender remains constant despite changes to appearance. For example, if a boy wears a dress he will not become a girl. Once all three levels of knowledge have been achieved, children are said to have reached 'gender constancy'. Numerous studies have reported positive correlations between gender constancy and gender-typed behaviour and preferences (e.g. Frey & Ruble, 1992; Slaby & Frey, 1975; Warin, 2000), supporting Kohlberg's idea that once children have achieved gender constancy they become motivated to conform to gender stereotypes through their preferences and behaviour.

However, other studies have failed to find such support (e.g., Bussey and Bandura, 1992; Serbin and Sprafkin, 1986). These inconsistent findings have led some researchers to refute Kohlberg's theory. For example, Bem (1989) instead suggests that children become *less* gender-typed once constancy has been achieved because they no longer fear that their sex will change if they engage in cross-gender activities. Children who have achieved gender constancy have in fact been shown to judge peers who break gender norms less negatively than children who have not reached the consistency stage of development (Ruble et al., 2007). Meanwhile, other theorists have offered an alternative suggestion that gender constancy is unrelated to gender-typing, considering them independent of one another (Arthur, Bigler, Liben, Gelman, & Ruble, 2008). This suggestion is supported by research from Arthur, Bigler, and Ruble (2009); they found that although gender constancy could be trained in pre-school aged children, increases in gender constancy did not lead to

increases in gender-typed attitudes or behaviours. The authors explain that despite

Kohlberg's suggestion, it is likely that the development of other cognitive abilities, such as

conservation, or other influences such as exposure to gender-typed messages in the media

(e.g. Signorella et al., 1993), lead to an increase in both gender constancy and gender-

typing simultaneously, rather than the existence of a causal link between the two.

However, despite controversies over research evidence, Kohlberg's (1966) theory

of gender constancy has been highly influential, and the role of cognition in gender

development is now widely accepted. Kohlberg's theory also spurred further investigation

to understand the precise cognitive processes involved in gender understanding, and led to

prominent theories such as gender schema theory (Bem, 1981, 1983; Martin & Halverson,

1981; Martin et al., 2002). Study 1 in the present thesis draws on the principles of

Kohlberg's theory by examining gender constancy in relation to children's gender-typed

toy preferences and flexibility of attitudes towards toy play.

Gender Schema Theory

Gender schema theory (GST) posits that children understand their world through

cognitive schemas which are sets of ideas about the world gained through experience.

Early on in childhood, children realise that gender is a salient social category and thus use

the lens of gender to organise information and seek gender-related knowledge (Arthur et

al., 2009). This knowledge and interactions from the environment form gender schemas

which develop with age, in turn influencing attitudes and behaviour (Martin & Halverson,

1981). GST suggests children's ability to label themselves as a boy or a girl is what drives

them to seek out gender-related information, and children are viewed as very active in this

process. Thus, contrary to Kohlberg's theory, GST hypothesises that children become

active agents of gender from a very early age; they do not have to achieve full gender

constancy, simply gender identity, in order to start showing gender-typed behaviours and

preferences (Martin & Halverson, 1981). In support of this, Zosuls et al. (2009) found

through longitudinal observations of children's play, and fortnightly telephone conversations with mothers, that the use of gender labels began at around the age of 19 months, and this labelling predicted an increase in gender-typed play. They also found that girls began using gender labels significantly earlier than boys and gender differences in play style were evident from 17 months of age, increasing in strength by 21 months. These findings suggest that, before the age of 2 years, knowledge of gender categories may influence gender-typed play, supporting GST hypotheses.

GST also explains the emergence of gender stereotypes in children as a normal part of the developmental process, resulting from information processing as a way to categorise and understand the complex world around them. Martin and Halverson (1981) proposed two types of gender schema which emerge in children. Firstly, the 'ingroup/outgroup' schema provides a mental representation of what is suitable for one's own gender and what is suitable for the other gender; information categorised as for the 'outgroup' is attended to in far less detail. The second schema is proposed to be an 'own-gender' schema: information categorised as for the 'ingroup' is attended to and encoded in the own-gender schema. Therefore children build a detailed set of ideas about appropriate traits, behaviours, and attitudes for their own gender, whilst attending far less to information about the other gender. GST suggests that these schemas start to form once children are able to label themselves as a girl or a boy, and it through these schemas that children are able to understand the social world.

Research evidence does indeed show that children remember more information about same-sex models and own-gender related activities than other-gender models and activities, supporting the notion that young children are motivated to understand and adhere to own-gender norms (Ruble & Stangor, 1986). Additionally, GST is also able to explain why some children have more flexible gender attitudes, as schemas are thought of as malleable and resultant from children's own individual experiences. Therefore, children

who experience gender atypical interactions are likely to develop more flexible gender schemas, in turn leading to more flexible thinking about gender-related behaviour and attitudes (Liben & Bigler, 2002).

In relation to children's toy preferences, GST attributes these to the explicit labelling toys are given as either 'for girls' or 'for boys' by parents, peers, and marketers, as this information is incorporated into children's gender schemas, driving interest in gender-typed toys (Bigler & Liben, 2007; Lobel & Menashri, 1993; Martin et al., 2002). Thus, toys labelled as appropriate for one's own gender will be incorporated in to the own-gender schema, whereas toys deemed appropriate for the other gender will be added to the other-gender schema, and therefore avoided (Martin et al., 1995). This has been demonstrated in studies using novel toys which do not already have a clear 'boy' or 'girl' label; for example, Weisgram (2016) found that children are more interested in novel toys labelled for their own gender rather than the other gender (see also Bradbard, Martin, Endsley, & Halverson, 1986). Children have even been shown to avoid attractive toys if they are labelled for the other gender (Martin et al., 1995). Children also engage with gender appropriate objects more frequently and seek to learn more about them (Martin & Halverson, 1981). For example, according to GST, a girl is far more likely to play with dolls than a boy because dolls belong to a feminine rather than masculine schema, which a girl would identify with more than a boy would.

As well as labelling, toy colour is also used to determine whether toys belong to own- or other-gender schemas. Levy (1999) found that children can assign toys to gender categories using colour from 24 months of age. Martin & Ruble (2004) argue that children are intrinsically motivated to search for information which aids understanding of discrete gender categories, with colour being a clear indicator of gender; blue has been associated with boys and pink with girls since the 1940s (Paoletti, 2012). Weisgram et al. (2014)

found that pink in particular was clearly embedded in girls' own-gender schemas, as girls in this study showed interest in masculine-typed toys as long as they were pink in colour.

Studies 1 and 2 in the present thesis examine how the characteristics of toys are incorporated into children's gender schemas and to what extent toy colour and toy function inform decisions about the gender appropriateness and attractiveness of toys for oneself and others.

Conclusions

It is clear from the literature that both social and cognitive factors play a key role in children's gender development, and this has been reflected in the modifications which such theories have undergone in recent years, with both approaches now taking into account external and internal influences on gender-related cognitions (see Martin et al., 2002). The current thesis therefore explores both social and cognitive drivers of gender development. As previously outlined, the role of parents, peer models, and the media will be examined as socialising agents. Additionally, the relationship between gender constancy and gender flexibility, and the role of toy colour and toy function in children's gender schemas will be explored in Study 1 in relation to children's toy preferences and gender stereotypes.

Chapter 4: Social and Cognitive Agents of Gender Development

Gender development occurs in a variety of different contexts, and environmental agents such as parents, peers, siblings, and the media all inform children's developing understanding of gender (Leman & Tenenbaum, 2014). Although research has moved away from focusing on gender differences, gender essentialist views, i.e. the view that male and female characteristics are innate and fixed, remain popular amongst adults and children in explaining gender attributes, despite their reductionist arguments (Rangel & Keller, 2011). However, socio-cognitive accounts of gender development have dominated the literature in recent years because of their ability to combine different perspectives and because children are seen to play an active (rather than passive) role in the gender development process. Considering children's gender development in different contexts, in relation to different socialising agents, allows developmental psychologists to examine how gender-related knowledge, attitudes, and behaviour change in line with these influences. This chapter will therefore discuss how children are socialised into gender roles by parents, peers, and the media (including toys), and how children themselves choose to attend to own-gender information.

Cognitive Self

Cognitive theories of gender development emphasise the child as a self-motivating, active agent who is driven to understand and construct gender categories (Tobin et al., 2010). Martin and Ruble (2004) have coined children as 'gender detectives' – seeking information about their own gender and about gender differences. Research on children's endorsement of gender stereotypes and gender-typed behaviour reveals a developmental trajectory whereby children behave in gender appropriate ways once they begin to understand gender categories, therefore exhibiting high levels of rigidity (Ruble, 1994). This is followed by more flexible gender-related attitudes and behaviour once full understanding of gender categories has been achieved (Miller, Trautner, & Ruble, 2006),

supporting GST (Martin & Halverson, 1981). Research by Halim et al. (2014) supports the notion of children as self-socialising agents, as 3-4 year old children, particularly girls, were found to display strong appearance rigidity and this was associated with a greater understanding of gender stability. Girls also followed the pattern of gender rigidity followed by flexibility, as posited by cognitive development theories. Additionally, studies using novel objects which are labelled as for one gender or the other demonstrate enhanced exploration of objects identified with children's own-gender, even if said object is less attractive than the others or there is an incentive to play with the other-sex object (Bradbard & Endsley, 1983; Bradbard et al., 1986; Martin, Eisenbud, & Rose, 1995). This suggests that children themselves actively seek to engage with own-gender-typed objects, with cognitions about their own group membership driving toy play decisions, supporting cognitive developmental and gender schema theories.

Encoding studies have revealed that children struggle to identify the gender of characters if they are engaged in cross-gender activities; Gelman, Taylor, Nguyen, Leaper, and Bigler (2004) reported that children aged 2.5 years incorrectly referred to a female character as male or male character as female three times more often if they were engaged in gender non-traditional versus traditional activities, which indicates that children use gender stereotypes to inform decisions about a person's gender. Thus they are selectively attending to information which fits existing gender schemas (see also Martin & Halverson, 1983). Meta analyses have also revealed that children remember information related to their own gender more than information related to the other gender (Signorella et al., 1993).

It is evident from the literature reviewed here and in *Chapter 3* that children do not process all environmental stimuli in the same way. Instead their own gender schemata play a deciding role in which information is attended to and how well it is encoded. Therefore, the suggestion that children are active agents in their own gender development, driven by

internal cognitive structures, has received extensive empirical support. This is not to deny the role of other influences in children's environments, but to posit that children play a dynamic role in how this information is attended to, rather than assuming all information is passively absorbed.

Parents

Gender socialisation refers to the process of children being taught by agents (such as the family) about their gender role and the appropriate ways in which they should behave according to their gender (Giddens, 1993). This process begins immediately after birth, simply by asking the important question; 'Is the baby a girl or a boy?' Research has shown that adults behave and interact differently with infants depending on the gender they believe them to be (Seavey et al., 1975; Smith & Lloyd, 1978) which suggests that gender stereotypes are reinforced through socialisation from a very early age and are not necessarily a simple reflection of boys' and girls' innate play preferences. As well as children being active agents of their own gender socialisation (Tobin et al., 2010), their parents and other adults around them are also influential in this process. Children's ideas of gender can be shaped by agents such as peers, siblings, and the media too (Bandura, 2002), and it is therefore essential to address the roles of various socialisation agents when trying to understand how children acquire knowledge about gender, and how this influences their gender-related attitudes and behaviours.

During the early years, is it logical that parents are the primary influence on gender role development; gender identities and the expectation of appropriate male and female roles are formed within the parent-child relationship (Leman & Tenenbaum, 2014). These expectations understandably transform over time as social norms develop and change. Parents may teach gender-typed behaviour in a number of ways: through the clothes they dress their children in, the toys they buy for them, how they decorate their bedrooms, and through their own behaviour, i.e. the way in which they portray their own attitudes

regarding gender roles to their children (Hetherington & Parke, 1999; Sutfin, Fulcher, Bowles, & Patterson, 2008; Tenenbaum & Leaper, 2002). Parents have been shown to readily surround their children with gender-typed objects and decor, especially gender-typed colours. Pomerleau, Bolduc, Malcuit, and Cossette (1990) found that infant girls were often dressed in pink and pastel colours, and had bedrooms painted in pink and yellow, whereas infant boys were more likely to be dressed in and have bedrooms decorated in blue. Cohen (2004) suggests that children may therefore develop gender-typed colour preferences because they are surrounded by them from such a young age, and the preferences develop from familiarity.

Interestingly, research has shown that parents' affective responses to children's gender-typed behaviour influences at what age children begin to label gender, i.e. parents who respond in an emotionally positive way to gender-typed behaviour have children who are able to label people's gender at an earlier age than their peers. 'Early-labellers' go on to demonstrate more traditional gender-typed behaviour than their peers at 27 months of age, and by the age of four these children achieve higher scores on gender-role discrimination tests (Fagot & Leinbach, 1989). This therefore suggests that there is a relationship between parents' affective responses to gendered behaviour during early childhood, and the age at which children develop gender-typed cognition and behaviours (Raag & Rackliff, 1998).

Meta-analyses have found that parents, particularly fathers, encourage children's gender-appropriate activities (Lytton & Romney, 1991), and that mothers speak differently to their sons and daughters (Leaper, Anderson, & Sanders, 1998). Tenenbaum and Leaper (2003) also found that mothers encouraged sons to study science subjects more than daughters, and used more autonomous speech (in line with masculine stereotypes) with sons than daughters. The researchers suggest that parent-child interactions clearly influence and inform children's gender-related cognitions, but that these interactions must be considered in the wider cultural context in which they occur. In other words, gender

differentiated parent-child interactions both reflect societal norms and feed gender disparities, at least in relation to science participation.

As previously discussed, by 3 years of age, children can accurately apply gender stereotypes to toys, but children of this age have also been shown to predict that their parents will hold the same stereotypical views as them, despite this not usually being the case. When surveyed by Freeman (2007), parents tended to reject common gender stereotypes regarding toys, yet this is not what the children expected their beliefs to be. This raises the question of whether there are more subtle, perhaps, implicit cues, being projected by parents to their children about their gender-typed views, which are not made salient when responding to researchers' questions. This could be due to social desirability, i.e. parents do not want to appear to hold gendered beliefs, or perhaps the methodology employed is not revealing truthful answers. It is the aim of Study 2 in the present thesis to address these issues.

Additionally, observational research has highlighted the role of social constraints in gender-typed play. For example, Raag and Rackliff (1998) provided pre-schoolers with a dish set and tool set and presented the items either neutrally or as gender-typed. They videotaped the children with the toys in a playroom and later interviewed them to find out what they thought their parents and siblings would think about them playing with a gender-typed or cross-gender-typed toy. A significant number of boys believed that their fathers would think that cross-gender-typed play was inappropriate, or "bad" in their words. These boys also displayed the most stereotyped play in the playroom. The researchers suggest that both immediate and learned social constraints could explain boys' gender-typed play, and highlight the important role of fathers in the formation of gender identity.

This point has been reiterated by further research which has demonstrated that fathers, more than mothers, offer significantly more gender-typed than cross-gender-typed or neutral toys to their children during play sessions. Bradley and Gobbart (2001) found

that gender-typed toy presentation was related to sex role orientation among fathers but not among mothers, which supports the view that fathers with traditional views of gender roles may be accountable for the materialization of gender-typed play in their young children. Fathers have also been found to impose greater restrictions on sons' than daughters' cross-gender play, and do this to a greater extent than mothers (Burge, 1981). Findings such as these are important because they contest the idea that mothers are the primary agents of gender socialisation in their children, and suggest further research is needed to uncover the influence of fathers on gender development: they are a group with which relatively little research has been conducted.

In line with research discussed in *Chapter 2* which revealed girls possess more flexible gender attitudes than boys, research has also shown that parents criticize boys who engage in girls' activities more than girls who engage in boys' activities (Cahill & Adams, 1997). In Freeman's (2007) study, although parents rejected common gender stereotypes related to children's toys, and were supportive of cross-gender play in girls, results revealed some discomfort remained amongst parents around cross-gender play in boys. This supports previous studies that gender norms are stricter for boys than girls, and that these are endorsed by parents (e.g. Burge, 1981; Fagot & Littman, 1975). Therefore, despite attempts to achieve gender equality, gender stereotypes prevail (Frawley, 2005), and children continue to experience gender-differentiated expectations from parents, restricting opportunities (Sadker & Sadker, 1994).

Parents have also been found to encourage sons to engage in more autonomous behaviour than daughters, and encourage daughters to engage in interpersonal closeness more than sons (Leaper et al., 1998). Children are therefore practising gendered behaviours with their parents from a young age and this is likely to contribute to gender differences seen in men and women's behaviour as adults. Tenenbaum and May (2014) explain that these parent-child interactions inform children's implicit gender stereotypes, which

develop before explicit understanding of gender norms but form the basis of children's gender schemas. From a sociocultural perspective, children's everyday experiences prepare and teach them about the cultural context in which they live, and parent interactions are one of the key socialisers of behaviour (Rogoff, 2003). In relation to the study of science, parents have been found to rate sons as more proficient at science than daughters from middle childhood to early adolescence (Andre, Whigman, Hendrickson, & Chambers, 1999; Tenenbaum & Leaper, 2003). Also, when observing parent-child conversations at science exhibitions, parents have been shown to engage in more explanatory conversations with sons than daughters, with this trend being evident more among fathers than mothers, and this was not because boys asked more questions about the exhibits than girls did (Crowley, Callanan, Tenenbaum, & Allen, 2001). This differential parent socialisation has also been evidenced in course selection, with science subjects being emphasised more for sons than daughters (Tenenbaum, 2009).

Additionally, parents' gender schemas have been linked to children's gender stereotypes; Tenenbaum and Leaper (2002) found that parents with egalitarian schemas about men and women in society had children with more flexible stereotypes about male and female careers. Additionally, boys whose fathers do not endorse gender stereotypes are less avoidant of feminine-typed activities and less likely to view them in a negative way (Deutsch, Servis, & Payne, 2001), and fathers' egalitarian gender role attitudes and division of household tasks are also predictive of egalitarian outcomes in children (Dawson, Pike, & Bird, 2016). Parents have also been shown to inaccurately estimate their son's or daughter's subject-specific ability because they rely on gender stereotypes about what girls and boys should excel at. For example, Eccles, Jacobs, and Harold (1990) found that parents overestimated sons' abilities in maths and sports yet underestimated these in daughters, but daughters were perceived to be more proficient in English language than sons, despite actual competence levels not supporting these gender-typed predictions. This

is concerning because these predictions affected children's own self-perceptions of their abilities, which is likely to affect activity and subject choices.

In addition, Lummis and Stevenson (1990) revealed from cross-cultural studies of parents' expectations of children's maths ability that mothers rated boys' maths skills as stronger than girls', despite academic tests providing no evidence for this, and mothers showed these rating patterns even when children were of pre-school age, before formal education had begun. Worryingly, children display similar gender stereotyped cognitions to their parents when it comes to their own academic abilities. When children and adolescents aged 8-14 years were asked about their expectations of own maths test performance, girls expected that they would achieve lower scores than boys and were likely to attribute poor performance to low ability rather than luck, whereas opposite trends were seen in boys. This is despite actual test scores revealing no significant gender differences (Stipek & Gralinski, 1991).

Finally, examinations of parents' and children's implicit as well as explicit gender cognitions have produced mixed findings. Meyer and Gelman (2016) investigated the link between parents' and 5-7 year old children's gender essentialist beliefs using an adapted IAT related to gender-typed toys, and an explicit self-report measure of gender-stereotyping and gender-typed preferences. They found that parents' (implicit) gender essentialism predicted children's (explicit) gender-typed preferences, but not their gender-stereotypes. In other words, children of parents who assumed gender categories as natural and appropriate demonstrated more gender-stereotypical toy and activity preferences (for themselves), but there was no relationship between parents' essentialism and their children's beliefs about what is appropriate for others (in relation to gender-typed occupations). Secondly, Endendijk et al. (2013) examined parents' and 3 year old children's implicit gender stereotypes using the action interference paradigm (parents and children) and the IAT (parents only), and explicit stereotypes using a self-report

questionnaire (parents only). They found that girls' implicit gender stereotypes were strongly related to their mothers' implicit gender stereotypes, but the same relationship was not evident amongst boys and their mothers. Differences were also apparent between mothers' and fathers' implicit and explicit gender stereotypes, whereby mothers' implicit gender stereotypes were stronger than fathers', but fathers' explicit gender stereotypes were stronger than mothers'.

Existing literature exploring the relationship between parents' explicit gender schemas and children's explicit gender-related cognitions has presented mixed findings, but a recent meta-analysis suggests that a small but significant relationship exists (Tenenbaum & Leaper, 2002). From their analysis of 43 studies, it was concluded that children were more likely to display gender-stereotypical cognitions about themselves or others if their parents possessed more traditional gender schemas. Further research is needed to fully elucidate the complex links between parents' and children's gender-related cognitions, including an exploration of how these biases manifest in implicit measures.

Study 2 of the present thesis therefore aims to fill this gap by providing a robust and precise measure of unconscious processing using eye tracking techniques, as well as explicit measures of parents' and children's gender stereotypes in Studies 1 and 2.

Toys

Many hours are spent playing with toys, and for young children this is integral to their developmental progression; toys aid both the advancement of cognitive skills and also facilitate pretend social play (Blakemore & Centers, 2005). Toys are also a means by which parents can impact children's gender development, as they purchase toys for children and encourage/discourage play with certain toys. Because toys are highly gendered, it is essential to understand the impact that this has on boys' and girls' development (Blakemore & Centers, 2005). Thus children's preference for, and knowledge of gendered toys, is often used as a measure of gender development in research.

Play is integral to the socialisation process during early childhood, an important part of which concerns gender (Powlishta, 2004). Toys can therefore be treated as a socialising agent of gender, teaching children to adopt the accepted values, norms, and behaviours of their culture (Dittmar, Halliwell, & Ive, 2006), leading to the internalisation of activities, attitudes, and roles deemed appropriate for males and females. Toy choice is also a key means by which peers strengthen gender stereotypes by encouraging gender stereotypic play and restricting counter-stereotypic play. Hence, there are three important questions that need to be addressed by research. Firstly, do children display gender-typical toy preferences, and what is the developmental trajectory of this? This question was addressed in *Chapter 2* and it is clear from the literature that strong gender-typed toy preferences exist in young children. The second question is by what means do children segregate toys? Is it their masculine/feminine function or colour which drives decisions about who they are suitable for? Study 1 in the present thesis will address this question. And thirdly, what effect does gender-typed toy play have on children's gender-related cognitions? The literature pertaining to this question will be discussed in *Chapter 5*, and Study 5 will examine the effect of exposure to stereotypic and counterstereotypic toy play via peer models on children's gender stereotypes, toy preferences, and gender-based exclusion.

Masculine and Feminine Qualities of Toys. As discussed in *Chapter 2,* children have very clear ideas about 'boys' toys and 'girls' toys and from a very young age (Blakemore & Centers, 2005). For instance, research by De Caroli and Sagone (2007) employed a forced-choice technique using male and female silhouettes to investigate 8-12 year olds' beliefs about the gendered attributes of toys. They found that, consistent with previous research, toys connected with aesthetic and domestic aspects were attributed to the female silhouette, whereas toys linked to construction, warfare, and technology were attributed to the male silhouette. There were no significant age-related differences but girls

did show stronger stereotyping than boys in relation to gendered toys. This pattern of toy differentiation based on gender has been found repeatedly in the literature (Cherney & London, 2006) and is problematic because gender-typed toys are less supportive of optimal development than neutral toys (Blakemore & Centers, 2005). An earlier study by Miller (1987) found that toys which were rated as most likely to aid the development of artistic, cognitive, and physical skills were also rated as neutral to moderately masculine, again emphasising the problem with gendered toys as they potentially hinder early development, especially for girls in this case. Miller (1987) and Blakemore and Centers (2005) also confirmed that girls' toys were more likely to focus on appearance, nurturance, and attractiveness, as well as the toys being more attractive themselves compared to boys' toys. More recent research concurs that traditional toys for boys (e.g., cars, video games) facilitate the development of visuo-spatial skills and promote a more agentic orientation toward self and others (De Lisi & Wolford, 2002; Jirout & Newcombe, 2015), whereas traditional toys for girls (e.g., dolls, Disney princesses) facilitate the development of nurturing and empathy skills and promote a more communal and appearance-focused orientation toward self and others (Coyne, Linder, Rasmussen, Nelson, & Birkbeck, 2016; Dittmar et al., 2006; Hei Li & Wong, 2016). Seiter (1993) rather accurately describes this difference between boys' and girls' toy choices as "Boys become their toys in play; girls take care of their toys" (p.131).

A recent study by Auster and Mansbach (2012) examined the extent of gender marketing of toys on the internet. By analysing the products for sale on the Disney Store website, they found that toys typified for "boys only" were action figures, weapons, and vehicles, whereas those typified as "girls only" toys consisted of dolls, cosmetics, and jewellery. They also assessed the colours which the toys were presented in: Boys' toys were typically bold in colour e.g. red, black, and brown, and girls' toys predominantly came in pastel shades, e.g. pink and lilac. The toys which were considered by the raters to

be for both boys and girls were more likely to resemble the "boys only" toys in terms of their colours, perhaps to appeal more to boys because they are less likely to cross gender lines. Interestingly, the researchers also report that on the Disney Store website there are separate tabs that allow the user to click on "Girls" or "Boys" which then provides a list of suitable toys for children of that gender. There is no "Girls and Boys" or 'Neutral' tabs, which demonstrates the gender expectations that shroud children's toys and how marketers impose these via explicit labels.

It is therefore clear from the literature that the gender boundaries of toys are salient and entrenched, with clear differences being observed between toys deemed suitable for boys and toys deemed suitable for girls. This gender divide in toy preferences merits scientific and practitioner interest because of the effect on developmental trajectories (Blakemore & Centers, 2005).

Toy colour. Research has shown that the dominant colour(s) of toys, including the general colour palette in which they are presented (e.g. bold or pastel), is an important part of gendered learning as it indicates to children whether the item is suitable for girls or boys, or possibly both (Karniol, 2011). Children associate colours with gender, a fact that toy marketers are fully aware of. Marketers carefully research gender-typed colours during toy development in order to create products which appeal to distinct groups, thus increasing sales (Clark, 2007). Auster and Mansback (2012) claim that the "symbolic significance of colours is undoubtedly socially constructed" (p.376) and this has been evidenced historically by the change in association of pink as a colour for boys (pre-Victorian era), and blue as a colour for girls (Maglaty, 2011; Paoletti, 2012). Today, pink is a clear gender marker for girls, and research which has analysed children's TV commercials, fancy-dress costumes, and advertisements in catalogues confirms that pink and other pastel colours are readily associated with females, whereas bold, primary and neon colours are associated with males (Kahlenberg & Hein, 2010; Nelson, 2000; Pennell,

1994). Stern and Schoenhaus (1990) have suggested that when a girl's toy is not selling

well enough, toy marketers simply try "pinking it up" to increase popularity (p.201).

Preference for colour is also evident among children themselves, with boys avoiding using

pink crayons to colour-in drawings in colouring books (Karniol, 2011), and girls preferring

to use pastel-coloured pencils to colour in their free-hand drawings (Turgeon, 2008).

Additionally, Paz-Albo Prieto, Cvencek, Llácer, Escobar, and Meltzoff (2017) found that

girls preferred pink and purple mathematics-related toys whilst boys preferred blue and red

ones. This categorisation of toys using masculine and feminine colours has increased

dramatically in recent years, and Sweet (2014) and Orenstein (2011) argue that its primary

purpose is to market toys to one gender or the other, to increase toy sales.

Wong and Hines (2015) investigated whether the colour of toys affected how

appealing they were to children. They observed toddlers playing with two gender-typical

toys (a train and a doll), once in gender-typical colours and once in gender-atypical

colours. Assessments occurred twice, at 20–40 months of age and at 26–47 months of age.

They found that boys played more with the train than girls did, and girls played with the

doll and with pink toys more than the boys did. At both time points, both boys and girls

played more with the gender-atypical toy when its colour was typical for their gender than

when it was not. This effect appeared to be caused largely by boys' avoidance of pink.

Overall, the results suggest that, once acquired, gender-typical colour preferences begin to

influence toy preferences, especially those for gender-atypical toys and particularly in

boys. Therefore removing the gender colour-coding of toys could encourage both boys and

girls to engage with the same toys and activities.

Research by Cherney and Dempsey (2010) also supports the idea that colour is a

primary cue which children use to decide whether a toy is for boys or girls. Using gender-

ambiguous and neutral toys, they found that 3-5 year olds would most frequently use

colour as the reason for gender assignment of the toy. Similar patterns have also been

demonstrated in adult populations; Hull, Hull, and Knopp (2011) showed a series of

pictures of toys to undergraduates either as they appeared online, or in a pixelated version

that preserved colour and proportion but obscured other cues. Participants were asked to

rate the toys in terms of masculinity/femininity, how passive/active they were, and how

interesting/uninteresting they were. Results showed that the masculinity/femininity ratings

of toys were very similar in both conditions, i.e. the toys were rated as masculine or

feminine in the colour-cue-only condition as readily as when other cues were also

available. This adds to the evidence that associations between gender and colour are very

strong, in both children and adults.

Additionally, Weisgram et al. (2014) demonstrated that the manipulation of toy

colour can affect children's interest in the toy. Using stereotypically masculine and

feminine toys, half of which were decorated in opposite-gender colours, children aged 3-5

years were asked to rate how much they liked each toy. As expected, boys were most

interested in masculine toys in masculine colours, and girls were least interested in these

types of toys, but interestingly, girls were significantly more willing to engage with

masculine toys when they were presented in feminine colours. As the researchers propose,

"It seems that pink gave girls permission to interact with a masculine toy" (p.404). The

same effect was not found in boys when feminine toys were presented in masculine

colours, which supports the idea that boys are less flexible with gender stereotypes and

therefore more reluctant to engage in girls' activities, regardless of the colour of the toy.

To investigate when gendered colour preferences emerge, LoBue and DeLoache

(2011) studied 7 month to 5 year old children. They specifically wanted to understand

whether girls do actually hold a preference for pink objects, and if so, when this becomes

apparent. Children were shown eight pairs of objects and asked to choose one object; one

object in every pair was pink. They found that by the age of 2, girls chose pink objects

more than boys did, and girls demonstrated a significant preference for the pink objects

over other colours by the age of 2.5 years. The opposite trend was found for boys; they showed an increasing avoidance of pink with age. This evidence supports the view that around the time children begin to discuss gender and seek gender-related information (aged 2-3 years), they also begin to demonstrate a preference for gender-based colours. Developing a preference for same-sex behaviours meanwhile avoiding opposite-sex behaviours is part of the gender-segregation process, and several researchers have suggested that children engage with this in order to define who they are (Golombok et al., 2008; Ruble et al., 2007).

Thus, it would appear that toy colour as well as toy function plays a significant role in the gender segregation of toys, and that toys promote gender stereotypes, acting as a key socialising agent during children's development. However, very few studies have investigated whether toy function or colour is a more important driver of children's gender stereotypes when it comes to categorising toys as 'for boys' or 'for girls'. Therefore, Study 1 in the current thesis extends the work of Weisgram et al. (2014) to examine this question but also explore it in relation to parents' gender stereotype endorsement of toys and children's cognitive development.

Media

With regard to how children's toy qualities have changed over time, according to research there has been very little change since the 1950's, and a gendered consumer-culture still persists (Steinberg, 2011). Studies in the 1990's revealed that television commercials portrayed very traditional gender expectations in regard to toys: with boys' toys relating to action, adventure, and violence, and girls' toys relating to domesticity and appearance (Kline, 1993; Seiter, 1993). In 2010, Kahlenberg and Hein re-examined this theme, analysing current toy advertisements; they found that these gender expectations had remained consistent. Boy-only commercials featured vehicles, sports, and action figures, whereas girl-only commercials featured dolls, cuddly-toys, and domestic items. Thus,

similar to toys, it is clear that gender-typed messages continue to be portrayed via children's media, making this medium a potentially key socialising agent of gender development.

Books. Children's books teach children about the roles of girls and boys, and men and women. Thus researchers have investigated two important issues about children's books: the stereotyped roles of male and female characters, and the proportion of characters that are male or female (Blakemore et al., 2008). It was well evidenced during the 1970s that the number of male characters far outweighed the number of female characters (Weitzman, Eifler, Hokada, & Ross, 1972), and this was found in the USA, Europe, and Australia (Bereaud, 1975). Examining children's books from the 1940s to 1960s, Weitzman et al. (1972) found a ratio of 11 male human characters for every female human character, and an overwhelming majority of animal characters were also portrayed as male. These studies also found that both the child and adult characters were portrayed in very gender-stereotyped ways in the books; adult women were rarely pictured outside of the house, and were passive in their behaviour (e.g. saying very little or being shown in the background), whereas the adult men were much more likely to be shown in occupational roles requiring skill and knowledge. A similar theme was found for the child characters, with boys portrayed as active, outdoors, and engaged in exciting or heroic activities whilst girls often needed assistance or simply watched what the boys were doing (Bereaud, 1975; Weitzman et al., 1972).

In more recent years, the balance appears to have improved, with studies finding (on average) 1.5-2 times as many male to female characters; a significant improvement from the earlier 20th century, although still not equal (e.g. Hamilton, Anderson, Broaddus, & Young, 2006). Clark, Guilmain, Saucier, and Tavarez (2003) found that gender stereotyping in children's books increased and decreased during the last century in line with society's views about women's roles; more flexible gender roles and more books

about girls were introduced once publishers were made aware of concerns about sexism following the feminist movement of the late 1960s. Blakemore et al. (2008) argue that this makes clear the link between children's books and the gender socialisation process; as societal norms change, so does the portrayal of males and females in children's media. In the same vein, whilst female book characters have become less stereotyped in terms of their behaviour, there is no evidence to show that male characters have changed to engage in more feminine-typed behaviours or activities (Diekman & Murnen, 2004; Evans & Davies, 2000), and even if more modern children's books contain gender counterstereotypic characters, classic children's books depicting traditional gender roles remain ever popular (Blakemore et al., 2008).

Television. In addition to books, one of the most popular media formats among children is television. In 2001, it was reported that pre-school children watched on average 2 to 4 hours of television per day, and by the time children start secondary school, 80% of the programmes they watch are intended for adults (Paik, 2001). Therefore, a significant portion of time is spent viewing television programmes and it is unquestionable that the messages delivered via this platform inform children's gender-related knowledge and stereotypes. According to Kenway and Bullen (2001), it was in the 1980s that young girls were first recognised as an audience worth specifically targeting by the media. Prior to this the media had focused on creating programmes for boys because more products were available to them and therefore 'boys'' programmes would make more money through advertising. However, the popularity of films such as Titanic (1997) with teenage and pre-teen girls demonstrated that these groups would also generate a large economic profit. Boys' and girls' programmes began to differentiate along gender lines and girls were viewed as a 'niche' market; girls no longer only had the option of watching 'boys'' programs, they now had shows created for them which focused on what girls are stereotypically seen to be interested in: relationships and beauty (Kenway & Bullen, 2001).

Following content analyses of children's television programmes, researchers have evidenced the prevailing gender stereotypes of male and female characters. For example, Thompson and Zerbinos (1995) found that there were three times more male than female characters in cartoons spanning from the 1930s to the 1990s, and male characters were far more active than female characters. In addition, Signorelli's (2001) review of content analysis studies found that even in more recent television shows aimed at adults, the number of males outweighed the number of females 2 to 1, and male characters were significantly more likely to be central to the storyline than female characters. Female characters are also more likely to receive comments about their appearance than males (Lauzen & Dozier, 2002; Plakoyiannaki & Zotos, 2009).

Television and print *advertising* is also dominated by gender stereotypic portrayals of males and females, and as with children's books, despite depictions of females becoming somewhat less stereotyped in recent years, the portrayal of male characters has changed very little (Bresnahan, Inoue, Liu, & Nishida, 2001; Kaufman, 1999). Barstch, Burnett, Diller, and Rankin-Williams (2000) found that women were far more likely to demonstrate cleaning products than men, and the dominant portrayals of women in popular British print magazine advertisements continue to perpetuate gender stereotypical representations of them (Plakoyiannaki & Zotos, 2009). Adverts targeted at children primarily promote toys, and they have been shown to be effective in increasing toy sales; children have been found to specifically request the toys they see advertised (Pine & Nash, 2002), and interestingly, when access to television viewing is restricted children request fewer toys (Robinson, Saphir, Kraemer, Varady, & Haydel, 2001). It is of concern that such adverts have been found to regularly depict gender stereotypes (Schwartz & Markam, 1985), where women are often portrayed in passive roles, lacking autonomy or intelligence, and showing deference towards men, whereas men have been portrayed as independent, high-power achievers (Kolbe & Abanese, 1996). Additionally, girls are often

depicted 'playing house', i.e. enacting feminine-typed roles through pretend play, such as cooking, cleaning, and dressing up, and caring for baby dolls, whilst boys are consistently engaged in aggressive play with action figures, vehicles, and weapons (Furnham & Mak, 1999; Smith, 1994).

Other media. The prevalence of gender stereotypic messages in parenting magazines has also been examined: Spees and Zimmerman (2002) found that not only were articles within parenting magazines primarily targeted at women (reinforcing the norm that parenting is a woman's job), the appearance of women and girls (but not boys and men) was discussed regularly throughout the issues and adverts, and there were clear gender-typed differences in how the boys and girls were dressed. The researchers suggest that these strong gender-typed messages in these magazines are likely to affect both the women reading them and their children, as these magazines encourage the purchase of gender-typed toys, clothes, and furnishings for boys and girls.

Video games are another form of media in which gender stereotypes are reinforced. Dill, Gentile, Richter, and Dill (2005) and Dietz (1998) both report an underrepresentation of female characters in video games, and when females are included they are regularly portrayed in sexualised ways (see also Beasley & Collins-Standley, 2002). These depictions also exist in video game *magazines*, with men significantly outnumbering women and violence being referred to in 55% of advertisements (Scharrer, 2004). In a recent study, Murnen et al. (2016) also found that children's Halloween costumes are divided along gender stereotypic lines, with female costumes displaying sexual submissiveness via revealing clothing, and male costumes appearing hyper-masculine with accessories such as weapons.

Impact of Gender Stereotypes in Children's Media. Importantly, studies have shown that exposure to these media messages are related to children's attitudes, with positive relationships found between time spent watching television and the strength of

gender-stereotyped attitudes (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002; Signorelli, 2001; Ward & Friedman, 2006; Williams, 1985). In addition, Ochman (1996) found that hearing stories about same-gender characters over a 4 week period led to an increase in children's self-esteem. As previous research has found that there are significantly more male than female characters in children's books and television shows, these findings imply that in day to day life boys' self-esteem may be bolstered more than girls after viewing media content.

Current Research. Despite children's books, advertisements, and television shows receiving significant attention from researchers, very few studies have analysed the extent of gender stereotyping in young children's *magazines*, despite these continuing to be a popular media format (Statista, 2016). Thus, Studies 3 and 4 will address this gap in the literature. One drawback of most of the previous research in this area is that is correlational rather than experimental, making it difficult to determine causation. It may be that children with stronger gender stereotypes engage more with media outlets, rather than the media leading to more robust gender stereotypes (Blakemore et al., 2008). Therefore, Study 5 in the present thesis aims to experimentally test the effect of exposure to gender stereotypic and counterstereotypic peer models presented in children's magazines on children's gender-related cognitions.

Peers

Children begin to show preference for same-gender peers from the age of 3 years (Serbin, Moller, Gulko, Powlishta, & Colburne, 1994), and therefore spend significantly longer playing with same- than other-gender peers throughout early and middle childhood (Golombok et al., 2008; Martin & Fabes, 2001). Interacting in this segregated way has been linked to increased gender-typed behaviour; the longer children spend playing in same-gender groups, the stronger their gender-typed behaviour, which suggests that children socialise one another to conform to gender norms (Martin et al., 2013). Same-

gender peer groups reinforce and model gender-stereotypic behaviour, and over time, interacting with primarily same-gender peers has a negative impact on later mixed-gender collaborations. For example, Harskamp, Ding, and Suhre (2008) found that when attempting to complete an academic task, students in mixed-gender dyads performed worse and exhibited less co-operative interactions than those in same-gender dyads, and amongst pre-school children, Leman, Ahmed, and Ozarow (2005) found that more negative behaviour was observed among mixed- than same-gender pairs. Girls and boys in same-gender pairs have also reported that they like their partner more than children in mixed-gender pairs, and girls in particular have been found to co-operate more successfully with other girls than with boys (DiDonato, Martin, & England, 2014). This preference for same-sex peers has been shown to continue into adulthood (Mehta & Strough, 2010).

Maccoby (1990; 1998) posits that boys and girls are socialised in separate environments, with girls learning from and modelling their behaviour on other girls, and boys learning from other boys, which naturally leads to an exaggeration of the differences in girls' and boys' social interactions. Via these interactions, children come to learn about the gender stereotypes associated with girls and boys. Martin et al. (2013) propose a cyclical model to describe the gender segregation process, referred to as the gender segregation cycle. This model suggests that time spent with same-gender peers increases gender knowledge and stereotyped thinking, leads to negative attitudes towards the out-group, and reduces motivation and efficacy to interact with out-group peers. Martin et al. (2013) hypothesize that this is why children have been found to struggle to interact with peers of the other-gender and perform poorly in mixed-gender groups (e.g. Harskamp et al., 2008).

Martin (2011) has observed that most 'gender learning' takes place through exclusion, explaining that when children begin nursery, their developing understanding of what is acceptable behaviour for their gender is demonstrated by the other, usually older,

children. Children remind each other regularly of 'correct' and 'incorrect' behaviour for their gender and as children are keen to demonstrate their categorical understanding of 'boys' and 'girls' they are motivated to comply with the masculine and feminine behaviour boundaries. A child will therefore pay close attention to when their behaviour is praised or condemned by other children (Fagot, 1977). In experiments where children model toys, the gender of the model has been shown to influence toy interest, i.e. children show greater interest in novel objects when modelled by children of the same gender as themselves (Shutts, Banaji, & Spelke, 2010), and children who are punished by peers for engaging in counterstereotypic play often change their behaviour to be in line with gender norms (Lamb & Roopnarine, 1979).

Maccoby (1990) argues that children's gender-segregated peer groups are of critical importance in gender development. Evidence for different play styles comes from studies such as Benenson, Apostoleris, and Parnass' (1997) which found that when tasked with organising themselves, girls played in dyadic pairs for extended periods of times, fostering interpersonal communication, whereas boys played in larger groups in which competitive characteristics emerged, following traditional gender stereotypes. Boys have been shown to play in larger groups than girls and more readily engage in competitive and aggressive activities in numerous studies (e.g., Belle, 1989; Benenson, Nicholson, Waite, Roy, & Simpson, 2001; Thorne, 1993), supporting ideas that same-gender play groups facilitate and reinforce gender-typed play styles (Banerjee, 2005). These play styles clearly link to wider societal stereotypes about masculine and feminine behaviour and characteristics, with boys' competitive play reflecting the masculine qualities of dominance and assertiveness, and girls' intimate play reflecting the feminine qualities of caring and nurturing (Lansford & Parker, 1999; Parker & Asher, 1993).

Research has also examined the effect of peer audiences on children's gender flexibility. Banerjee and Lintern (2000) found that among 4-9 year olds, young boys held

the most rigid gender stereotypes and were most actively engaged in self-presentation, presenting themselves as having stronger masculine-typed toy and activity preferences when in front of a peer audience compared to when alone. Children have also been shown to play less with gender counterstereotypic toys when peers are present (Serbin, Connor, Burchardt, & Citron, 1979). Thus, it is clear that there are significant differences in who girls and boys play with, how and what they choose to play with, and that children are aware of the gender norm expectations surrounding their play styles, adapting this to match audience expectations.

Martin (2011) challenges essentialist ideas that these differences between boys and girls are innate, rejecting the proposition that boys and girls have naturally different interests (known as *gender dualism)*, instead arguing that in early years settings children do not 'freely' choose their activities because boys and girls dominate different areas of space. Martin (2011) argues that such generalisations based on gender dualism can be dangerous because they ignore individual differences in children. For instance, the 2007 Ofsted report on the foundation stage found that boys were performing more poorly than girls in all areas of the curriculum, and the reasons they provided for this were based on gender dualistic notions. For example, the report suggested that boys were not achieving as highly as the girls because they like to engage in more physical, competitive activities, and this is not taken into account by practitioners. The suggestion that boys are 'active' and girls are 'passive' or more restrained generates and reinforces gender stereotypes and fails to take into account the individual learning styles of children; some boys may enjoy physical activity more than some girls, but this is not the case for *all* children. The focus on the learning needs of boys is also to the detriment of girls; the assumption by Ofsted in this report is that girls are fine, but boys require special strategies in order to teach them. Grouping children's learning styles in this way, by gender, will cause the needs of some individuals to be overlooked, and it is important for both boys and girls to explore

imaginative play, outdoor games, and nurturing activities whilst they are developing

(Martin, 2011).

Current Research. From reviewing the literature, it is clear that peers play a

significant role in gender socialisation, reinforcing and modelling gender-typed behaviours

and punishing those who do not conform. However, less is known about the ability of

counterstereotypic peers to influence behaviours. Can exposure to peers engaged in

counterstereotypic play increase children's gender flexibility in relation to their toy

preferences and gender stereotypes? And is it the gender of the peer or their play style

which drives playmate choice? Finally, are children less likely to endorse gender-based

exclusion if they have viewed counterstereotypic peer models? These unanswered

questions will be addressed in Study 5.

Chapter 5: The Impact of Gender Stereotypes

Despite widespread condemnation of gender stereotypes and endorsement of egalitarian views (Devine,1989; Inglehart & Norris, 2003), people continue to be judged on the social categories to which they belong, with gender being the most salient of all (Cunningham & Macrae, 2011), and this is reflected in the academic studies and careers which men and women pursue. For instance, science and engineering is studied far more by, and employs far more, males than females in the UK and the US (National Science Foundation, 2004; Smith, 2011), and scientists are typically viewed as possessing masculine-typed traits (Kahle, 1988). Britain also has one of the largest gender pay gaps, falling behind the US and many European countries in league tables, with working mothers faring worst; the gender pay gap for this group is a staggering 21% (Chamberlain, 2016). Thus, it cannot be denied that gender stereotypes impact wider society and are particularly detrimental to women's progression. As previous chapters have discussed how these gender stereotypes develop in childhood, this chapter outlines research which demonstrates how children's gender stereotypes, reflected in the toys and activities they engage with, have been shown to limit gender flexibility and aspirations, and the importance of addressing gender stereotypic behaviour and attitudes in childhood is highlighted.

The Effect of Gendered Toys

In recent years there has been a dramatic increase in the marketing of toys to only girls or only boys (Russell & Tyler, 2002; Sweet, 2014), and boys' toys have become more aggressive (Pope, Olivardia, Gruber, & Borowiecki, 1999). Marketing toys to one gender or the other is often achieved through toy colour (i.e. pink for girls and blue for boys), but this increasing trend has received negative attention in the press and from academics because of the dividing effect this has on girls' and boys' toy play. Not only is this likely to discourage mixed-gender play, but the development of social and cognitive skills may be hindered as these skills will only develop in line with the gender specific toys that boys and

girls are offered. Orenstein (2011) suggests that colour is a strong, implicit gender label indicating who toys are for, leading to objects in pink being attributed to girls, and objects without pink being attributed to boys. Indeed, Cunningham and Macrae (2011) found that 90% of objects chosen for a female peer were painted pink, and 48% of the objects chosen for a male peer contained the colour blue, and colour is the biggest determinant of who the toy is for when other information is ambiguous (Cherney & Dempsey, 2010). The use of gender labelling and gender-typed colours is problematic because these indicators may be driving children's gender stereotypes and exaggerating gender differences, in turn leading to gender differentiated cognitive, behaviours, and social tendencies (Weisgram et al., 2014).

Category-associated cues such as colour are problematic because they have been shown to automatically trigger stereotypical cognitions (Martin & Macrae, 2007). Cunningham and Macrae (2011) found that the presentation of gender-typed colours activated gender-related knowledge and stereotypes, with unknown men and women depicted as more or less feminine or masculine depending on whether they were wearing pink or blue clothing. The researchers explain the detrimental effects of these colour associations, as while pink and blue in themselves are not harmful, the automatic stereotyping which they trigger leads to "an unhelpful obstruction to the reduction of adult gender biases" (p. 608). It is somewhat surprising that these colour associations continue to activate gender stereotypes even in adulthood when pink/blue associations are far less prevalent. It is therefore likely that these gender-typed colour associations are deeply encoded in childhood as children's environments are saturated with such cues, and counterstereotypic examples are rarely encountered (Pomerleau et al., 1990). Therefore, if society is to restrict the negative effects of gender stereotypes, an idea which the majority of adults endorse (Inglehart & Norris, 2003), then gender-related cues such as colour should be limited in children's environments and gender divisions minimised.

Gender categories are also made salient through children's clothes, particularly for girls with the saturation of pink clothes and princess dresses (Orenstein, 2011). Girls have been reported to show stronger appearance rigidity than boys (Halim et al., 2014), and as well as motivating cognitive factors, the prevalence of feminine-typed clothes in stores may be reinforcing and encouraging appearance rigidity. Long periods of appearance rigidity and attention to how they look may feed into young girls' self-esteem and self-worth. This self-objectification has been linked with psychological distress and poor academic performance (Crocker & Wolfe, 2001; Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998). Therefore minimising the marketing of gender-typed clothing is essential in order to attenuate these negative outcomes.

Emmott (1985) and Mead and Ignico (1992) have contested the idea that boys' and girls' play preferences are driven by different cognitive styles. Emmott (1985) argues that gender differentiated play negatively affects girls because 'boys'' toys allow visuospatial development through the more active and complex play styles which they facilitate, which in turn encourages the development of 'field-independence'. This is linked to better performance in STEM subjects; therefore girls' educational attainment and career aspirations in these fields may well be affected by gender-typed toy play from an early age. Gender stereotypes have been shown to affect children's confidence in their academic abilities, with boys consistently overestimating their academic competence, and girls consistently underestimating theirs, despite academic attainment patterns not reflecting these estimates in reality (Cole, Martin, Peeke, Seroczynski, & Fier, 1999). Mead and Ignico (1992) also highlight the way gendered toys affect girls' physical development as 'girls'' toys often do not utilise fine motor skills or significant body movements like traditional 'boys'' toys do.

When it comes to academic interests, gender differences and stereotypes are important because they affect subject choices and ultimately career choices. It is well

known that STEM subjects and careers struggle to recruit female candidates (Greenfield, Peters, Lane, Rees, & Samuels, 2002), and this is likely linked to the gender roles and attitudes about masculine and feminine characteristics. Boys have been shown to have more positive attitudes towards science and computing than girls (Colley & Comber, 2003; Weinburgh, 1995), and adolescents' career aspirations have been linked to the strength of gender-typed attitudes; O'Brien and Fassinger (1993) found that girls who aspired to pursue non-traditional careers had more liberal values and rated themselves highly on agentic (stereotypically masculine) characteristics such as assertiveness.

Gender-typed toys have been shown to affect children's play style. For instance, Hellendoorn and Harinck (1997) found that aggressive play increased in the presence of toy guns and action figures, and Cherney et al. (2003) discovered that a more complex level of play was evident in children playing with traditionally feminine toys, such as kitchen objects and dolls, compared to any other type of toy. Li and Wong (2016) found that feminine-typed and gender neutral toys encouraged collaborative play, with girls showing more empathy than boys overall, but boys who played with gender neutral toys had stronger empathising abilities than boys who played with masculine-typed toys. Furthermore, video games, which are traditionally perceived as more masculine than feminine, have been found to improve spatial and cognitive skills (Green & Bavelier, 2003), and recent research by Farr, Bruun, Doss, and Patterson (2017) demonstrated over two time points that increased play with gender stereotypic toys at time one was linked to fewer gender nonconforming attributes (such as activity preferences and career aspirations) at time two. Thus, it is clear that there are developmental benefits to playing with a variety of toys as they encourage different skills to emerge, whereas repeated play with gender-typed toys is related to less gender flexibility. Blakemore and Centers (2005) argue that strongly gender-typed toys are undesirable, and exposing children to gender-neutral and moderately gender-typed toys would allow both boys and girls to experience play that

develops physical, educational, scientific and artistic skills. When examining the effect of pre-school children's toy on play quality, Trawick-Smith, Wolff, Koschel, and Vallarelli (2015) found that Duplo bricks and Rainbow people (both gender-neutral toys) inspired high quality pretend play more so than any other toy stimuli, allowing children to engage in construction and use the simple, genderless dolls as pretend animals and people. Such gender-neutral toys are therefore not only beneficial to play quality, but likely to be more accessible to children than cross-gender-typed toys because parents would perhaps be more willing to provide them (Blakemore & Centers, 2005).

Toys have also been shown to impact gender-related issues such as body image. Dittmar and colleagues (2006) study examined the role of Barbie dolls in young girls' body dissatisfaction. A sample of 162 girls aged 5 to 8 years, completed assessments of body image after exposure to images of either Barbie dolls, Emme dolls (which are a U.S. size 16), or no dolls (control condition). Younger girls who had been exposed to the Barbie dolls reported a greater desire for a thinner body and lower body-esteem than the girls in the other two conditions. Dittmar et al. (2006) suggests that early exposure to dolls such as Barbie, which embody an unrealistically thin shape, may damage girls' body image, and could contribute to an increased risk of disordered eating. Sherman and Zurbriggen (2014) also examined the impact of playing with Barbie dolls, but this time on girls' career cognitions. In comparison to those playing with an unsexualised toy, Mrs Potato Head, girls who played with Barbie believed that there were fewer jobs they were able to do than boys. Research such as this highlights the negative impact that gendered toys such as Barbie, whose purpose revolves around appearance and attractiveness, can have on girls' body image and career aspirations.

Although occupational preferences become more important as children grow older, and are not *explicitly* linked to toy preferences in early childhood, the association between the two is clear as gender-typed toys reflect the feminine and masculine qualities of

traditional male and female occupations (Blakemore et al., 2008). Research has repeatedly demonstrated that children tend to aspire to gender-stereotyped occupations (Wigfield, Battle, Keller, & Eccles, 2002), and not only do men and women tend to aspire to different occupations from one another, these occupations are linked to certain characteristics that follow traditional gender roles. For example, jobs which are dominated by females are often associated with nurturing qualities (e.g. teaching, social work, homemaking), and appearance (e.g. hair and beauty, fashion), whereas male-dominated jobs are typified by characteristics related to maths and science skills, strength, aggression, and risk-taking. These occupationally gender-typed characteristics are also evident in boys' and girls' toys (e.g. dolls for girls vs. toy guns for boys); hence, gender-typed toys potentially encourage different qualities to develop in boys and girls, which may eventually impact on their occupational choices as adults (Blakemore et al., 2008). Interestingly, girls' greater flexibility and boys' greater rigidity in toy choice is reflected in the workplace, with women occupying more traditionally male roles in recent years but males not occupying more traditionally female roles (Leman & Tenenbaum, 2014). In addition, Baird's (2012) longitudinal study revealed that adolescents who possessed gender counterstereotypic characteristics were less likely to have gender stereotypic jobs as adults, suggesting that childhood gender flexibility may remain stable across development, ultimately influencing career choices.

As well as gender-related occupational differences, there continue to be patterns in subject preference according to gender, despite the introduction of the compulsory National Curriculum. Girls still favour, and outperform boys in English and the Humanities, but remain disinterested in Science and Maths on the whole; in these subjects boys tend to be higher-achievers than girls (Barton & Brickhouse, 2006; OECD, 2012). If boys' toys, as the research suggests, encourage the development of technical skills, and girls' toys encourage the development of nurturance and communicative skills, then the

link between early childhood toy-play and later subject preference is clear to see (Francis, 2010).

The gap in the academic achievement of girls and boys is evident not only in the UK but in Latin American countries too. In a study examining Chilean pre-school children's beliefs about gender differences in academic skills, eighty one 3-5 year olds were given a measure to assess their implicit beliefs on this topic. Results showed that boys and girls at the age of 5 already hold stereotypical expectations about academic achievement based on gender, and when asked about which school subject a character liked more, was better at, and found easier, children indicated that a female character would find maths harder, perform worse at it, and like it less than language subjects. These responses did not differ according to the gender of the children (Del Río & Strasser, 2013). This study demonstrates that from a very young age children are aware of gender stereotypes surrounding academic ability and subject preferences and this could potentially have an impact on their own subject choices and career aspirations in later life.

Very little research has experimentally investigated whether the development of these gendered beliefs around academic and occupational capabilities is caused by the toys that children play with. However, Coyle (2010) did attempt to gain a better understanding of this relationship in 26 pre-school aged girls by examining how flexible their gender attitudes and career aspirations were. Initially, most of the girls thought that they would not be able to do counter-stereotypical jobs. The children were then shown Barbie dolls which had been dressed in non-stereotypical outfits, e.g. a firefighter, astronaut. When asked again about the jobs which males and females could do, there had been a shift towards more stereotypically-male jobs being acceptable for women. Coyle (2010) states that the girls' views of what job they are able to do when they are older was influenced by how Barbie was dressed, and as a role model for young girls, including outfits which disconfirm stereotypes would be highly beneficial to them.

Dividing toys along gendered lines is clearly problematic. It is not surprising that girls are likely to value their own attractiveness over other qualities as this is so often the focus of 'girls'' toys (Sweet, 2014). On the other hand, although the exaggeration of nurturance in girls' toys may restrict girls' ideas of what they are 'designed' to do, i.e. raise and care for children, these toys could also be beneficial to girls by preparing them for adult life, as they allow them to practise and develop domestic skills. Boys miss out on this opportunity because the gender-typed nature of the toys makes them unattractive. In today's modern society, boys would also benefit from playing with these toys because domestic and childcare duties are increasingly being divided more equally between men and women (Wood & Eagly, 2002).

Implicit Stereotypes

Gender-related cognitions have been investigated less widely via implicit than explicit measures, especially amongst child populations. However, the examination of implicit gender stereotypes is important because unconsciously stored stereotypes have been shown to influence spontaneous behaviour, even when these stereotypes are explicitly rejected (Strack & Deutsch, 2004; Wilson et al., 2000). The argument for the importance of implicit gender biases on attitudes and behaviour is reinforced by studies which show the negative impact of gender biases even when gender egalitarian values are explicitly expressed. For example, stereotype threat effects have been found in women in relation to cognitive attention tasks; when reminded of gender stereotypes, women's performance on these tasks is impaired, suggesting that implicit gender biases are automatically activated to negatively affect behaviour, making the stereotype that women are worse at cognitive tasks than men almost self-fulfilling. In comparison, control groups show no negative effects on performance (Mrazek et al., 2011; Schmader, Johns, & Forbes, 2008). Nosek et al. (2002) has also demonstrated that even women working in maths-related fields perform worse on mathematics tasks if they possess strong implicit associations between men and

maths ability. Adults' implicit gender stereotypes have also been shown to influence

important decisions related to voting behaviours, jury verdicts, and job hiring (See

Greenwald et al., 2009).

Among children, evidence shows that implicit gender identity has developed by 8

years of age, with both boys and girls linking maths more with males than females on

implicit association tests (Cvencek, Greenwald, & Meltzoff, 2011), and this pattern has

even been found in children in Singapore, a country in which girls excel at maths

(Cvencek, Kapur, & Meltzoff, 2015). Interestingly in these studies, the more strongly

children identified with their own gender, the stronger their implicit gender stereotypes in

regard to males, females, and mathematics. In regard to children's actual performance, the

strength of implicit gender stereotypes has been linked to performance on maths tests, with

stronger stereotypes predicting lower achievement among girls (Nosek et al., 2009;

Steffans et al., 2010).

In relation to children's toys specifically, IATs have shown that children implicitly

associate dolls with girls and cars with boys, and interestingly, the longest response

latencies in this study were between boys and dolls, reiterating other evidence which

demonstrates that gender-norms are stricter for boys than for girls (Rabelo, Bortoloti, &

Souza, 2014). Research has also shown that own-gender preferences are implicitly stronger

in girls than boys at 5 years of age, with both implicit and explicit own-gender preferences

remaining stable with age amongst girls but not boys (Cvencek et al., 2011; Dunham,

Baron, & Banaji, 2016), and research with adults has found that this trend continues with

women displaying stronger own-gender positivity than men (Rudman & Goodwin, 2004).

The examination of children's implicit gender stereotypes is under-developed

despite evidence that these unconscious biases clearly affect attitudes and behaviour

(Baron et al., 2014). Study 2 in the present thesis therefore aims to develop this area of

research by employing eye tracking methods to investigate children's and parents' looking

preferences to gender-typed objects. This study aims to develop the literature on implicit stereotypes in a number of ways, using a robust and precise paradigm. See *Chapter 7* for a more in-depth review of the literature pertaining to children's and parents' implicit gender-related cognitions.

Current Research

This chapter has highlighted the detrimental impact of gender stereotypes on children's achievements and aspirations, and the continued impact of this into adulthood. It is therefore essential that the origins of these gender stereotypes are understood so that their development can be challenged during childhood to minimise negative effects. The studies in the present thesis therefore aim to contribute to this understanding in important ways by exploring how children's gender stereotypic attitudes and behaviours are socialised by their environments, and how these may be confronted.

Chapter 6 Study 1: Children and Parents' Toy Preferences: The Effect of Toy Colour and Function on Toy Interest and Gender Stereotypes

The present study examined children's and parents' toy preferences and gender stereotypes in relation to toy colour and toy function. Children aged 3-5 years old (N = 44) and their parents (N = 34) were separately presented with 4 feminine-typed toys and four masculine-typed toys in either masculine- or feminine-typed colours. Two toys were feminine-typed in both colour and function (i.e. a pink and purple wand and pony); two toys were masculine-typed in both colour and function (i.e. a blue, black, and red jeep and plane); two toys were feminine-typed in colour but masculine-typed in function (i.e. a pink and purple tool set and army figure); and two toys were masculine-typed in colour/appearance but feminine-typed in function (i.e. a blue, red, and black tea set and a baby doll dressed as a pirate). All participants completed toy preference and gender stereotype endorsement measures. In addition, children rated how much they thought their parents would like them to play with each of the toys and completed a measure of gender constancy, whilst parents completed the Pre-School Activities Inventory (Golombok and Rust, 1993). Results revealed that both girls and boys preferred toys stereotypic for their own gender in terms of both function and colour to toys stereotypically associated with the other gender. Parents did not prefer one type of toy over another, but children predicted that their parents would possess the same toy preferences as themselves. Additionally, parents possessed more flexible gender stereotypes than children, and children's gender flexibility scores were negatively related to their gender constancy scores. Parents' reports of children's everyday play on the PSAI revealed that boys engage in more masculine-typed play than girls, and boys' PSAI scores were negatively related to preference for feminine-function toys included as stimuli.

Introduction

The aim of this study was to investigate the role of children's cognitive development and social environment (specifically parents) in the development of their preference for gender-typed toys and gender stereotyping. In addition, the competing toy characteristics of function and colour were investigated. In order to achieve this, children's interest in (and parents' endorsement of) gender-typed and cross-gender-typed toys was investigated, in addition to environmental measures, and measures of gender-related cognitive abilities. The key aims of this study were to [1] investigate how the characteristics of toys (i.e. colour and function) affected interest and gender stereotype endorsement among children and their parents; [2] examine the relationships between cognitive abilities (including gender constancy and flexibility) and toy interest and gender stereotypes among children; and [3] examine whether there was a relationship between the types of toys children played with on a regular basis and the gender stereotypes which they hold about toys based on their characteristics.

As discussed in *Chapters 2 and 4*, toy play is a fundamental part of young children's daily experience and the type of toys children play with shape their cognitive and social development (Cherney et al., 2003). Children frequently choose toys based on gender associations (Wood et al., 2002) and gender-typed toy preference among children is one of the largest gender differences found in developmental psychology (Cherney & London, 2006; Servin, Bohlin, & Berlin, 1999). It is therefore important to examine the development of gendered toy preference, and the environmental and cognitive variables that predict this.

A key aim of the present study is to examine the extent to which children's interest in and gender labelling of toys is affected by toy function or colour. Orenstein (2011) posits that the marketing of "girls" and "boys" toys by colour is so salient that toy colour is now a strong implicit gender label, i.e. young children are likely to believe that pink toys

are for girls and non-pink toys are for boys, and research also suggests that when making toy choices for male and female peers, children follow stereotypic colour lines. For example, Cunningham and Macrae (2011) found that 90% of items chosen for a female target peer included the colour pink.

However, evidence for a direct effect of gender-typed colours on children's toy interest is mixed. LoBue and DeLoache (2011) found that when all items presented to children are identical except for colour, colour certainly affects interest, and Cherney, Harper, and Winter (2006) have also found that colour shapes interest in gender neutral toys. However, some research suggests that the gender-typing of the toy *function* (i.e. what the toy does and how it is played with) may be more important than the toy's gender-typed colour on children's interest. For example, when children are given a variety of gender-typed and non-gender-typed toys to choose from, children (particularly boys) often choose toys based on gender associations (Wood et al., 2002), and Karniol (2011) found that children chose colouring books based on the gender of the character (so that it matched their own) rather than the masculine or feminine colours in which they were depicted. Therefore colour may only affect children's decisions about what to play with when the gender-typing of the toy is not clear; i.e. if a toy does not appear to be strongly masculine or feminine by function, then children use colour to guide their choices (Cherney & Dempsey, 2010).

The relationship between toy function and colour on children's interests was recently investigated by Weisgram et al. (2014). By presenting masculine and feminine toys (by function) in masculine and feminine colours to children aged 3-5 years, they were able to examine the relative importance of toy colour and function for boys' and girls' interests in them and the gender stereotypes which they hold about them. Masculine toys (by function) are traditionally considered as vehicles, tools, sports equipment, and weapons, whereas feminine toys include objects such as dolls, soft animals, and tea sets

(Blakemore & Centers, 2005; Pomerleau et al., 1990). Weisgram et al. (2014) found that boys were more interested in masculine toys than in feminine toys, whilst girls were significantly less interested in masculine toys with masculine colours than in all other combinations; therefore the colour of the toy affected interest for the girls, as pink toys were rated highly even if they were masculine by function. Children's perceptions of other children's toy interest was also measured, and followed a similar pattern to their own toy interest.

The present study aims to replicate and build on this previous research in a number of ways. Firstly, while Weisgram et al. (2014) investigated the role of peers in children's gendered toy preference, the current research aimed to explore the importance of the child's parents in shaping their gendered toy preferences and stereotypes. To this end, the current study measured: children's perceptions of their *parents'* endorsement of gender-typed toys; the extent to which children play with gendered toys in the home environment; and parents' *actual* endorsement of gender-typed toys. This is important as while the role of peers in toy choice has been widely investigated (e.g. Blakemore, 2003; Fabes, Martin, & Hanish, 2003; Fagot, 1985), the role of parents less so; this is therefore a novel aspect of the present study.

Research has demonstrated that parents play with their child's gender-typed toys for longer and react more positively towards them than to cross-gender toys (Fagot, 1978; Langolis & Downs, 1980), and children believe parents will react negatively to cross-gender toy play. For example, Raag and Rackcliff (1998) provided pre-schoolers with a dish set and tool set and presented the items either neutrally or as gender-typed (i.e. as "for boys", "for girls" or given no information about who they were for). They recorded the children playing with the toys and later interviewed them to find out what they thought their parents and siblings would think about them playing with a gender-typed or cross-gender-typed toy. A significant number of boys believed that their fathers would think that

cross-gender-typed play was inappropriate. These boys also displayed the most stereotyped play in the playroom. However, Freeman (2007), Campenni (1999), and Idle, Wood, and Desmaris (1993) have found that parents in fact tend to reject common gender stereotypes related to toys, despite children not always accurately predicting this. Further investigation of the relationship between parents' and children's gender-related beliefs about toys is therefore warranted as there are inconsistencies in the current literature. Children's perceptions of their parents' endorsement of gender-typed and cross-gender-typed toys will be investigated by the present study.

Secondly, the role of environment (and indirect parental impact) will be examined by measuring the toys and activities which children engage with on a regular basis. The Pre-School Activities Inventory (PSAI; Golombok & Rust, 1993) will be included as a measure of children's engagement with gender-typed toys and activities in the "real world"; this can then be examined in relation to children's interest in the experimental toys. The PSAI is a parent-report questionnaire; the higher the score on this measure the more regularly a child engages with masculine toys and activities on a day-to-day basis. This measure will inform us of how much gender differentiated toy play is in children's everyday lives; this aspect is often missing from experimental research in the current literature.

Thirdly, the role of cognitive development will also be examined. Gender constancy, the concept of understanding that gender remains unchanged despite changes to one's appearance (Kohlberg, 1966), is an ability which develops during early childhood, with full constancy usually being achieved by 7 years of age (Marcus & Overton, 1978; Wehren & De Lisi, 1983). Some research has shown that children's gender flexibility increases in line with gender stereotype knowledge (i.e. gender constancy; Signorella et al., 1993; Trautner et al., 2005), whilst other studies have found that children display more gender-typed behaviour once gender constancy has been achieved (e.g. Frey & Ruble,

1992; Slaby & Frey, 1975; Warin, 2000). Others such Arthur et al. (2008) and Arthur et al. (2009) consider gender constancy and gender-typing to be independent of one another. These inconsistencies in previous literature will be explored further in the present study by examining the relationships between gender constancy, gender stereotype endorsement (flexibility), and children's toy preferences.

Finally, the present study will overcome some of the methodological limitations of Weisgram et al. (2014). In the present study, the four feminine toys (by function) to be included will match those employed by Weisgram et al. (2014); they were chosen from the "strongly feminine" category in Blakemore and Center's (2005) ratings. However, the four masculine toys (chosen from the "strongly masculine" category) will be more varied in the present study than in Weisgram et al's, as a limitation of their method was that all of the masculine toys were a type of vehicle. This may have affected boys' and girls' interest in the masculine toys; therefore the present study will employ a police car, a plane, a tool set and two army figures instead of four vehicles, which is more representative of Blakemore and Center's (2005) "strongly masculine" category.

This research has important implications for gender schema theory (Martin & Halverson, 1981; Martin et al., 2002). GST emphasizes the role of cognitive development in children's emerging gender stereotypes, and posits that children develop an ingroup/outgroup schema as well as an own gender schema, which leads them to categorise toys and activities along strict gender lines and actively seek out information which fits their own gender norms (Martin & Ruble, 2004). Although research on GST has considered the role of toy type and explicit gender labels in incorporating toys into children's gender schemas, the role of gender-typed colour has not been extensively considered in connection with pre-school children's gender schemas, interests, and stereotypes. The present study therefore aims to build on this.

Finally, an important applied implication of this study is on the marketing of toys. The increasing use of explicit gender and colour labels to market toys (Sweet, 2014) may be strengthening children's gender stereotypes, discouraging them from playing with toys that are only deemed appropriate for the children of the other gender, and hence negatively affect the social and cognitive development which children acquire through toy play. This study aims to deepen our understanding of this possibility, as marketers have a moral responsibility to ensure that children are not limited to a narrow toy-choice based on gender norms.

The Present Study

The current study examines children's interest in toys that vary on two key characteristics: toy type and toy colour. Children will be presented with feminine and masculine toys that have been manipulated to have a predominantly feminine or masculine colour scheme. It is hypothesised that children will be least interested in cross-gender-typed toys with cross-gender-typed colours, and most interested in gender-typed toys with gender-typed colours; i.e. a boy would be least interested in a pink pony, and most interested in a blue truck. Following Weisgram et al.'s (2014) findings, it is expected that girls will be significantly less interested in masculine toys with masculine colours than all other combinations, and boys will be less interested in feminine toys with feminine colours than all other combinations. Masculine toys in feminine colours are expected to be of more interest to girls than feminine toys in masculine colours to boys. This also follows Weisgram et al.'s (2014) findings and is rooted in the belief that boys are more reluctant to cross gender lines than girls, and will therefore be less likely to engage with feminine toys regardless of their colour (Liben & Bigler, 2002). It is also predicted that due to pre-school girls' preference for pink and pre-school boys' avoidance of pink, that feminine colours will have a stronger effect on children's interest in a toy than masculine colours.

As well as toy interest, children's gender stereotype endorsement will also be examined. Children will be asked "Who *should* play with this toy?" and given the options of "only girls", "only boys" or "both girls and boys". It is hypothesised that children will assign the feminine toys in feminine colours to the "only girls" category, and the masculine toys in masculine colours to the "only boys" category. For the atypical toys, it is expected that the feminine component (whether that be function or colour) will drive the gender stereotype; i.e. it is expected that masculine toys in feminine colours and feminine toys in masculine colours will be categorised as "only for girls", due to the stronger norms associated with feminine play. Parents are not expected to endorse gender stereotypes related to toy play, i.e. they are expected to assign all of the toys to the "both boys and girls" category more often than the "only girls" or "only boys" categories.

Children's beliefs about their parents' endorsement of gender-typed toys will be examined. For each toy that is presented to them, children will be asked "How much would Mummy/Daddy like you to play with this toy?" It is expected that children's predictions of parents' toy endorsement will be in line with children's own preferences i.e. children will indicate that their parents would like them to play with the gender-typed toys in the gender-typed colours more than any other combination. However, it is predicted that parent's actual toy endorsement (parent responses will be recorded in a separate questionnaire) will be less gender stereotyped than the children predicted, i.e. parents will appear to hold more egalitarian views than their child suggests.

In line with Kohlberg's cognitive developmental theory (1966), it is expected that gender constancy will have a negative relationship with gender flexibility. Gender constancy develops between the ages of 3 and 7 years of age, so the eldest participants in the present study (5 years) are more likely to have reached the gender stability (middle) stage of development than the youngest participants (3 years). During this stage, children have been shown to hold rigid views about gender (e.g. Trautner et al., 2005, see *Chapter*

3); therefore it is expected that gender constancy scores will relate negatively to gender flexibility scores (i.e. children who achieve high scores on the gender constancy measure will be less likely to assign the toys to the "both boys and girls" category in the gender stereotype endorsement measure).

Finally, to gain an understanding of the toys and activities that the children engage with on a regular basis outside of the experimental setting, the Pre-School Activities Inventory (PSAI; Golombok and Rust, 1993) will be administered to parents. It is predicted that girls will achieve a lower score on the PSAI than boys, indicating that girls demonstrate more feminine behaviour than boys. There is also expected to be a relationship between children's PSAI scores and interest in the gender-typical toys in the experiment i.e. a negative relationship is predicted between interest in feminine toys in feminine colours and girls' PSAI scores, whereas a positive relationship was expected between interest in masculine toys in masculine colours and boys' PSAI scores.

Method

Participants

The sample consisted of 44 British children (18 males and 26 females) aged between 37 – 69 months (mean age = 51 months), and 34 of their parents (30 mothers and 4 fathers). As this study was a partial replication of Weisgram et al.'s (2014) research, which studied children aged 3-5 years old, children of the same age range were recruited from a database at the Kent Child Development Unit in Canterbury, Kent, UK. Families on the database have signed up voluntarily to take part in research and have been recruited from the Canterbury and Medway areas of Kent. The sample consisted of primarily white children, reflecting the low ethnic diversity in Canterbury.

Ethical consent was gained from the Research Ethics Committee at the University of Kent, and all British Psychological Society guidelines were adhered to throughout the study. Parental and participant consent were obtained prior to the study commencing.

Design

The experimental design included one independent, between-subjects factor; participant gender, which had 2 levels (male vs. female), and one within-subjects factor, condition, which had 4 levels (masculine toy/masculine colour vs. feminine toy/feminine colour vs. masculine toy/feminine colour vs. feminine toy/masculine colour). Thus, a 2 (Gender) x 4 (Condition) mixed design was employed. The dependent variables included measurements of children's toy preferences, children's and parents' gender stereotypes, perceived parental endorsement of gender-typed play, actual parent endorsement of gender-typed play, gender constancy, and children's everyday engagement with gender-typed toys and activities.

Materials

Eight different toys were used as stimuli for this study. There were four types of feminine toys: a wand, a pony, a baby doll, and a tea set. These were all representative of the category "Strongly Feminine Toys" in Blakemore and Centers's (2005) ratings of popular children's toys, and were the same as the feminine toys used in Weisgram et al.'s (2014) study. The wand and the pony were kept in their original (feminine) colours; the baby doll and the tea set were manipulated to have masculine colours. The baby doll's pink baby grow was replaced with a pirate's outfit (a top and trousers, bandana, and an eye patch), and the tea set was spray-painted blue, black and red using non-toxic acrylic paint. Four masculine toys were also included; these consisted of a jeep, a jet fighter plane, a tool kit, and two army figures. These items were all representative of the "Strongly Masculine Toys" category in Blakemore and Centers's (2005) ratings. The jeep and the jet fighter plane were kept in their original (masculine) colours, whilst the tool kit and army figures were altered to have feminine colours. This was achieved by spray-painting them using pink and purple-coloured non-toxic acrylic paint.

Procedure

Children were seated at a table in a quiet room in the Kent Child Development Unit at the University of Kent. All children were tested by a female experimenter and most were not accompanied by a parent during testing. However, ten of the children became distressed when asked to leave their parent, so their Mother or Father sat in a chair at the back of the room during the experiment. Thus only 34 out of 44 parent responses were recorded as these ten parents were required to accompany their child and therefore could not be tested separately. Each child was presented with eight toys; two masculine toys in masculine colours ($M_{toy}M_{colour}$), two feminine toys in feminine colours ($F_{toy}F_{colour}$), two feminine toys in masculine colours ($F_{toy}M_{colour}$), and two masculine toys in feminine colours ($M_{toy}F_{colour}$). Children were presented with each toy one at a time, in a randomised order, and were allowed to play with it for 30 seconds. The toy was then placed in front of the child but out of their reach. Each child was asked to rate their interest in the toy (how much they would like to play with it), their gender stereotyped beliefs about the toy (*who* they think should play with it), and their perceived parental endorsement of the toy (how much they think their parents would like them to play with it). Finally, the gender constancy questionnaire was administered and then children were given a sticker as a reward for completing the study. The procedure took approximately twenty minutes in total.

For the second part of the study, parents were invited into the testing room (whilst a research assistant supervised their child in another room) and they were presented with the same eight toys. The toys were laid out on a table in front of the parents in the same order in which their child had seen them. Via a questionnaire, parents rated their gender stereotyped beliefs about the toys (*who* they think should play with them) and their endorsement of the toys (i.e. how much they would like their child to play each of them). A second questionnaire designed to assess the toys and activities that the children engage with on a regular basis, the PSAI, was then administered to parents. Once the experimenter

had explained the questions and response options to the parent(s), they were left alone to complete both questionnaires. This took approximately ten minutes to complete.

Measures

      Children's toy preferences. To measure the following three variables, children were presented with 8 toys, one at a time, in a randomised order. They were asked to rate their interest in each toy to assess their toy preference. They were asked "How much do you like this toy?" and response options were presented using schematic faces; the option of "Not at all" (assigned a score of 1) was depicted using a frowning face, "A little" (assigned a score of 2) was represented by a face with a small smile, and the "A lot" (assigned a score of 3) option was depicted by a face with a large smile. Children could answer verbally or they could point to a card that represented their choice. An average score was calculated from the ratings of the two toys with similar characteristics (e.g. feminine toy type with feminine colours). This led to four mean toy preference scores; $M_{toy}M_{colour}$ ($\alpha = .81$), $F_{toy}F_{colour}$ ($\alpha = .83$), $F_{toy}M_{colour}$ ($\alpha = .75$), $M_{toy}F_{colour}$ ($\alpha = .76$). Scores ranged from 1-3, with higher scores indicating greater preference for that type of toy.

      Children and parents' gender stereotypes. To address the strength of their gender stereotyped-views, children and parents were asked "Who should play with this toy?" For children, each response was presented using cards depicting male/female symbols; two male symbols represented "Only boys", two female symbols represented "Only girls", and one male and one female symbol represented "Both boys and girls". These symbols are internationally recognisable bathroom signs and have been used in both Hilliard and Liben's (2010) and Weisgram et al.'s (2014) research. Children could again respond verbally or by pointing to the card of their choice, whilst parents ticked a box to indicate their answer. For analysis, a gender flexibility score was created by awarding participants a score of '1' each time a toy was assigned to the category "both boys and girls". A score of '0' was awarded if they assigned the toy to either the "only boys" or

"only girls" categories. Therefore, the higher the score the more flexible (and *less* stereotyped) participants were about the toys that boys and girls should play with. It should be noted that no children or parents indicated a counter-stereotypical endorsement, for example "only boys should play with dolls". This means that all responses coded as '0' were stereotypical responses.

Perceived parental endorsement. Finally, children were asked about their parents' endorsement of the toys. Children could respond to the question "How much would Mummy/Daddy like you to play with this toy?" using the same response cards from the toy preference measure ("Not at all" (1), "A little" (2), or "A lot" (3)). Whichever parent accompanied the child determined whether 'Mummy' or 'Daddy' was included in the question. An average score was calculated from the ratings of the two toys with similar characteristics (e.g. feminine toy type with feminine colours). This led to four mean perceived parental endorsement scores; $M_{toy}M_{colour}$ ($\alpha = .67$), $F_{toy}F_{colour}$ ($\alpha = .87$), $F_{toy}M_{colour}$ ($\alpha = .63$), $M_{toy}F_{colour}$ ($\alpha = .64$). Mean scores were out of a total of three, with higher scores indicating greater perceived parental endorsement for that type of toy.

Gender constancy. To assess their understanding of gender, children were asked 24 questions derived from a measure used by Arthur et al. in their (2009) research. These questions had been previously compiled from measures by Szkrybalo and Ruble (1999) and Ruble et al. (2007). The children were presented with photographs of a woman, a man, a girl, a boy, a girl's outfit, a boy's outfit, and a suit; some of the questions were related to these photographs. The questions were divided into 2 sections; stability and consistency. First, children were asked 7 questions about their own and others' gender stability. For example, children were asked, ''When you were a baby, were you a boy, a girl, or sometimes a boy and sometimes a girl?" Next, children were asked 17 questions assessing gender consistency. For example, children were asked, ''If you went into the other room right now and put on clothes like these [showing 3 x 5-inch photo of cross-sex clothing],

would you really be a boy or really be a girl?" Children were asked to justify their answers to two of these questions. Because 3- and 4-year-olds often have trouble in articulating their reasoning, they were given the opportunity to choose between two possible justifications, only one of which demonstrated knowledge of constancy. For example, if a boy answered a question about himself correctly, the experimenter would ask, ''Why did you say you would be a boy if you put on these [female-typical] clothes? Is it because you can't change from a boy to a girl or because you don't want to be a girl?" Children were required to answer the follow-up question correctly to receive credit for these questions. An additional 6 questions assessed constancy by asking children about the results of performing cross-sex activities (e.g., ''If a boy put on nail polish, would he become a girl?"). Finally, 4 questions were designed to assess children's understanding of the resiliency of gender in the face of strong motivation to change (e.g., ''If you really wanted to be a girl, could you be?"). Scores ranged from 0 to 17. Raw scores were calculated for the two subscales (gender stability and gender consistency), then subscale scores were summed to produce a total gender constancy score (of a possible 24), which higher scores indicating greater constancy.

Parental endorsement of toys. To measure parents' endorsement of gender-typed toy play, parents were asked "How much would you like your child to play with this toy?" The response options were "Not at all" (1), "A little" (2), or "A lot" (3). Parents completed the questionnaires themselves, so simply responded by placing a tick in the box next to their chosen answer. An average score was calculated from the ratings of the two toys with similar characteristics (e.g. feminine toy type with feminine colours). This led to four mean toy preference scores; $M_{toy}M_{colour}$ ($\alpha = .82$), $F_{toy}F_{colour}$ ($\alpha = .68$), $F_{toy}M_{colour}$ ($\alpha = .91$), $M_{toy}F_{colour}$ ($\alpha = .64$). Mean scores were out of a total of three, with higher scores indicating greater endorsement of that type of toy.

Pre-School Activities Inventory (PSAI). This is an inventory completed by parents to uncover the gender-typed toys and activities which children engage with on a regular basis. This measure was created by Golombok and Rust (1993) and it is split into three sections: toy preferences, activities, and characteristics. There are 24 questions in total and each question asks how frequently the child plays with certain toys, engages in particular activities, or demonstrates particular characteristics. There are five possible response options for each question: Never (1), Hardly Ever (2), Sometimes (3), Often (4), or Very Often (5). The parents were asked to circle one response option for each question. There were 7 questions in the "Toys" section, 11 questions in the "Activities" section, and 6 questions in the "Characteristics" section. Each item has a score of 1 to 5. The PSAI was scored by first adding the "male" items, subtracting the "female" items, and then transforming to a pseudo-T scale by multiplication with 1.1 (to make the *SD* for boys and girls separately close to 10) and adding 48.25 (to render the mean close to 50). This follows standard procedure from Golombok and Rust (1993). Higher scores indicate more regular engagement with, and preference for, masculine toys and activities.

Results

Preliminary Analyses

Table 6.1 presents the overall means and standard deviations for the study variables, as well as the zero-order correlations for the associations among the continuous variables. Power analyses indicated that the statistical tests were sufficiently powered and the sample size was adequate for each planned analysis, with power to find an effect ranging between 97% and > 99% across all analyses (Howell, 1992).

Correlational analyses were performed separately on the boys' and girls' scores to examine initial relationships between key variables; see Table 6.1 for all correlation co-efficients. Amongst girls, analyses revealed a significant positive correlation between $M_{toy}M_{colour}$ and $M_{toy}F_{colour}$ toy preference scores (r (24) = .53, p = .005) and between

$F_{toy}M_{colour}$ and $M_{toy}F_{colour}$ toy preference scores (r (24) = .41, p = .037). There was also a significant negative relationship between gender flexibility and gender constancy amongst girls (r (24) = -.53, p = .006), which suggests that the greater girls gender knowledge was, the less flexible their beliefs were about the toys that boys and girls should play with. No other variables correlated significantly amongst girls.

Amongst boys, analyses revealed significant negative relationships between PSAI and $F_{toy}F_{colour}$ toy preference scores (r (14) = -.57, p = .020), and between PSAI and $F_{toy}M_{colour}$ toy preference scores (r (14) = -.50, p = .049). As higher PSAI scores indicate more regular engagement with masculine-typed toys and activities, these negative relationships suggest that the more that boys play with masculine-typed toys in the outside world, the less interest they show in feminine-typed toys (by function) in the experiment. No other variables correlated significantly amongst boys.

Children's Toy Preferences

A 4 (Condition: $M_{toy}M_{colour}$ vs. $F_{toy}F_{colour}$ vs. $M_{toy}F_{colour}$ vs. $F_{toy}M_{colour}$) x 2 (Child Gender: male vs. female) mixed Analysis of Covariance (ANCOVA) on toy preference ratings was conducted, with condition as a within-subjects factor and child gender as a between-subjects factor. Children's age (in years) was entered as a covariate. Mauchly's test of sphericity was not significant, so it can be assumed that the assumption of sphericity was not violated. Analyses revealed a significant interaction between gender and condition, $F(3, 123) = 6.27$, $p = .001$, $\eta_p^2 = .13$ (see Fig. 6.1). As hypothesised, pairwise comparisons revealed that girls significantly preferred the $F_{toy}F_{colour}$ toys to the $M_{toy}M_{colour}$ toys (p = .004, d = 1.07), and marginally preferred the $F_{toy}F_{colour}$ toys to the $F_{toy}M_{colour}$ toys (p = .054, d = 0.91). All other comparisons amongst the girls were non-significant ($p > .05$), therefore refuting the hypothesis that girls would be least interested in the $M_{toy}M_{colour}$ toys over any other.

Amongst the boys, pairwise comparisons revealed a significant preference for $M_{toy}M_{colour}$ toys over $F_{toy}F_{colour}$ toys ($p = .028$, $d = 0.64$), as hypothesised, and a marginal preference for $M_{toy}M_{colour}$ toys over $M_{toy}F_{colour}$ toys ($p = .064$, $d = 0.57$). All other comparisons amongst the boys were non-significant ($p > .05$), therefore refuting the hypothesis that boys would be least interested in the $F_{toy}F_{colour}$ toys over any other. Additionally, feminine colours did not have a stronger effect on children's toy interest than masculine colours, as was predicted. See Table 6.1 for means and standard deviations.

Findings demonstrate a similar pattern amongst both boys and girls, whereby they both showed a preference for gender-typed over cross-gender-typed toys, as predicted, and the colour of the toy appears to an important driver in toy preference; even when the toy was gender-typed by function (e.g. for boys; masculine: car), if the colour was cross-gender-typed (e.g. feminine: pink) this drove down preference scores among both boys and girls.

Examining the differences between boys' and girls' toy preference scores, pairwise comparisons revealed that girls rated the $F_{toy}F_{colour}$ toys significantly higher than the boys did ($p = .003$, $d = 0.97$), and boys rated the $M_{toy}M_{colour}$ toys marginally higher than the girls did ($p = .060$, $d = 0.68$). Therefore the feminine-typed toys (by colour and function) were particularly preferred by girls than boys. All other comparisons were non-significant ($p > .05$), therefore masculine toys in feminine colours were not of more interest to girls than feminine toys in masculine colours to boys, contesting hypotheses. All other effects and interactions were non-significant. See Table 6.1 for means and standard deviations.

Finally, correlational analyses were performed on toy preference scores to see if interest in one type of toy was related to interest in another type of toy. Analyses revealed significant positive relationships between preference scores for the $M_{toy}M_{colour}$ and $M_{toy}F_{colour}$ toys ($r = .44$, $p = .003$), the $F_{toy}F_{colour}$ and $F_{toy}M_{colour}$ toys ($r = .31$, $p = .039$), and the $F_{toy}M_{colour}$ and $M_{toy}F_{colour}$ toys ($r = .36$, $p = .015$). These findings indicate that interest in

the gender atypical toys was related to the toy's *function* rather than the toy's colour, as preference scores for the masculine toys in masculine and feminine colours were positively correlated, as were preference scores for the feminine toys in feminine and masculine colours. Additionally, interest in one type of atypical toy was positively related to interest in the other.

Children's Perceived Parental Endorsement and Parents' Actual Endorsement of Toys

Children's Perceived Parental Endorsement. To examine children's perceptions of how much they thought their parents would like them to play with each type of toy, a 4 (Condition: $M_{toy}M_{colour}$ vs. $F_{toy}F_{colour}$ vs. $M_{toy}F_{colour}$ vs. $F_{toy}M_{colour}$) x 2 (Child Gender: male vs. female) mixed ANCOVA was performed on perceived parental endorsement scores, with condition as a within-subjects factor and child gender as a between-subjects factor. Children's age (in years) was entered as a covariate. Mauchly's test of sphericity was not significant, so it can be assumed that the assumption of sphericity was not violated. Analyses revealed a non-significant effect of condition, $F(3, 123) = 2.25$, $p = .086$, $\eta_p^2 = .05$; therefore children did not expect parents to endorse play with one type of toy over another, refuting hypotheses. The interaction between condition and child gender was also non-significant, $F(3, 123) = 2.19$, $p = .093$, $\eta_p^2 = .05$, so a similar trend was seen across boys and girls.

Table 6.1

Summary of Means, Standard Deviation, and Intercorrelations for Study Variables as a Function of Participant Gender

Variable	1	2	3	4	5	6	7	8	*M*	*SD*
1. Age	-	-.19	-18	-.32	-.18	.20	-.02	-.15	3.77	0.65
2. $M_{toy}M_{colour}$ toy preference	.22	-	.28	.39	.53*	.34	-.26	-.15	2.33	0.49
3. $F_{toy}F_{colour}$ toy preference	-.20	.46	-	.16	.23	-.01	-.20	-.06	2.81	0.40
4. $F_{toy}M_{colour}$ toy preference	-.06	.21	.36	-	.41*	.22	-.14	-.09	2.40	0.55
5. $M_{toy}F_{colour}$ toy preference	.05	.47	.14	.31	-	.32	-.31	-.38	2.40	0.55
6. Gender stereotype flexibility	.18	.32	.30	.47	.29	-	-.53*	.27	4.77	2.99
7. Gender constancy	.03	.19	-.19	.04	.29	-.33	-	-.28	13.08	4.40
8. PSAI	-.26	-.38	-.57*	-.50*	.02	-.42	.10	-	32.79	8.67
M	3.78	2.64	2.17	2.25	2.25	4.85	11.67	61.93		
SD	0.73	0.56	0.92	0.67	0.81	2.85	4.23	12.28		

Note. Values for girls ($N = 26$) are presented above the diagonal, and values for boys ($N = 18$) are presented below the diagonal. Higher scores indicate greater toy preference and greater gender flexibility around the toys that boys and girls can play with. Higher gender constancy scores indicates greater understanding of the consistency of gender over time, and higher PSAI scores indicate more regular engagement with masculine-typed toys and activities in everyday life.

*$p \leq .05$
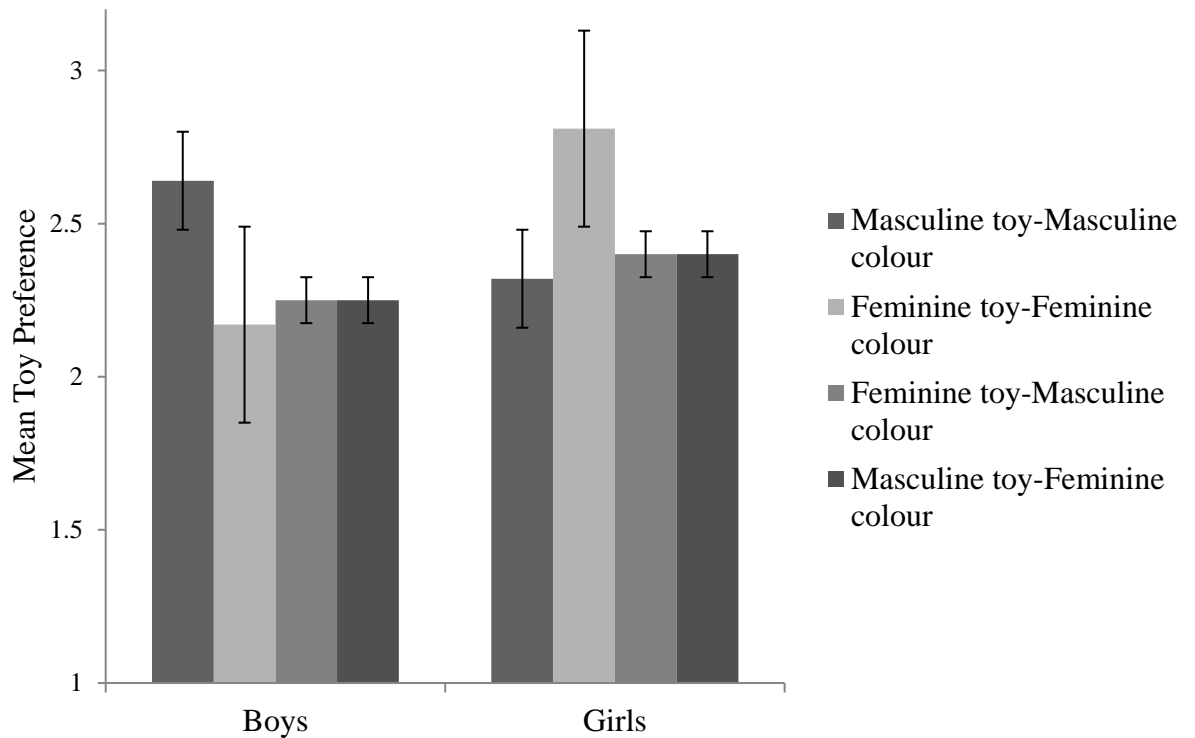
Figure 6.1. Boys' and girls' toy preferences by condition: Means and standard errors. Scores ranged from 1-3, with higher scores indicating greater toy preference.

Parents' Actual Endorsement of Toys. The same analyses were performed on parents' actual toy endorsement scores to examine whether parents would like their child to play with one type of toy over another. A 4 (Condition: $M_{toy}M_{colour}$ vs. $F_{toy}F_{colour}$ vs. $M_{toy}F_{colour}$ vs. $F_{toy}M_{colour}$) x 2 (Child Gender: male vs. female) mixed ANCOVA was performed on parents' actual endorsement scores, with condition as a within-subjects factor and (children's) gender as a between-subjects factor. Children's age (in years) was entered as a covariate. Mauchly's test indicated that the assumption of sphericity had been violated ($x^2 (5) = 26.70, p < .001$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = 0.66$). Analyses revealed a non-significant effect of condition, $F (1.97, 61.12) = 0.29, p = .749, \eta_p^2 = .01$, and a non-significant interaction between condition and child gender, $F (1.97, 61.12) = 0.10, p = .90, \eta_p^2 = .00$. Therefore, as predicted, parents did not endorse play with one type of toy over another.

To compare children's perceived parental endorsement (how much they think their parents would like them to play with the toys) to parents' actual endorsement of the toys (how much parents would like their children to play with the toys), paired t-tests were performed for each of the four types of toy. Analyses revealed that parents' actual endorsement of the $M_{toy}M_{colour}$ toys was marginally higher than children expected (t (33) = -2.00, p = .054, d = 0.54), and parents' actual endorsement of the $F_{toy}M_{colour}$ toys was significantly higher than children expected (t (33) = -4.47, p < .001, d = 1.15). Hence, parents endorsed play with the masculine-colour toys (regardless of function) to a greater extent than the children predicted. There was no significant difference between children's perceptions of parental endorsement and actual parental endorsement for the $F_{toy}F_{colour}$ and $M_{toy}F_{colour}$ toys (p > .05). Therefore, parents' endorsement of the feminine-colour toys was in line with children's expectations. See Table 6.2 and Figure 6.2 for means and standard deviations.

Children's Toy Preferences and Parents' Actual Endorsement of the Toys

To examine whether children's own toy preferences were in line with their parents' actual endorsement of the toys, paired t-tests were performed for each type of toy. Analyses revealed a similar pattern to before, whereby parents' endorsement of the masculine-coloured toys was significantly higher than children's own toy preferences ($M_{toy}M_{colour}$ toys: t (33) = -2.05, p = .048, d = 0.60; $F_{toy}M_{colour}$ toys: t (33) = -4.49, p < .001, d = 0.98). The differences between children's preference scores and parents' endorsement of the feminine-colour toys were non-significant (p > .05). See Table 6.3 for means and standard deviations.

Table 6.2

Children's Perceived Parental Endorsement and Parents' Actual Endorsement of Toys.

Means, Standard Deviations, and t-values.

Condition	Children's perceived parental endorsement		Parents' actual endorsement		*df*	*t*	*d*
	M	*SD*	*M*	*SD*			
$M_{toy}M_{colour}$	2.47	0.58	2.74	0.41	33	-2.00*	0.54
$F_{toy}F_{colour}$	2.44	0.78	2.50	0.54	33	-.42	0.09
$F_{toy}M_{colour}$	2.22	0.62	2.82	0.41	33	-4.47**	1.15
$M_{toy}F_{colour}$	2.32	0.61	2.35	0.45	33	-.22	0.06

Note. Scores ranged between 1 and 3, with a higher score indicating greater endorsement of the toy.
*p = .054
**p < .001

Children's Own Toy Preferences and Their Perceptions of Parental Endorsement of the Toys

To examine whether children's predictions of their parents' endorsement of the toys were in line with their own toy preferences, paired t-tests were performed for each of the four types of toy. Analyses revealed no significant differences between children's own toy preferences and their perceptions of parental endorsement (p > .05), i.e. children believed their parents would possess the same interest in the toys as themselves, supporting hypotheses. See Table 6.4 for means, standard deviation, and t-values.
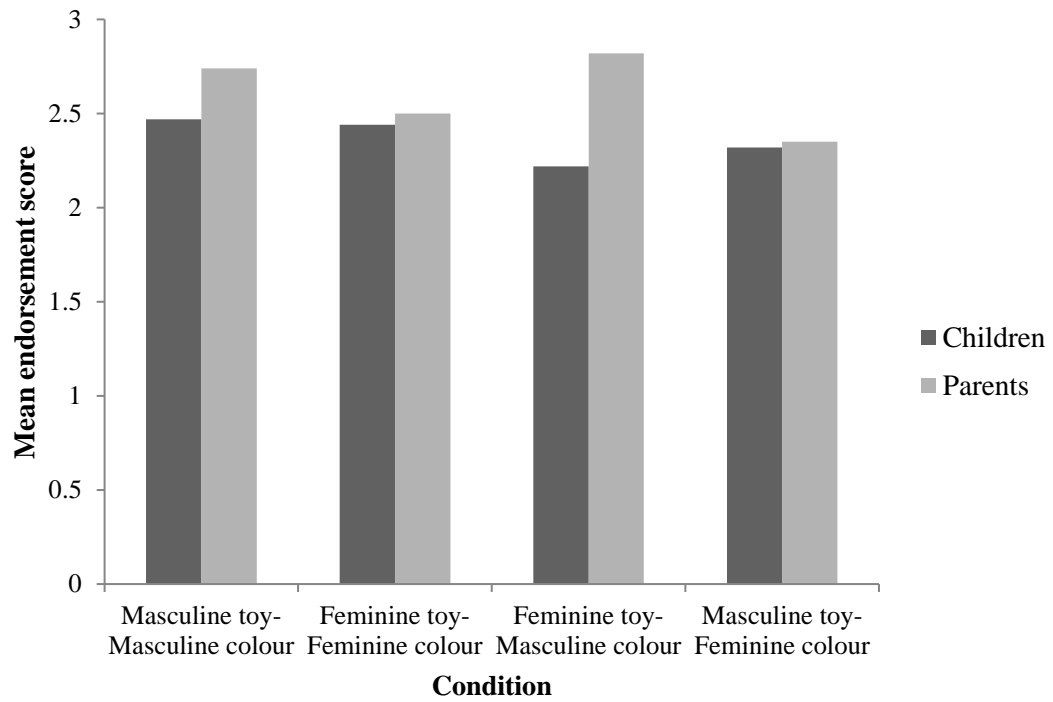
Figure 6.2. Children's perceived parental endorsement and parents' actual endorsement of toys. Means and standard errors. Scores ranged from 1-3, with higher scores indicating greater toy-endorsement.

Table 6.3

Children's Toy Preferences and Parents' Actual Endorsement of the Toys. Means, Standard Deviations, and t-values.

Condition	Children's toy preferences		Parents' actual endorsement		df	t	d
	M	SD	M	SD			
$M_{toy}M_{colour}$	2.45	0.54	2.74	0.41	33	-2.05*	0.60
$F_{toy}F_{colour}$	2.55	0.73	2.50	0.54	33	-.27	0.08
$F_{toy}M_{colour}$	2.34	0.57	2.82	0.41	33	-4.49**	0.98
$M_{toy}F_{colour}$	2.34	0.66	2.35	0.45	33	-.208	0.02

Note. Scores ranged between 1 and 3, with a higher score indicating greater endorsement of the toy.
*$p < .05$
*$p < .001$

Table 6.4

*Children's Toy Preferences and Perceived Parental Endorsement of the Toys. Means,
Standard Deviations, and t-values.*

Condition	Children's toy preferences		Children's perceived parental endorsement		df	t	d
	M	SD	M	SD			
$M_{toy}M_{colour}$	2.45	0.54	2.49	0.55	43	-0.33	0.07
$F_{toy}F_{colour}$	2.55	0.73	2.52	0.71	43	0.77	0.04
$F_{toy}M_{colour}$	2.34	0.57	2.28	0.59	43	0.39	0.10
$M_{toy}F_{colour}$	2.34	0.66	2.34	0.60	43	0.00	0.00

Note. Scores ranged between 1 and 3, with a higher score indicating greater endorsement of the toy.

Gender Stereotypes (Flexibility)

To examine the gender stereotypes assigned to the toys by the children, chi-square
goodness-of-fit tests were performed for each toy individually. See Table 6.5 for all
frequencies, chi-square values, and effect sizes. Analyses revealed significant relations for
both of the $F_{toy}F_{colour}$ toys (wand: $x^2 = 30.05$, $p < .001$; pony: $x^2 = 16.41$, $p < .001$), for both
of the $F_{toy}M_{colour}$ toys (tea set: $x^2 = 8.91$, $p = .012$; baby: $x^2 = 11.23$, $p = .004$), and for one of
the $M_{toy}M_{colour}$ toys (car: $x^2 = 7.68$, $p = .021$). All other tests were non-significant ($p > .05$).
To examine the significant findings more closely, post-hoc binomial tests were performed
individually for each toy to compare how frequently children assigned it to one of the three
categories. As multiple comparisons were made, a bonferroni correction was applied;
therefore p must be $< .02$ in order to reach significance.

Binominal tests revealed that children were more likely to assign the wand to the "only girls" category than the "only boys" ($p < .001$) or "both boys and girls" ($p = .003$) categories, and this pattern was also seen for the pony ("only girls" > "only boys": $p > .001$; "only girls" > "both boys and girls": $p = .014$). Children were more likely to assign the baby to the "only boys" than the "only girls" category ($p = .005$), but the tea set was assigned more to the "both boys and girls" category than the "only boys" category ($p = .004$). Finally, children assigned the car to the "only boys" category more frequently than the "only girls" category" ($p = .015$), and also assigned the car more to the "both boys and girls" than "only girls" category ($p = .015$). All other comparisons were non-significant ($p > .02$).

These findings suggest that there may be stronger norms associated with feminine-typed toys than masculine-typed toys, as two out of the four feminine toys (by function) were most likely to be rated as suitable for "only girls" (even though they were not all feminine by colour), whereas only one out of the four masculine toys (by function only) was indicated as for "only boys". Predictions were mostly supported, as both of the $F_{toy}F_{colour}$ toys were assigned to the "only girls" category and one (out of two) of the $M_{toy}M_{colour}$ toys was assigned to the "only boys" category. Therefore, children appear to be categorising the gender-typed toys in gender stereotypic ways. However, children appear to be using both the cross-gender-typed toys' colour and function to determine who should play with it, and the prediction that the feminine elements of the toy would drive stereotypic categorisation is not fully supported.

Chi-square goodness-of-fit tests were also performed on parents' responses to the gender stereotype measure for each toy individually. The frequencies, chi-square values, and effect sizes can be seen in Table 6.6. For all toys, analyses revealed a significant association. Post hoc binomial tests (with bonferroni correction; $p < .02$) showed that parents were significantly more likely to assign all of the toys to the "both boys and girls"

category than the "only girls" or "only boys" categories; see Table 6.7. The wand was the only toy which parents indicated was for "only girls" more frequently than "only boys" (p = .008), but this was still assigned to the "both boys and girls" category more frequently than the other two categories ($p \leq .003$). All other binomial comparisons were non-significant. Therefore, as hypothesised, parents appear to hold more flexible beliefs than children about the toys that boys and girls can play with.

Gender Flexibility. As a value of "1" was assigned each time a participant placed a toy in the "both boys' and girls'" category, an overall flexibility score out of 8 was obtained for children and for parents; with higher scores indicating greater levels of flexibility (and lower levels of stereotyping). To examine participant's gender stereotype endorsement, a 2 (Child Gender: male vs. female) x 2 (Participant Age: adults vs. children) between-subjects ANOVA was performed on flexibility scores, with both variables entered as between-subjects factors.

Analyses revealed a main effect of participant age, $F(1, 32) = 86.42$, $p < .001$, η_p^2 = .73, whereby parents ($M = 7.17$) achieved significantly higher mean gender flexibility scores than children ($M = 2.98$). This indicates that parents assigned more toys to the "both boys and girls" category than the "only girls" or "only boys" category than children did, suggesting that parents are more flexible about who should play with the toys than children; reflecting the chi-square findings. There was no effect of child gender ($p = .078$) and the interaction between participant age and child gender was also non-significant (p = .469). See Table 6.8 for means and standard deviations.

Table 6.5

Chi-Square: Children's Gender Stereotypes of Feminine and Masculine Toys

	Feminine colours				Masculine colours				
	Only boys	Only girls	Both	x^2	Only boys	Only girls	Both	x^2	*Cramer's V*
Feminine toys									
Wand	2	31	11	30.05**	-	-	-	-	0.58
Pony	6	27	11	16.41**	-	-	-	-	0.43
Baby	-	-	-	-	25	8	11	11.23**	0.36
Tea set	-	-	-	-	6	16	22	8.91*	0.32
Masculine toys									
Car	-	-	-	-	19	6	19	7.68*	0.30
Plane	-	-	-	-	15	8	21	5.77	0.26
Tools	8	17	19	4.68	-	-	-	-	0.23
Army figures	18	9	17	3.32	-	-	-	-	0.19

Note. Numbers indicate the frequency of children (both boys and girls) who responded that the toy is appropriate for either "only boys", "only girls", or "both boys and girls".
*$p < .05$
** $p < .001$

Table 6.6

Chi-Square: Parents' Gender Stereotypes of Feminine and Masculine Toys

	Feminine colours				Masculine colours				
	Only boys	Only girls	Both	x^2	Only boys	Only girls	Both	x^2	*Cramer's V*
Feminine toys									
Wand	0	8	26	9.53*	-	-	-	-	0.37
Pony	0	5	29	16.94*	-	-	-	-	0.50
Baby	-	-	-	-	0	2	32	26.47*	0.62
Tea set	-	-	-	-	0	0	34	- **	-
Masculine toys									
Car	-	-	-	-	3	0	31	23.06*	0.58
Plane	-	-	-	-	2	0	32	26.47*	0.62
Tools	4	0	30	19.88*	-	-	-	-	0.54
Army figures	4	0	30	19.88*	-	-	-	-	0.54

Note. Numbers indicate the number of parents who responded that the toy is appropriate for either "only boys", "only girls", or "both boys and girls".
* $p < .001$
** This variable is constant. Chi-square Test could not be performed.

Table 6.7

Binomial Comparisons of Parents' Gender Stereotypes of Toys

Toy	Category	Category	*p*
Wand			
	"Both boys and girls"	"Only girls"	.003
		"Only boys"	< .001
	"Only girls"	"Only boys"	.008
Pony			
	"Both boys and girls"	"Only girls"	< .001
		"Only boys"	< .001
	"Only girls"	"Only boys"	.063
Baby			
	"Both boys and girls"	"Only girls"	< .001
		"Only boys"	< .001
	"Only girls"	"Only boys"	.500
Tea set			
	"Both boys and girls"	"Only girls"	< .001
		"Only boys"	< .001
	"Only girls"	"Only boys"	-
Car			
	"Both boys and girls"	"Only girls"	< .001
		"Only boys"	< .001
	"Only girls"	"Only boys"	.250
Plane			
	"Both boys and girls"	"Only girls"	< .001
		"Only boys"	< .001

Toy	Category	Category	p
	"Only girls"	"Only boys"	.500
Tools			
	"Both boys and girls"	"Only girls"	< .001
		"Only boys"	< .001
	"Only girls"	"Only boys"	.125
Army figures			
	"Both boys and girls"	"Only girls"	< .001
		"Only boys"	< .001
	"Only girls"	"Only boys"	.125

Table 6.8

Children's and Parents' Gender Flexibility Scores. Means and Standard Deviations.

	M	SD
Children		
Boys	3.28	2.40
Girls	2.77	2.18
M	2.98	2.26
Parents (of)		
Boys	6.63	2.25
Girls	7.67	0.77
M	7.17	1.70

Note. Gender flexibility scores ranged from 1-8, with higher scores indicating greater flexibility around the toys that boys and girls can play with.

Gender Constancy

A one-way ANCOVA was performed on gender constancy scores with child gender (male vs. female) included as a between-subjects factor, and children's age (in years) as a covariate. Analyses revealed a non-significant effect of participant gender on gender constancy scores; $F(1, 40) = 0.33$, $p = .567$, $\eta_p^2 = .008$. Children's age (in years) was then entered into a correlational analysis with gender constancy to examine if there was a relationship between the two variables. However, this was also non-significant; $r = -.01$, $p = .960$. Gender constancy was negatively correlated with gender flexibility, however, $r = -.47$, $p = .001$, indicating that as gender-related knowledge increased, flexibility around the toys that boys and girls can play with decreased.

Parent-report PSAI

To investigate gender differences in PSAI scores, a one-way ANCOVA was performed with participant gender (male vs. female) as a between-subjects factor and children's age (in years) as a co-variate. Analyses revealed a significant effect of participant gender on PSAI scores, $F(1, 31) = 63.8$, $p < .001$, $\eta_p^2 = .67$; boys scored significantly higher on the PSAI ($M = 61.93$, $SD = 12.28$) than girls ($M = 32.79$, $SD = 8.67$), which suggests that boys engage more regularly with masculine toys and activities than girls do, as expected. This measure was completed by parents on behalf of their children. It was hypothesised that there would be a negative relationship between girls' PSAI scores and interest in $F_{toy}F_{colour}$ toys, and a positive relationship between boys' PSAI scores and interest in $M_{toy}M_{colour}$ toys. These hypotheses were not supported ($p > .05$). However, correlational analyses did reveal a significant negative relationship between boys' PSAI scores and $F_{toy}F_{colour}$ toy preference scores ($r = -.57$, $p = .020$); hence, the more at boys engaged with masculine-typed play in the outside world, the less interest they showed in the $F_{toy}F_{colour}$ toys in the study.

Discussion

This study intended to examine the relationship between children's gendered toy preference, their environment (specifically parents) and their cognitive development, and to further investigate the role of toy colour and function in this process. Results revealed that both girls and boys preferred toys stereotypic for their own gender, in terms of both function and colour, to toys stereotypically associated with the other gender; i.e. girls preferred feminine toys in feminine colours to masculine toys in masculine colours, and boys preferred masculine toys in masculine colours to feminine toys in feminine colours, supporting initial hypotheses. Colour appeared to be more important than function in determining preference for cross-gender typed toys, as there was a trend for girls to like the feminine toys less when presented in masculine colours, and for the boys to like the masculine toys less when presented in feminine colours. However, toy function was also important in determining children's toy preference, as there were positive relationships between preference scores for the masculine-function toys in masculine and feminine colours, and for the feminine-function toys in feminine and masculine colours.

Children's perceptions of their parents' endorsement of the toys were in line with their own toy preferences; i.e. children believed their parents would like them to play with the toys that they themselves like to play with. However, parents actually endorsed the masculine-coloured toys (regardless of function) to a greater extent than the children predicted. Parents believed both boys and girls should play with all types of toy, therefore appearing to hold egalitarian views, whilst children were more stereotypic in their judgement of toy play, particularly in regard to the feminine-function toys, assigning most of them to the "only girls" category, even if masculine in colour. Findings for gender stereotype flexibility supported hypotheses that parents would possess more flexible stereotypes than children.

As expected, gender constancy scores were negatively related to gender stereotype flexibility scores. Although PSAI scores were not related to toy preference scores in the expected way, interestingly, boys' PSAI scores were negatively correlated with interest in feminine function and colour toys. Thus, increased everyday play with masculine typed toys and activities was linked to reduced interest in feminine-typed toys in the experimental setting.

Findings from the present study support Weisgram et al.'s (2014) results in several ways; firstly, the girls in the present study displayed more interest in the feminine toys in feminine colours than in both the masculine toys in masculine colours and the feminine toys in masculine colours, and the boys in the present study displayed more interest in the masculine toys in masculine colours than the feminine toys in feminine colours, replicating Weisgram et al's findings. However, the present study did not find that girls preferred the feminine toys in feminine colours over all other types of toy, as the comparison with the masculine toys in feminine colours was non-significant. Therefore, colour may be important for girls in determining toy interest as when feminine toys were presented in masculine colours girls liked these significantly less than the gender-typed toys, but when the masculine toys were presented in feminine colours there was no significant difference in interest in these and the gender-typed toys. This potentially supports Weisgram et al's (2014) claim that "pink gave girls permission" (p. 404) to show interest in masculine-typed toys.

In examining children's stereotypes about the toys, it became apparent that for the feminine toys at least, toy function plays an important role. Considering first stereotype consistent toys, in line with Weisgram et al.'s (2014) findings and in line with predictions, children were more likely to assign feminine toys in feminine colours to "only girls" than "only boys" or "both boys and girls". However, only one of the masculine toys in

masculine colours was assigned to the "only boys" category over "only girls" or "both boys and girls" categories; but this mirrors Weisgram et al's findings that stereotypes for feminine-typed toys are stronger than for masculine-typed toys. This is consistent with previous research which suggests that boys are less likely to cross gender boundaries in play than girls (Kane, 2006; Twenge, 2001), and reinforces the idea that "only girls" can play with pink, feminine toys.

For the stereotype inconsistent toys, children appeared to use the function of the feminine toys to guide their judgement, as the baby was deemed as "only for girls" despite being masculine in colour, and the tea set was deemed as suitable for the "both boys and girls" but was also masculine in colour. Therefore, masculine colours alone do not appear to determine toys as "only for boys". The masculine toys in feminine colours were not assigned more frequently to one category over another; therefore children must be using both the toy's function *and* its colour to decide who should play with it when these two features are mismatching. However, when comparing children's and parents' stereotype endorsement, it is clear that children elicit far stronger stereotypes than parents, as parents indicated that both boys and girls should play with all of the toys, regardless of function or colour. This is consistent with Freeman's (2007) findings that parents often reject common gender stereotypes when surveyed, whilst children show signs of having internalised gender stereotype messages when asked to categorise toys

Children expected parents to show the same level of interest in the toys as they did, but when looking at parents' endorsement scores, they would like their children to play with the masculine-colour toys more than children predicted, and more than children themselves would like to play with them. But overall, parents did not endorse play with one type of toy over another, regardless of their child's gender, reflecting their gender egalitarian attitudes towards the stereotypes of masculine and feminine toys. These

findings could be explained in several ways; firstly, it may be that parents do possess gender egalitarian towards children's toys and children are poor at predicting their parents' attitudes, possibly due to underdevelopment of theory of mind abilities (see Westby & Robinson, 2014). Children have been shown to possess gendercentric patterns of inference whereby they believe that children of the same gender will show interest in toys that they themselves like (Lam & Leman, 2003; Martin et al., 1995); this may also translate to inferences of parents' beliefs. Secondly, it could be that children in fact correctly predict their parents' gender-typed endorsement of toys, which may be communicated to them via verbal and non-verbal behaviours, yet parents may not report these gender-typed attitudes in an attempt to appear egalitarian, perhaps due to social desirability issues. Alternatively, it is possible that parents do not consciously endorse gender-typed toy play, but may possess unconscious gender biases which influence automatic behaviour even without awareness (see Nosek, 2005). This may be guiding children's gender-typed toy preferences and explain their beliefs that parents would also share these. Exploration of parents' and children's implicit gender stereotypes is an underdeveloped area of research; Study 2 will address this gap in the literature using eye-tracking techniques to examine if both parents and children possess implicit gender biases despite showing divergent explicit biases in the present study.

As predicted, gender constancy had a negative relationship with gender flexibility. This means that as children acquired more knowledge about gender (indicated by a higher constancy score) they were *less* likely to be flexible in their application of gender stereotypes to the toys presented in the experiment, i.e. children with higher constancy scores were less likely to assign toys to the "both boys and girls" category and more likely to assign them to either the "only girls" or "only boys" categories, demonstrating the rigidity of their gender schemas. This finding is in support of Halim et al.'s (2014) research which demonstrated that the more children understood that gender remained

stable over time (i.e. had achieved gender stability) the more likely they were to wear

gender-typed clothes. Comparatively, the present findings suggest that the more children

understood that gender remains stable over time, the less likely they were to deem

particular toys as appropriate for both boys and girls to play with. This supports

Kohlberg's cognitive development theory. However, children with high gender constancy

scores are more likely to have achieved gender stability rather than full constancy as the

eldest participants were 5 years old, and were therefore a little too young on average to

fully understand gender consistency (the final stage of development). Future studies should

therefore include a wider age range of participants to examine this relationship more

closely.

Children predicted that parents' toy interest would be in line with their own, which

was not the reality, and suggests a mismatch between children's views of the toys they

think their parents' will approve of, and parents' own beliefs. This also implies that parents

may not be the sole socialising agent when it comes to how children learn about gender

stereotypes; there are other sources in the environment such as teachers, the media, and

peers which also emit messages about gender norms, so it is important to consider their

influence too. Alternatively, in support of Martin & Halverson's (1981) theory, one could

argue that the differences between children's and parents' toy interests, as seen in this

study, are due to the idea that children are their own socialising agents and actively seek

information about gender because it forms an important part of their identity. According to

this theory children will use their gender schemas for "boys" and "girls" to categorise

information in their environment in order to make sense of the world around them, even if

parents actively avoid this kind of gendered labelling. It is important to consider all

possibilities when attempting to explain these findings.

Limitations & future research questions

It is important that future studies include implicit measures of gender stereotypes to overcome social desirability and self-presentation issues which may have been apparent in the present study, particularly among parents. Alongside this, it is also possible that parents emit more subtle, perhaps, implicit cues regarding gender appropriate behaviours, including toy preferences and colours, which they project on to their children. These may not be made salient when responding to researchers' questions, either because parents do not want to appear to hold gender-stereotyped beliefs, or perhaps parents genuinely hold egalitarian views, but gender biases may leak into non-verbal behaviours, even unconsciously (Nosek, 2005). Therefore, future research would benefit from employing measures which capture implicit gender-typed beliefs or the automaticity of the gender-stereotyping of toys, such as Implicit Association Tests or eye-tracking measurements. Study 2 will overcome this limitation by including both implicit and explicit measures of gender-related cognitions.

Additionally, it is important to include observational and behavioural measures of children's toy choices. Farr et al. (2017) found that children's gender stereotypic toy play was a stronger predictor of gender-typed behaviour 5 years later than parental reports. Therefore, the researchers emphasize the importance of including multiple assessment measures of gender-typed behaviour rather than relying solely on parents' reports. The present study included parent-reported data of children's day-to-day play styles, and future replications should extend this by also including observational data of children's play sessions.

Another limitation of the present study is the gender imbalance in the sample, both of children and parents. There were 18 boys and 26 girls, and only 3 fathers and 31 mothers, which may have confounded any effects of gender. Even though power analyses revealed that the study was sufficiently powered to large detect effects, it is important that

equal samples of male and female participants are recruited in studies of gender so that

means are not skewed by unequal group sizes. Thus, it is difficult to generalise findings

beyond the parents and children who participated in the study. It is important for future

research to capture the views of fathers as some evidence has shown that fathers may play

an even more important role in the development of children's gender identity than mothers

(Raag & Rackliff , 1998) and fathers offer significantly more gender-typed than cross-

gender-typed or neutral toys to their children during play sessions (Bradley & Gobbart,

2001).

Another potential issue to highlight with the present study is the ceiling effects

displayed in the children's and parents' toy interest scores. Although analyses revealed

significant differences in interest scores for the different types of toys amongst girls and

boys, and girls, for example, rated the $F_{toy}F_{colour}$ toys as the ones which they'd like to play

with the most, this does not mean that they *disliked* the other types of toys as they still

rated them relatively highly. A larger scale would potentially allow for greater differences

in toy preferences to become apparent.

Lastly, as toys were presented in only one colour-version (either gender-typed or

not), it is difficult to unpick whether toy colour or toy function drives toy preference. For

example, the two feminine-function toys (the wand and pony) were presented to

participants only in feminine-typed colours, not masculine-typed colours too. This is a

potential confound because any observed differences in mean toy preference ratings for the

$F_{toy}F_{colour}$ toys and the $F_{toy}M_{colour}$ toys could be because they were different sets of toys.

Future research following a similar method should ensure that *all* toys are presented in

both feminine and masculine colours so that a direct comparison of toy preference scores

can be made.

Applications

With regard to the applications that the findings from this study may have, it is important to consider the role that colour played in children's decision-making when categorising the toys as for boys, girls, or for both boys and girls. Three out of the four toys which were pink and purple were more likely to be deemed appropriate as "only for girls"; boys are therefore more likely to avoid engagement with these types of toys which means that they may be missing out on important developmental skills. It is important that parents are made aware of the barrier which toy colour can create, and gives strength to campaigns such as "Let Toys Be Toys" which petition large stores to remove gender labels from their toys so that children feel free to choose any type of toy, rather than the decision being based on what is deemed appropriate for their gender by marketers. Indeed, Bigler (1995) has suggested that separating boys' and girls' toys may increase gender stereotyping and create a further divide between boys and girls. It is clear that toy function and colour both influence children's and parents' toy interests and children's gender stereotypes. It is therefore important that research continues to explore these variables to further understand how to tackle gender stereotyping, and to promote a more inclusive approach to girls' and boys' play (see *Chapter 11* for a more detailed discussion of this).

Conclusions

The present study extends previous literature examining the role of toys and parents in the socialisation of gender stereotypes. It is clear from the findings that both girls and boys prefer toys stereotypically associated with their own gender in terms of both toy colour and toy function, and that these features of the toys have been incorporated into children's gender schemas as they use this information to decide who *should* play with them. Children aged 3-5 years possess stereotypic views about toy play, believing feminine-typed toys should be played with by girls, and masculine-typed toys should be

played with by boys. Meanwhile, parents are much more flexible about toy play, believing that both types of toy should be played with by both boys and girls. This is in contrast to children's expectations. Following these findings, future studies should further examine the relationship between children and parents' attitudes toward gender-typed toy play, specifically including measures of implicit gender biases to overcome any issues of social desirability. This will be explored in Study 2 in the present thesis. It is also important to consider other socialising agents of gender as well as parents, as they are one of many environmental influences in children's lives. Therefore Studies 3, 4, and 5 will examine the role of children's media and peer models in the development of gender-related cognitions.

Chapter 7 Study 2: Children and Parents' Looking Preferences to Gender-typed

Toys: Evidence From Eye-Tracking[1]

Children display knowledge of gender stereotypes and possess strong gender-typed attitudes and preferences from a young age. According to socialization theories, one way in which children learn about gender-related information is via parents. The present study explored the similarities between children and parents' implicit and explicit gender cognitions. For the first time, we use the visual world paradigm to examine in real-time whether parents (N = 35) and 7 year old boys and girls (N = 33) display looking preferences towards masculine- and feminine-typed objects stereotypically associated with a story character's gender. A self-report questionnaire assessed participants' explicit gender stereotype endorsement of children's toys. Results revealed a dissociation where parents and children displayed similar implicit gender biases, but different explicit gender biases. Specifically, both parents and children displayed looking preferences towards the masculine-typed object when the character in the scene was a boy, and preferences toward the feminine-typed object when the character was a girl. This effect was stronger and more sustained in parents than children. However, in the explicit measure, parents did not to endorse the gender stereotypes related to toys, instead appearing egalitarian, whilst children's responses were gender-stereotypic. The implications of these findings are discussed in relation to non-verbal cues of gender norms.

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[1]The data presented in this study has been submitted to Child Development (Spinner, Cameron, & Ferguson) and is currently under review.

Introduction

There is extensive literature to show the existence of gender-typed toy preferences in children (Weisgram et al., 2014; Wong & Hines, 2015), and the role that parents play as socialising agents in forming these preferences from a young age (McHale, Crouter, & Tucker, 1999; McHale, Crouter, & Whiteman, 2003). However, very little is known about the patterns of children and parents' implicit gender stereotypes. Parents' implicit gender cognitions may divulge non-verbal and verbal cues, informing boys and girls about what parents believe is gender appropriate. Crucially, children predict that their parents possess gender-stereotypic attitudes in relation to toys, yet parents explicitly contradict this when asked (Freeman, 2007). This finding suggests that parents may be guiding children's beliefs through other means, such as non-verbal cues. The present study examined parents' and children's implicit and explicit gender stereotypes using an established paradigm from language research, applied to this field for the first time. Specifically, we used the visual world paradigm (VWP: Cooper, 1974) to monitor participants' eye movements around visual scenes, time-locked to an auditory sentence. This paradigm enabled us to examine for the first time parents' and children's gender-related implicit biases towards children's toys in real-time. Explicit gender stereotypes were measured using self-report questionnaires. This study builds on findings from Study 1 by incorporating both implicit and explicit measures of gender stereotypes to further examine the patterns of these in children and parents.

Children's Construction of Gender and Gender-Typed Toy Preferences

Children build their understanding of gender during the pre-school years and by the time they start primary school they have rigid definitions of how boys and girls should behave (Martin & Ruble, 2004), including how they believe adults expect them to play (Freeman, 2007). Children quickly learn from their environment about how they "should" act in relation to gender norms, and can readily apply gender stereotypes by five years of

age (Powlishta, Serbin, & Moller, 1993; Raag & Rackliff, 1998). Despite efforts to instil

gender equity in recent decades, gender stereotypes still prevail (Frawley, 2005), and

adults still possess different expectations for boys and girls, which can limit their

opportunities (Sadker & Sadker, 2010). One particular domain in which strict gender

divisions are still visible is children's toys (Cherney et al., 2006). Toy play is a

fundamental part of young children's daily experience, and the types of toys children play

with shape their cognitive and social development (Cherney et al., 2003). Children

frequently choose toys based on gender associations (Wood et al., 2002) and gender-typed

toy preference among children is one of the largest gender differences found in

developmental psychology (Cherney & London, 2006; Servin et al., 1999). This was also

demonstrated in a British sample in Study 1 of this thesis.

Different types of toy encourage the development of different skills in children.

Play with masculine-stereotyped toys, such as vehicles, typically requires the use of

spatial-awareness skills to manipulate the moving parts; this promotes cognitive

development (De Lisi & Wolford, 2002; Jirout & Newcombe, 2015). Feminine-stereotyped

toys on the other hand, such as soft animals and dolls, facilitate co-operation and empathy

skills, therefore promoting social development (Coyne et al., 2016; Dittmar et al., 2006; Li

& Wong, 2016). If children are discouraged from engaging with certain toys because they

do not fit norms for their own gender, then they are potentially at a developmental

disadvantage, and evidence has linked gender-typed toy play to a number of, sometimes

negative, outcomes in children. For example, in a study by Sherman and Zurbriggen

(2014), girls displayed limited career cognitions after play sessions with a Barbie doll (see

Chapters 4 and *5* for a more detailed discussion of toys). It is therefore important to

understand how environmental and cognitive variables influence the development of

gender-typed toy preferences.

Parents as a Socialising Agent of Children's Gender-Related Cognitions

It is widely accepted that gender roles are partly learned through social and environmental cues (Mischel, 1966), and arguably one of the most important influences on children's gender identity are parents (Blakemore & Hill, 2008). Social cognitive theory posits the family as central to gender development (Bandura & Bussey, 2004; Bussey & Bandura, 1999; Martin, 2000; Tenenbaum & Leaper, 2002). In the early years of childhood, parents create a 'gendered world' for their children by deciding which toys to purchase, which activities their children should participate in , and how their children should dress (Pomerleau et al., 1990), as well as being visible and dynamic role models of gendered behaviour (Campenni, 1999). According to social learning theory (Bandura, 1977), parents not only model gender stereotypic behaviour through their own interests and occupations, but also reinforce gender congruent behaviour in their children through rewards (McHale et al., 1999). Additionally, gender schema theory (Bem, 1981, 1983) suggests that gender stereotypes are the result of gender-schematic processing. Gender schemas develop through an individual's experiences; hence, the way parents regulate their children's behaviour stems from their own gender-related experiences. It is therefore logical that parents who have developed stereotypic gender schemas will be more likely to elicit gender-differentiated parenting (Barry, 1980). Children will then integrate experiences with their parents into their own gender schemas, which influences their understanding of future gender-related information that is encountered (Bem, 1983).

Basow (1992) notes that parents can influence children's gender-typed attitudes and preferences in both explicit and subtle ways, and this begins immediately after birth. In relation to toys, parents have been shown to play with their child's gender-typed toys for longer and react more positively towards them than to cross-gender toys (Fagot, 1978; Langlois & Downs, 1980), and also to engage in different types of play with boys and girls (Culp, Cook, & Housley, 1983). These interactions send an unequivocal message to children about appropriate gender-typed behaviour.

Interestingly, when parents are asked explicitly about gender stereotypes and toys these gender biases are attenuated. Research examining 3-5 year old children's perceptions of their parents' gender stereotypes shows that although children expect their parents to hold stereotypical views about what boys and girls should play with, this is not always evident when parents themselves are questioned. When surveyed by Freeman (2007), parents tended to reject common gender stereotypes regarding toys, and earlier research by Campenni (1999), and Idle et al. (1993) found that parents tended to assign toys to a 'neutral' category more than a 'feminine' or 'masculine' category, and there was a tendency for parents to do this more than nonparents. This contradiction with children's predictions raises the question of whether parents project implicit cues to their children about their gender-typed views, which are inhibited when responding to explicit questions, possibly due to social desirability issues (Hewstone, Rubin, & Willis, 2002). Given that there is a developing norm for egalitarianism in relation to gender, this explicit response behaviour may be driven by parents' social desirability or self-presentation concerns (Hewstone et al., 2002; Nosek, 2005) or a lack of awareness of their own gender stereotypes (Kunda & Spencer, 2003; White & White, 2006). Crucially, it highlights the importance of using implicit measures to examine gender stereotypes, since they do not rely on conscious awareness and are unaffected by social desirability.

Implicit Stereotypes

Given that from the age of 10 years old children can monitor and modify their own explicit attitudes and behaviours (Fitzroy & Rutland, 2010), Greenwald, Poehlman, Uhlmann, and Banaji (2009) argue for the importance of considering both explicit *and* implicit measures when predicting behaviour. Nosek et al. (2002) explains that these are separate constructs that can independently affect behaviour. In the field of social development, explicit stereotypes have been extensively measured via self-report questionnaires, whereas the little research that has explored implicit attitudes has

predominantly used implicit association tests (IAT; Greenwald et al., 2009). More recently, an alternative task known as the action interference paradigm (AIP) has been developed to examine children's implicit gender stereotypes (Banse, Gawronski, Rebetez, Gutt, & Morton, 2010). Including implicit measures in investigations of gender biases allows researchers to assess unconscious, automatic cognitions activated by the presentation of an object or person. These measures are useful for examining attitudes, particularly of young children, because they allow assessment of automatic aspects of social cognition of which children may not be consciously aware (Cvencek, Greenwald, & Meltzoff, 2011). Thus, studying both explicit and implicit measures of gender stereotypes in the current study will allow us to examine when social desirability influences behaviour.

Implicit attitudes can be positive or negative, and are thought to develop through repeated pairings of a category and an evaluation (Crisp & Turner, 2014). The IAT is a common way of examining implicit attitudes, and has been widely used in adult populations (e.g. Greenwald, McGhee, & Schwartz, 1998), and more recently it has been adapted for use with children. Research on the related topic of prejudice has shown that children start to display reduced *explicit* racial biases around the age of 10 years, however, *implicit* biases remain stable (Rutland, Cameron, Milne, & McGeorge, 2005; Baron, & Banaji, 2006). This divergence suggests that older children and adults engage in self-presentation to avoid explicit expression of racial bias as it challenges social norms (Killen & Rutland, 2013), and the same may be found in relation to gender biases, something that the present study explores.

There is evidence to show correlations between adults' implicit and explicit attitudes (e.g. Nosek, Greenwald, & Banaji, 2005). However, relatively little is known about this relationship in children, particularly in relation to gender cognitions as so few studies have required children to complete both implicit and explicit tasks. Cvencek, Greenwald, and Meltzoff (2011) did examine this during their development of the

preschool IAT and found that 4 year old children's implicit gender attitudes were positively correlated with their explicit gender attitudes. However, when examining in-group positivity and out-group negativity in relation to gender, Dunham, Baron, & Banaji (2016) found no relationship between implicit and explicit attitudes in adults or children (aged 5 – 13 years), suggesting that they are two independent constructs. Other studies have examined the link between implicit attitudes and actual behavioural outcomes. In relation to maths-gender stereotypes, Steffens, Jelenec, and Noack (2010) found that 9 year old girls possessed implicit maths-gender stereotypes, adolescent girls demonstrated stronger implicit stereotypes than boys, and these implicit maths-gender stereotypes predicted academic achievement more so than children's explicit stereotypes. The relationship between implicit and explicit gender cognitions therefore appears to be complex, with mixed evidence for the existence of a connection between them.

To date, only two studies have examined patterns between parents' and children's implicit and explicit gender cognitions. Firstly, Meyer and Gelman (2016) investigated the link between parents' and 5-7 year old children's gender essentialist beliefs using an adapted IAT related to gender-typed toys, and an explicit self-report measure to examine gender-stereotyping and gender-typed preferences. They found that parents' (implicit) gender essentialism predicted children's (explicit) gender-typed preferences, but not their gender-stereotypes. In other words, children of parents who assumed gender categories as natural and appropriate demonstrated more gender-stereotypical toy and activity preferences (for themselves), but there was no relationship between parents' essentialism and their children's beliefs about what is appropriate for others (in relation to gender-typed occupations). Secondly, Endendijk et al. (2013) examined parents' and 3 year old children's implicit gender stereotypes using the AIP (parents and children) and the IAT (parents only), and explicit stereotypes using a self-report questionnaire (parents only). They found that girls' implicit gender stereotypes had a strong relationship with their

mother's implicit gender stereotypes, but the same relationship was not evident amongst boys and their mothers. Differences were also apparent between mothers' and fathers' implicit and explicit gender stereotypes, whereby mothers' implicit gender stereotypes were stronger than fathers', but fathers' explicit gender stereotypes were stronger than mothers'.

The current study is unique in that it measures both explicit and implicit biases in parents' and children's gender cognitions. Existing literature exploring the relationship between parents' explicit gender schemas and children's explicit gender-related cognitions has presented mixed findings, however a recent meta-analysis suggests that a small but significant relationship exists (Tenenbaum & Leaper, 2002). From their analysis of 43 studies, it was concluded that children were more likely to display gender-stereotypical cognitions about themselves or others if their parents possessed more traditional gender schemas. Further research is needed to fully elucidate the complex links between parents' and children's gender-related cognitions, including an exploration of how these biases are manifest in implicit measures. The present study aims to fill this gap by providing a robust and precise measure of unconscious processing via the visual world paradigm.

Visual World Paradigm

In the visual world paradigm (e.g. Cooper, 1974; Tanenhaus Spivey-Knowlton, Eberhard, & Sedivy, 1995), participants' eye movements around visual scenes are recorded, and time-locked to a related auditory input. For example, the sentence, "The girl will ride the carousel" could be paired with a scene containing a girl, and two 'ride-able' objects (a carousel and a motorbike; Altmann & Kamide, 2003). Studies of this kind show that participants incorporate cues from syntax, semantics and world knowledge to constrain the available set of objects, and move their eyes to the appropriate visual object *before* it has been mentioned in the audio. The paradigm therefore provides an implicit measure of

expectation in real-time. The visual world paradigm has been used extensively in the field of psycholinguistics, thus its validity as a measure of real-time expectations is well established (e.g. Altmann & Kamide, 2007, 2009; Kamide, Lindsay, Scheepers, & Kukona, 2016). Moreover, while the topics of stereotypes or gender biases have never been examined using this approach, the paradigm has provided valuable new insights into other social psychological phenomena, including mental state inferences (e.g. Ferguson & Breheny, 2011; Ferguson, Scheepers, & Sanford, 2010), just-world theory (e.g. Callan, Ferguson, & Bindemann, 2013), and social referencing (e.g. Crosby, Monin, & Richardson, 2008).

The present study adapted the VWP to investigate children and parents' eye movements to gender-typed objects in relation to male and female characters. This approach offers several advantages. First, as fixations are measured in high temporal resolution, this method provides precision, and reveals unconscious processing that participants are not likely to be aware of. This reduces risks of demand characteristics as it would be very difficult for participants to use explicit knowledge to change their implicit biases (Berends, Brouwer, & Sprenger, 2016). Second, we developed semi-realistic visual scenes which contained a range of gender-typed objects which should be familiar to participants, which offers some assurance of external validity. Third, the 'look and listen' visual world paradigm makes low demands on executive skills, thus can be used with a wide range of participant ages. Finally, implicit measures have been shown to provide better predictive validity than explicit self-report measures of stereotyping behaviours (see Greenwald et al., 2009). Therefore, using the visual world paradigm allows us to gain a better understanding of the implicit biases that might underlie gender-relevant cognition among both parent and child populations; extending the limited literature in this area in important ways.

The Present Study

The present study addressed two key research questions; firstly, do participants present gender-stereotypic cognitions in relation to children's toys and are these evident in both implicit and explicit measures? And secondly, do parents and children present similar gender-related cognitions to one another in relation to children's toys, and is this evident in both implicit and explicit measures? Participants were tested on the implicit visual world task and the explicit gender stereotype endorsement task; inhibitory control was also measured to examine any between-group (i.e. age or gender) differences in general inhibitory control. We specifically tested children aged 7 years old because gender is a highly salient social category at this age; gender-related knowledge, stereotypes, and behaviour are frequently observed, but it is around this age at which children also demonstrate some flexibility in their views of gender norms (Kohlberg, 1966). This flexibility can result in individual differences in gender-related cognitions and behaviour, which makes this an interesting age group to explore the similarities between implicit and explicit processes.

In line with previous research, we predicted that children would demonstrate gender-stereotypic responses in their explicit gender-stereotype endorsements. More specifically, children were expected to report that only boys should play with masculine-typed toys, and only girls should play with feminine-typed toys, but parents to demonstrate more egalitarian attitudes by indicating that both masculine and feminine-typed toys should be played with by both boys and girls. In contrast, in the implicit gender stereotype measure we predicted that the looking preferences of both children and parents would show gender-stereotyped biases (i.e. looking towards masculine-typed objects for a male story character, and towards feminine-typed objects for a female story character). Thus, we expected children's implicit and explicit gender cognitions to follow similar patterns, but parents' implicit and explicit gender cognitions to diverge. Finally, as an exploratory question, we also examined whether looking preferences were biased to objects that were

stereotypically associated with participants' own gender, and whether this differed between parents and children.

Method

Participants

Thirty-three British children (19 males and 14 females) aged between 7 – 8 years (mean age = 87.97 months), and 35 of their parents (6 males and 29 females) took part. Twenty four parents provided their date of birth; their mean age was 40.67 years. We specifically tested children aged 7 – 8 years old because 1) gender is a highly salient social category at this age and it is an age at which gender flexibility begins to emerge (Kohlberg, 1966), and; 2) for practical reasons, as children younger than this would have been physically too small to eye-track using the EyeLink 1000 eye-tracking equipment.

Children were recruited from a database at the Kent Child Development Unit in Canterbury, Kent, UK. Ethical consent was gained from the Research Ethics Committee at the University of Kent, in line with British Psychological Society guidelines. Parental and participant consent were obtained prior to the study commencing.

Materials and Design

Gender stereotype endorsement. Participants were shown eight pictures of toys (four stereotypically masculine, four stereotypically feminine; Blakemore & Centers, 2005) and asked "Who should play with this toy?" There were three response options; "Only boys" (coded as 0), "Only girls" (coded as 0), or "Both boys and girls" (coded as 1). Participants were asked to select one option by placing a tick in the column which represented their answer. Thus there was one within-participant independent variable with two levels (Toy Type: masculine vs feminine). This task provided an explicit measure of the strength of participants' gender stereotyped-views in relation to children's toys. A 'flexibility score' was calculated by summing the assigned codes across the eight toys. Scores could range from 0 to 8, with higher scores indicating more gender flexible

attitudes toward toy play. It should be noted that no children or parents indicated a counter-stereotypical endorsement, for example "only boys should play with dolls". This means that all responses coded as '0' were stereotypical responses.

Audiovisual scenes. Sixteen experimental visual scenes were constructed in Photoshop using objects taken from a Google image search, and were presented on a 17 inch colour monitor in 1024 x 768 pixels resolution. Each visual scene could be paired with one of two auditory sentences that described a character performing an activity or interacting with an object (e.g., "[Character] has painted a picture"); one included a female character's name and one included a male character's name. Note that the target object was deliberately described using gender neutral nouns (e.g. "toy", "picture", "costume") to avoid bottom-up effects from the language. Each visual scene included a stereotypically feminine or masculine variant of the object described in the audio sentence, among several background and distracter items. For example, accompanying the auditory sentence, "Sophie/Harry will play with the toy", there was a visual scene depicting a garden containing two 'playable' objects - a doll and a truck, alongside other background items including decking and grass, a tree, a watering can, and a butterfly (see Figure 1). Masculine- and feminine-typed toys were selected from Blakemore and Center's (2005) list of strongly gender-typed toys.

One version of each item was assigned to one of two counterbalanced presentation lists, with each list containing sixteen experimental items, eight describing a female character and eight describing a male character. In addition, 16 filler scenes were interspersed randomly among the sixteen experimental items to create a single random order. These filler items were included to distract participants from the true aim of the study. These filler scenes contained 'neutral' items which were not related to children's toys or activities. For example, one scene depicted a doctor's office, paired with the auditory sentence "Doctor Davis will put on the jacket", where two jackets (a white jacket

and a sports jacket) were pictured. Half of the participants saw list 1 and the other half saw

list 2; children and their parents always viewed the same list.

Figure 7.1. Example of an experimental visual scene.

Thus, the audiovisual task employed a 2 (Participant Gender: male vs female) x 2

(Participant Age: adult vs child) x 2 (Character Gender: male vs female) mixed design,

with Participant Gender and Age as the between-participants variables, and Character

Gender as the within-participants variable. The dependent variable was the proportion of

trials in which participants fixated on the critical objects (i.e. the masculine/feminine

items).

Stroop Task. The Stroop task (Stroop, 1935) consisted of 50 incongruent trials

comprising colour words in one of four different ink colours (red, blue, yellow, and green;

e.g. the word 'red' in the ink colour green), 50 congruent trials (e.g. the word 'red' in the

ink colour red) and 50 non-colour word neutral trials (all animal-related words e.g. the word 'horse' in the ink colour red, matched for word length with the colour words used).

The task was run through E-prime 2 software, and responses were recorded using a five-button serial response box with the four extreme buttons (two on the left, two on the right) being used for the ink-colour responses (red, green, blue, yellow). Inhibitory control was examined by comparing response times (RTs) for the neutral trials to RTs for the incongruent trials. A greater difference between RTs in these two conditions is interpreted as showing less inhibitory control, and low or no difference is interpreted as greater inhibitory control. Prior to experimental trials, participants received 20 practice trials consisting of country names in the four different colours. Reaction time in milliseconds and response accuracy was recorded for each trial. This task was included to identify any between-group (i.e. age or gender) differences in general inhibitory control which *may* influence abilities to control eye movements during the audiovisual task.

Procedure

Eye tracking was recorded from the participants' dominant eye using an EyeLink 1000 eye-tracker (viewing was binocular), running at 1000Hz. The experiment was controlled using Experiment Builder software. At the beginning of the experiment, and at the half-way point (or as needed), the eye-tracker was calibrated and validated against nine fixation points, using the standard EyeLink calibration procedures. Participants were told that they would see images on the computer screen and these would be accompanied by a spoken sentence, presented through the loudspeaker. They were informed that their task was to listen to the sentences whilst simultaneously viewing the accompanying visual scenes. Each trial began with a centrally-located drift correction procedure, followed by the target image, along with the auditory sentence. The onset of the image preceded the onset of the corresponding sentence by 1000ms. The picture stayed on-screen for the duration of the sentence (approximately 2000ms), with the auditory sentence typically ending 4000ms

before the end of the trial. This part of the experiment took approximately 10 minutes to complete.

Participants then completed the Stroop task. Sitting in front of the same computer screen, they were instructed to respond to the ink colour of words on the screen by pressing the matching-colour button on a button box as quickly and accurately as they could. Participants first completed a practice block, then once they were happy with the procedure, the 150 experimental trials began. The words stayed on the screen until the participant had responded. This part of the experiment took approximately 10 minutes to complete.

Finally, participants completed the explicit gender stereotype endorsement measure. They were presented with 8 images of children's toys, and on a separate response sheet, were asked to indicate who they thought *should* play with that toy. Participants completed this measure alone in the laboratory and were then debriefed by the experimenter.

The entire experiment took approximately 20-25 minutes to complete, and the child was always tested first, then the parent.

Results

Explicit Measures

Gender stereotype endorsement of toys. To examine participants' explicit gender stereotype endorsement of the toys, a one-way ANOVA was performed on flexibility scores, with Participant Gender and Participant Age included as between-subjects factors. Analyses revealed a main effect of Participant Age, $F(1, 61) = 82.88$, $p < .001$, $\eta_p^2 = .58$, whereby parents achieved significantly higher gender flexibility scores ($M = 7.03$, $SD = 1.81$) than children ($M = 1.63$, $SD = 1.62$). Supporting hypotheses, this suggests that parents assigned more toys to the "both boys and girls" category than children did, indicating that parents are more flexible about who should play with the toys than children.

There was no effect of Participant Gender ($p = .412$) because male and female participants achieved similar gender flexibility scores (Males: $M = 3.93$, $SD = 1.60$; Females: $M = 4.39$, $SD = 1.96$). The interaction between Participant Age and Participant Gender was also non-significant ($p = .445$).

Stroop Task. The mean correct reaction times (RTs) for each group/condition on the Stroop task are presented in Table 7.1. Statistical analyses were carried out using linear mixed-effects models, using the lme4 package (Bates, Maechler, Bolker & Walker, 2014) in R (version 3.3.1, R Development Core Team, 2016). The model included deviation coded (-.5 *vs.* .5) fixed effects of Participant Age (adults *vs.* children), Participant Gender (female *vs.* male) and Condition (neutral *vs.* Incongruent), random effects for participants and items, and random slopes for Condition.

As expected, analyses revealed a significant effect of Condition (*Est.* = -109.90, *SE* = 25.25, *t (6.34)* = -4.35, $p = .004$), such that participants responded faster to neutral (*M* = 1316ms, *SD* = 585.53) than incongruent words (*M* = 1418ms, *SD* = 623.14). This effect did not interact with age or gender, therefore all participants experienced comparable levels of inhibitory control. This means that parents and their children had comparable inhibitory control skills, meaning that they both possessed the general ability to inhibit salient information. There was however a significant effect of Age, whereby the adults (*M* = 1032ms, *SD* = 304.56) had faster RTs than the children (*M* = 1743ms, *SD* = 640.52; *Est.* = -731.66, *SE* = 77.51, *t (59.80)* = -9.44, $p < .001$), but this is to be expected as adults possess more advanced cognitive skills than children (see Bub, Masson, & Lalonde, 2006).

Table 7.1. *Mean reaction times (ms) per group and condition on the Stroop task.*

		Neutral trials	Incongruent trials
Adults			
	Fathers	957.91	1019.92
	Mothers	987.07	1083.61
Children			
	Boys	1664.41	1793.79
	Girls	1684.96	1832.33

Implicit Measure: Eye-Tracking

Eye-tracking data processing. Eye movements initiated while the target image was onscreen were processed according to the relevant picture and sound onsets. The spatial coordinates, in pixels, of fixations were mapped onto the appropriate regions of analysis, corresponding to the masculine and feminine objects in each image. If a fixation was located within 20 pixels of a visual object's perimeter, it was coded as belonging to that object, otherwise, it was coded as background.

Visual preferences to these two objects were examined by calculating a masculine/feminine-object advantage score as a function of time (i.e. the probability of fixating on the 'feminine' object *minus* the probability of fixating on the 'masculine' object). This measure is therefore symmetrical around zero such that higher proportions of fixations on the "feminine" object result in a positive score, whereas higher proportions of fixations on the "masculine" object result in a negative score.

Statistical analyses were carried out on log-transformed masculine/feminine advantage scores using linear mixed-effects models, as described below. Models included the maximal random effects structure, including random effects for participants and items, and crossed random slopes for each of the independent variables (as suggested by Barr, Levy, Scheepers, & Tily, 2013). Random effects were only removed where they led to non-convergence due to overparameterization. A significance level of 5% was used for all tests.

Preview analysis. Onset of the picture preceded the onset of the auditory sentence by 1000ms, thus we first analysed the distribution of fixations on masculine/feminine objects during this preview period to examine whether any very early visual biases emerged before the onset of the auditory sentence. That is, this preview analysis allowed us to test whether participants' own gender preferences influenced their initial visual biases to objects in the scene. These data are plotted in Figure 7.2. Analyses compared masculine/feminine advantage scores between 500-1000ms post-picture onset (since prior to this eye movements are still being initiated). Each model included the independent variables of Participant Gender and Participant Age as fixed effects, which were deviation coded (-.5 *vs.* .5) to ensure they could be directly compared.

Results revealed only a trend for different object preferences between female and male participants (*Est.* = -.468, *t (20.08)* = -1.88, *p* = .075), with females showing a preference to fixate on the feminine objects (*M* = 0.85, *SD* = 2.64) and males showing little preference between feminine and masculine objects (*M* = - 0.02, *SD* = 2.60). There was no effect of Participant Age, or a significant interaction (*ps* > .23).
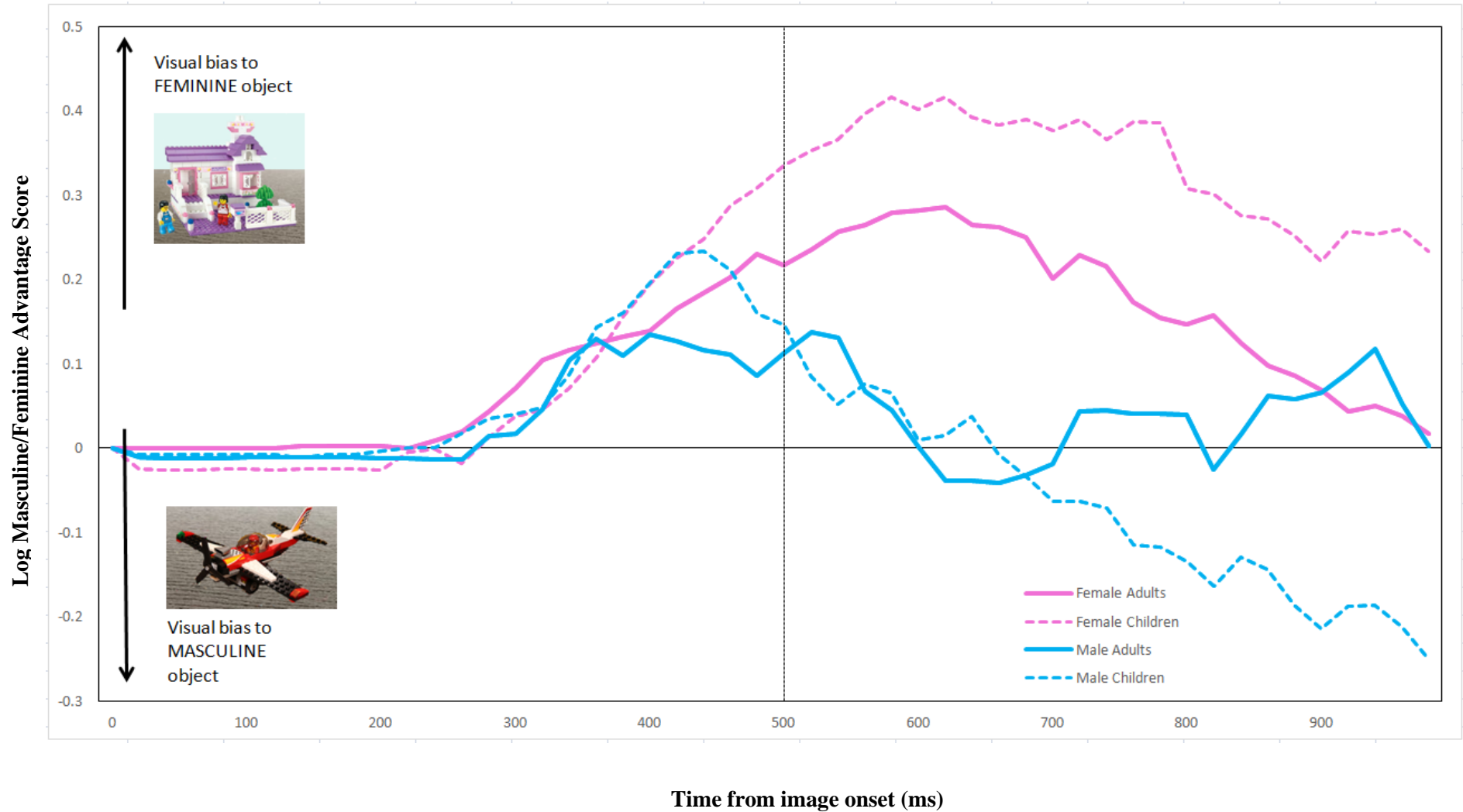
Figure 7.2. The average location advantage scores for each participant group during the preview period. The dashed vertical line indicates the 500ms point; the timeslot following this point (500 – 1000ms) was used for statistical analysis.

Main analyses. The main analyses focused on visual biases during the auditory sentence. To examine this, temporal onsets and offsets of the fixations were recalculated on a trial-by-trial basis, relative to the onset of the verb (e.g., "play") in the corresponding auditory input (since this is the earliest point a target object can be accurately inferred). A time period ranging from 1000ms before the onset of this verb to 4000ms after the onset of the verb was examined, since it includes the average character name onset ($M = -761$ms; range -1157 to -620ms) and allows sufficient time beyond the neutral object (e.g. "toy") to examine changes in visual biases. The average masculine/feminine advantage scores in each Character Gender condition and Age Group is plotted for female participants in Figure 7.3, and for male participants in Figure 7.4. The solid black line in both figures (t=0) indicates the onset of the verb, and arrows/labels show the average onset of other relevant auditory information. In order to divide the data into windows for statistical analysis, the data were divided into ten consecutive 500ms timeslots, as indicated by the dashed vertical lines on Figures 7.3 and 7.4. Statistical models included the independent variables of Participant Gender, Participant Age and Character Gender as fixed effects, which were deviation coded (-.5 *vs.* .5) to ensure they could be directly compared. The resulting statistical effects are reported in full in Table 7.2. Statistical analyses revealed a significant effect of Character Gender from the onset of the verb onwards.
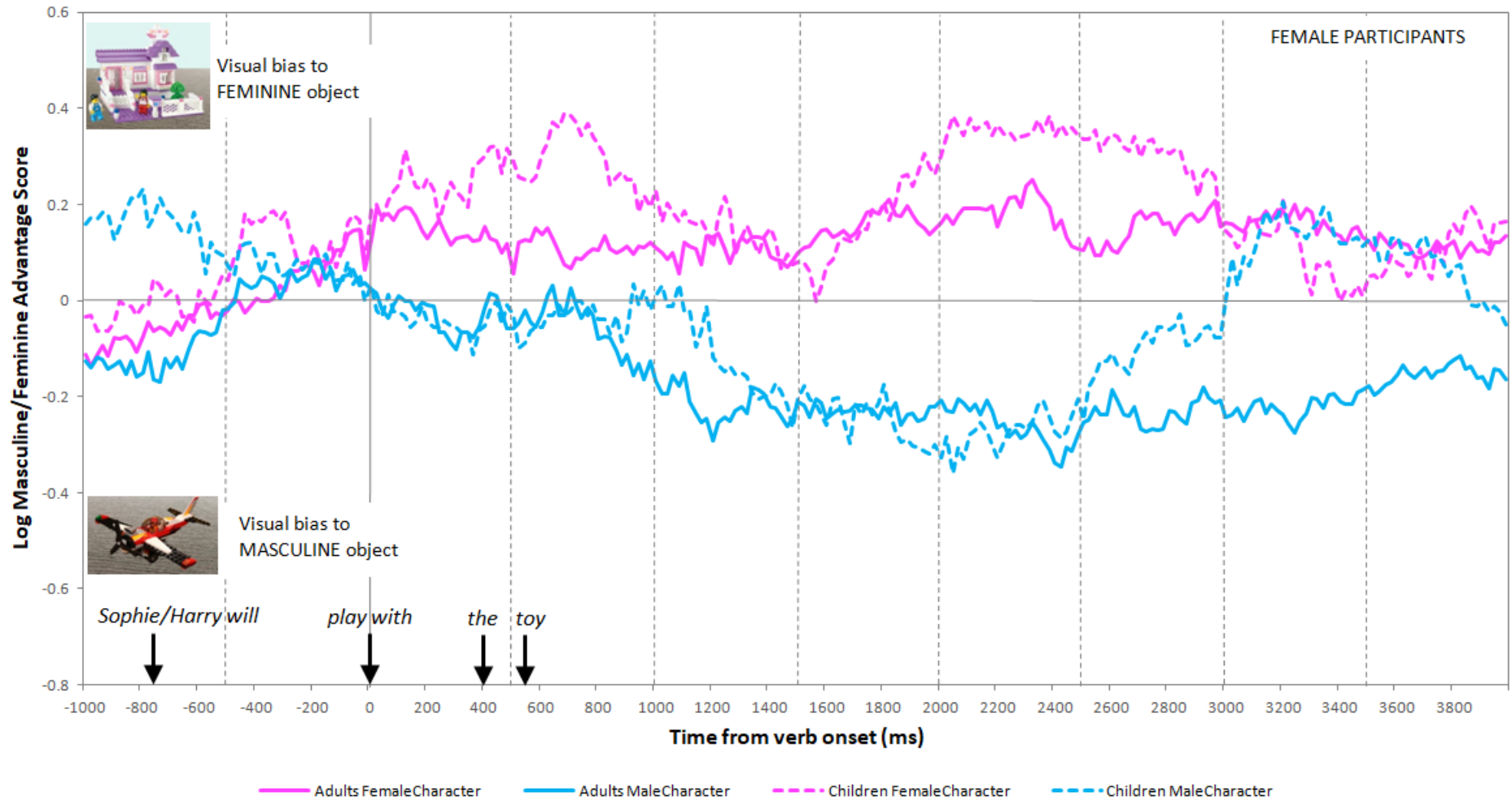
Figure 7.3. The average location advantage scores for female participants for each condition. The solid black vertical line (t=0) indicates the onset of the verb in the audio sentence. The dashed vertical lines represent the 500ms timeslots that were used for statistical analysis.

Figure 7.4. The average location advantage scores for male participants for each condition. The solid black vertical line (t=0) indicates the onset of the verb in the audio sentence. The dashed vertical lines represent the 500ms timeslots that were used for statistical analysis.

Table 7.2. *Results of Linear Mixed Effects Models for each time window of interest, where * p<.05, ** p<.01, *** p<.001.*

		Character Gender	Participant Age	Participant Gender	Character Gender x Participant Age	Character Gender x Participant Gender	Participant Age x Participant Gender	Character Gender x Participant Age x Participant Gender
	Est.	-0.03	0.24	0.10	0.47	-0.35	-0.73	-0.69
-1000 to -500ms	SE	0.19	0.22	0.19	0.38	0.38	0.37	0.76
	t	0.16	1.08	0.53	1.24	-0.92	-1.95	-0.90
	Est.	-0.29	0.05	-0.44	0.09	-0.18	-0.5	0.92
-500 to 0ms	SE	0.20	0.18	0.21	0.37	0.37	0.37	0.74
	t	-1.44	0.26	-2.13*	0.24	-0.49	-1.38	1.24
	Est	-0.84	-0.06	-0.51	0.46	-0.02	-0.35	1.89
0 to 500ms	SE	0.24	0.22	0.19	0.46	0.46	0.37	0.91
	t	-3.55***	-0.27	-2.74**	1.00	-0.05	-0.94	2.07*
	Est.	-1.03	0.23	-0.59	0.20	-0.02	-0.13	2.04
500 to 1000ms	SE	0.29	0.26	0.21	0.51	0.50	0.39	1.01
	t	-3.56**	0.88	-2.82**	0.39	-0.04	-0.33	2.02*
	Est.	-1.38	-0.03	-0.08	1.20	-0.78	-0.66	1.86
1000 to 1500ms	SE	0.30	0.21	0.22	0.51	0.50	0.41	1.01
	t	-4.60***	-0.14	-0.37	2.35*	-1.56	-1.61	1.84
	Est.	-1.72	0.01	-0.40	1.53	-0.48	0.13	3.11
1500 to 2000ms	SE	0.34	0.23	0.23	0.53	0.52	0.42	1.05
	t	-5.05***	0.06	-1.74	2.87**	-0.91	0.31	2.96**
	Est.	-2.16	0.06	-0.58	1.20	-0.23	-0.29	4.16
2000 to 2500ms	SE	0.38	0.21	0.19	0.69	0.66	0.38	1.32
	t	-5.63***	0.28	-3.05**	1.73	-0.34	-0.76	3.15**
	Est.	-1.82	<0.01	-0.42	1.26	-0.55	-0.93	2.91
2500 to 3000ms	SE	0.34	0.22	0.24	0.65	0.63	0.42	1.25
	t	-5.31***	<0.01	-1.74	1.94	-0.87	-2.22*	2.32*
	Est.	-1.17	0.22	-0.34	2.20	-1.11	-0.73	1.34
3000 to 3500ms	SE	0.38	0.23	0.28	0.70	0.69	0.44	1.39
	t	3.08**	0.94	-1.20	3.16**	-1.60	-1.66	0.97
	Est.	-1.13	0.01	-0.32	1.50	-0.97	-0.61	1.57
3500 to 4000ms	SE	0.33	0.21	0.23	0.64	0.64	0.40	1.28
	t	-3.43**	0.06	-1.41	2.34*	-1.52	-1.51	1.23

Overall, participants showed a preference to fixate toward the feminine objects in the female-character condition, and a preference to fixate toward the masculine objects in the male-character condition, as hypothesized. This suggests that participants rapidly inferred male/female gender information from the character's name, and used this to direct their visual search of objects in the scene according to stereotypical knowledge of gender preferences.

However, Character Gender also interacted with other variables in some time windows, which tells us that the participants' own age and gender modulated the effect of the character's gender. No significant effects were found in time window 1 (-1000 to -500ms before verb-onset), however, in time window 2 (-500 to 0ms before verb-onset) the effect of Participant Gender was significant, reflecting a looking-preference for the feminine stereotyped objects among female participants, and a preference for the masculine stereotyped objects among male participants. This pattern mirrors that seen in the preview period.

This effect of Participant Gender continued to be significant into time windows 3 and 4 (0 – 1000ms from verb-onset), reflecting the same pattern of looking preferences as the previous time window. In addition, time windows 3 and 4 showed a significant 3-way interaction between Character Gender x Participant Age x Participant Gender. Further analyses revealed a Character Gender x Participant Age interaction among the male participants (0 to 500ms: $Est. = 1.28$, $SE = 0.63$, $t = 2.02$, $p < 0.05$; 500 to 1000ms: $Est. = 1.34$, $SE = 0.7$, $t = 1.92$, $p = 0.06$) that was not significant among the female participants (0 to 500ms: $Est. = -0.44$, $SE = 0.58$, $t = -0.77$, $p = 0.45$; 500 to 1000ms: $Est. = -0.71$, $SE = 0.65$, $t = 1.09$, $p = 0.28$). Specifically, fathers showed a preference to fixate on the feminine items in the female-character trials, and the masculine items in the male-character trials (0 to 500ms: $Est. = -1.49$, $SE = 0.66$, $t = -2.25$, $p = 0.06$; 500 to 1000ms: $Est. = -1.75$, $SE =$

0.56, t = -3.14, p < 0.01), but boys did not differ in their looking preferences according to Character Gender (0 to 500ms: *Est.* = -0.15, *SE* = 0.34, t = -0.44, p = 0.67; 500 to 1000ms: *Est.* = -0.46, *SE* = 0.36, t = -1.26, p = 0.22).

In time window 5 (1000 to 1500ms after verb-onset), Character Gender significantly interacted with Participant Age, showing that the effect of Character Gender (i.e. a feminine object bias for female characters and a masculine object bias for male characters) was larger among adults (*Est.* = -1.39, *SE* = 0.39, t = -3.59, p = 0.001) than children (*Est.* = -0.78, *SE* = 0.25, t = -3.13, p = 0.002). This pattern persisted into time window 6 (1500 to 2000ms after verb-onset), but here it was subsumed under a significant 3-way interaction between Character Gender x Participant Age x Participant Gender, which lasted throughout the following two time windows (until 3000ms after verb-onset). Further analyses in these three time windows revealed the same pattern as seen in time windows 3 and 4 (0-1000ms), with a Character Gender x Participant Age interaction that was significant among the male participants (1500 to 2000ms: *Est.* = 2.87, *SE* = 0.73, t = 3.93, p < 0.001; 2000 to 2500ms: *Est.* = 2.94, *SE* = 0.99, t = 2.95, p < 0.01; 2500 to 3000ms: *Est.* = 2.57, *SE* = 0.66, t = 3.87, p < 0.001) but not among the female participants (1500 to 2000ms: *Est.* < 0.01, *SE* = 0.66, t = -0.01, p = 0.99; 2000 to 2500ms: *Est.* = -0.8, *SE* = 0.86, t = -0.93, p = 0.36; 2500 to 3000ms: *Est.* = -0.2, *SE* = 0.84, t = -0.24, p = 0.81). As before, adult males showed a significant effect of Character Gender in all time windows (1500 to 2000ms: *Est.* = -3.32, *SE* = 0.65, t = -5.12, p < 0.005; 2000 to 2500ms: *Est.* = -3.63, *SE* = 0.78, t = -4.64, p < 0.005; 2500 to 3000ms: *Est.* = -3.25, *SE* = 0.59, t = -5.49, p < 0.005), but this effect was non-significant or reduced among the male children (1500 to 2000ms: *Est.* = -0.45, *SE* = 0.37, t = -1.22, p = 0.24; 2000 to 2500ms: *Est.* = -0.71 *SE* = 0.33, t = -2.17, p = 0.03; 2500 to 3000ms: *Est.* = -0.72, *SE* = 0.41, t = -1.75, p = 0.1). In addition, time window 7 (2000 to 2500ms after verb-onset) showed an overall effect of Participant Gender, similar to that seen in time windows 2 to 4, where female participants

preferentially fixated the feminine objects and male participants preferentially fixated the masculine objects.

In time windows 9 and 10 (3000 to 4000ms after verb-onset) there was a Character Gender x Participant Age interaction, showing that the Character Gender effect (i.e. a feminine object bias for female characters and a masculine object bias for male characters) was significant among adults (3000 to 3500ms: *Est.* -1.69, *SE* = 0.23, *t* = -7.40, *p* < .001; 3500 to 4000ms: *Est.* -1.29, *SE* = 0.22, *t* = -5.84, *p* < .001), but not children (3000 to 3500ms: *Est.* -0.07, *SE* = 0.24, *t* = -0.30, *p* = .76; 3500 to 4000ms: *Est.* -0.37, *SE* = 0.24, *t* = -1.54, *p* = .13). Taken together, these effects show that in these later time windows adults' looking preferences continued to be driven by the character's gender, but children no longer showed a bias according to the character's gender, with the female children showing a descriptive bias towards their own gender preferences (see Figure 3).

Discussion

In this paper we sought to examine whether gender-stereotypic cognitions about children's toys are evident in explicit and/or implicit measures, and specifically how they compare between parents and their children. The present study is the first to use the visual world paradigm to examine gender-related cognitions online, building on the limited literature exploring parents' and children's implicit and explicit gender stereotypes. Our results revealed a dissociation between explicit and implicit measures, where parents showed greater gender-toy flexibility than children on the explicit rating measure, but comparably stronger implicit gender stereotypes on the implicit eye-tracking measure. That is, when explicitly questioned parents were more likely to assign toys to the "both boys and girls" category than children, who adhered to gender-stereotyped norms (i.e. they assigned masculine toys to boys and feminine toys to girls). In contrast, when eye-tracking measured implicit gender biases, both parents and their children showed gender-stereotyped cognitions (i.e. a preference to fixate the feminine objects in the female-

character condition, and a preference to fixate the masculine objects in the male-character condition). Crucially, this bias emerged in real-time; it was evident immediately following the verb (e.g. *play*). This shows that participants made rapid inferences about the intended object, and biased their domain of reference according to stereotypes based on the character's gender.

In addition to these strong biases relating to the character's gender, which influenced object preference throughout the audiovisual scenes, other factors modulated biases across the time windows. Notably, parents showed stronger effects of character gender compared to children at several points throughout the scenes, indicating that implicit gender stereotypes may be more robust in this group. The effect of character gender was also sustained for longer among parents than children, as parents continued to demonstrate visual biases towards gender-typed objects several seconds after audio input ceased, whereas this bias declined more rapidly in children. The finding of stronger and more sustained gender-stereotyped biases among adults than children is important, and novel. Importantly, our background measure of inhibitory control (i.e. Stroop task) shows that parents and their children had comparable inhibitory control skills, meaning that they both possessed the general ability to inhibit salient information. In the current task, participants would need to inhibit stereotype biases from own-gender and the character's gender to show truly neutral gender cognitions (which would have been reflected in no visual preference to either target referent). Thus, we can be confident in attributing the gender-biased effects in the eye-tracking data to genuine implicit stereotypes, which do not reduce in adulthood (contrary to adult's self-report).

Fazio, Jackson, Dunton, and Williams (1995) and McConnell and Leibold (2001) explain that although explicit attitudes are more closely associated with deliberative behaviours, implicit attitudes are associated with more subtle non-verbal, spontaneous behaviours. The present findings could therefore suggest that although parents explicitly

promote mixed toy play, their strong implicit gender stereotypes could be leaking into non-verbal behaviour directed towards their children's toy and activity choices. This could go some way to explain why in studies such as Freeman's (2007), children predict that their parents will possess strong gender stereotypes in relation to toys, despite parents' expressing that they do not endorse gender-typed play, as children may be inferring this information from parents' non-verbal behaviours, linked to their implicit gender stereotypes.

In fact, implicit stereotypes have been shown to be better predictors of behaviour than explicit stereotypes captured via self-report measures (Greenwald et al., 2009; Kunda & Spencer, 2003; White & White, 2006;), as these can be affected by social desirability and poor validity due to participants not always being aware of the their own stereotypes. Among children, Cvencek et al. (2011) found that implicit attitudes towards males and females explained more variance in their play preferences than their explicit attitudes did, i.e. the more children implicitly preferred one gender over the other (e.g. female), the greater preference they showed for activities associated with that gender (e.g. feminine-typed toys).

Implicit gender stereotypes observed in relation to toys in the present study may translate to other gender-related objects, activities, and behaviours, which could limit girls' and boys' motivation to engage with gender-typed pastimes, school subjects, and careers. It has been shown that strong implicit gender stereotypes in relation to maths predict girls' poor performance, leading them to increasingly avoid engagement with the subject (Steffens et al., 2010), and they are also associated with larger gaps in actual maths performance amongst boys and girls (Nosek et al., 2009). Therefore, the detrimental effect of implicit gender stereotypes on children's performance warrants further investigation; understanding the developmental trajectory of these implicit biases is crucial in order to

challenge their formation during early childhood. Future research should examine a wider age range of children to observe how implicit biases develop with age, as well as examining non-parent adults, as explicit measures have shown that they assign gender stereotypes to toys to a greater extent than parents (Campenni, 1999). Therefore, their implicit stereotypes may be even stronger than those seen amongst parents in this study.

The current eye-tracking study also revealed differences in looking preferences according to the participant's own gender. First, the effect of character gender was significantly weaker (or absent) among the male children compared to any of the other groups. In contrast, previous literature has shown that boys have stronger explicit preferences and stereotypes for gender-typed toys than girls do, due to stricter norms around what they can play with (Carter & Levy, 1988; Fagot & Hagan, 1991;). Additionally, both parents and children showed persistent gaze biases to own-gender-typed objects; females showed a preference to fixate feminine-stereotyped objects and males showed a preference to fixate masculine-stereotyped objects. Interestingly, the size of this own-gender bias did not differ between male and female participants. This finding contrasts with previous research in children (e.g. Dunham et al., 2016) and parents (Endendijk et al., 2013) that has demonstrated stronger implicit gender stereotype effects in females than males. Taken together, the findings from the current study that male children compared to female children showed reduced implicit gender-stereotype biases for others, but comparable implicit own-gender biases, may highlight that children's *stereotypes* and *preferences* are independent constructs.

Special attention should also be paid to *male* child and adult implicit stereotypes, as the present study unveiled significantly stronger biases among male adults than male children. This difference was not evident among female participants. Therefore, it may be that boys' implicit gender stereotypes strengthen with age, or perhaps during parenthood, but further investigation is required to explore this trend. It has been documented in early

research that fathers impose more rigid sex role expectations on their sons than on their

daughters, and that boys' fathers are less flexible than boys' mothers in their definitions of

gender appropriate behaviours (Burge, 1981; but see Endendijk, Groeneveld, Bakermans-

Kranenburg, & Mesman, 2016). Future research should therefore explore how implicit

gender stereotypes are influenced by the relationship between mothers/fathers and

sons/daughters.

Future studies should also attempt to re-train implicit associations in children.

Research that has attempted this with adults has shown that re-training implicit

associations in relation to maths and gender can have a buffering effect during stereotype

threat conditions. Women who were re-trained to associate 'liking' with mathematics

demonstrated more effort and higher working memory during a maths task, especially

when gender stereotypes were salient (Forbes & Schmader, 2010). Such 're-training'

studies are yet to be conducted with children and adolescents, but it is logical that they may

be even more successful with young children as gender stereotypes would be less

culturally ingrained (Baron et al., 2014). Perhaps this is why parents displayed stronger and

more sustained implicit gender stereotypes than children in the present study, as

stereotypes have developed over their lifespan and are more entrenched due to extensive

reinforcement over time (see Baron et al., 2014; Bigler & Liben, 2006; Greenwald &

Banaji, 1995).

In conclusion, the present study makes a significant contribution to our

understanding of gender stereotype cognitions in parents and their children. Most

importantly, we identified a discrepancy between parents' implicit and explicit gender

stereotypes, which was not present in their children. Parents showed greater explicit

gender-toy flexibility than children, but strong implicit gender stereotypes on the implicit

eye-tracking measure. In fact, these implicit gender-stereotyped preferences were stronger

and more sustained among the parents than children. This suggests either that implicit measures are able to capture people's true gender biases, which would be masked on explicit measures due to social desirability effects, or that these constructs begin to diverge with age. Further research is needed to unravel the complex relationship between implicit and explicit gender stereotypes and their influences on attitudes, behaviour, and preferences, particularly from a developmental perspective.

It is also important that the role of other socialising agents such as peers and the media be examined in connection with children's gender development, as parents are not the only providers of gender-related information in children's environments. Therefore, following the focus on the role of parents in Studies 1 and 2, Studies 3, 4, and 5 will consider other potentially important sources of gender socialisation; children's magazines and peer models.

Chapter 8 Study 3: The Prevalence of Gender Stereotypes in Pre-school Children's Magazine Front-covers

In the present study, the front covers of children's magazines were analysed to examine the prevalence of gender stereotypic messages. Based on cultivation theory, it is theorised that male and female children are transformed into masculine and feminine adults through gender socialization processes via exposure to media content (Gerbner, 1998). A content analysis was performed on 106 magazine front covers across nine different magazines. Three magazines were targeted at girls (Disney's Princess, Disney's Frozen, and Sparkle World); three magazines were targeted at boys (Fireman Sam, Bob the Builder, and Thomas & Friends); and three magazines were gender-neutral, i.e. targeted at both boys and girls (Peppa Pig - Bag O' Fun, CBeebies, and Fun to Learn - Peppa Pig). Gender stereotypic information was coded in relation to colour schemes, number of male and female characters and character behaviour, and themes advertised. Results revealed that magazines aimed solely at boys or girls were presented in gender-stereotypic colours, girls' magazines contained more female than male characters whilst boys' magazines contained more male than female characters, female characters were more likely to demonstrate passive than active behaviour, and girls' magazine front covers contained no speaking characters. Additionally, the theme of appearance was far more prevalent than the theme of risk on the front of girls' magazines. Therefore, young children's magazine covers are edited differently in terms of both their style and content depending on whether they are aimed at girls, boys, or both boys and girls, reinforcing gender stereotypes.

Introduction

As seen in *Chapter 4*, children are regularly bombarded by gender-normative messages in their environment, and this information is incorporated into their developing gender schemas (Martin & Halverson, 1981). These messages can be communicated via numerous socialising agents, and Studies 1 and 2 focused on the role of parents in reinforcing gender norms. From Study 1 we know that children believe their parents will prefer them to play with gender-typed over cross-gender-typed toys, despite parents appearing to show no preference when questioned themselves, and we know from Study 2 that despite parents' egalitarian explicit preferences, they in fact possess even stronger implicit gender biases in relation to children's toys than children do. Although of crucial importance to examine the role of parents in young children's developing ideas of gender, other environmental factors must also be explored. Martin and Ruble (2004) note that "From a vast array of gendered cues in their social worlds, children quickly form an impressive constellation of gendered cognitions" (p. 67) which includes gender stereotypes and preferences. One such vessel which has been shown to portray gender cues is the media (e.g. Diekman & Murnen, 2004; Evans & Davies, 2000). The present study and Study 4 will explore the ways in which gender-stereotypic messages are communicated via pre-school children's magazines; a format which, to date, has received little attention from researchers.

Gender-normative attitudes and behaviours, and their accompanying stereotypes, dominate children's media and popular culture (Blakemore & Centers, 2005; Leaper et al., 2002; Murnen et al., 2016; Thompson & Zerbinos, 1995). Portrayals of boys tend to emphasize masculine gender roles and stereotypically masculine play and toys; whereas portrayals of girls tend to emphasize feminine gender roles and stereotypically feminine play and toys (Cherney & London, 2006; Kahlenberg & Hein, 2010). These gendered messages are communicated through various forms of children's media, including TV

programming and advertisements (Bakir, 2013; Bakir & Palan, 2013; Merskin, 2002),

books (Foster, 2016; Skinner, 2013), and video games (Miller & Summers, 2007; Sheldon,

2004). Despite the wealth of research exploring the presence of gender-typed messages in

these media formats, very little research has examined young children's magazines. This is

an important area of investigation because exposure to gender-stereotyped models in

children's media has implications for children's social and gender-specific development

(Coyne, Linder, Rasmussen, Nelson, & Collier, 2014; Signorielli, 2001).

The present study aims to address a gap in the literature by examining the

prevalence of gender-stereotypic messages in pre-school and young children's magazines.

To our knowledge, the only study to date which has examined this was with a Japanese

magazine sample, with a focus on pre-school aged girls' magazines (Hata, 2014); therefore

the present study aims to extend these findings using a British magazine sample and further

explore the content of not only young girls' magazines, but also that contained in gender-

neutral and boys' magazines. Children's magazines are a popular form of media, with

approximately 1.8 million children's magazines being sold in the UK in 2015 (Statista,

2016). These magazines may present gender stereotypes through the images, activities,

emotions, colours, advertisements, and narratives featured throughout the pages. However,

it is logical that children and parents are attracted to the magazines based on the

presentation and content contained on their front covers; therefore the focus of this content

analysis will be on the information presented solely on the front covers of girls', boys', and

gender neutral magazines.

Media represent a powerful socializing agent of gender-role norms because they

communicate our cultural definitions of gender normativity in a myriad of formats and

settings. According to cultivation theory the repetition of themes and stereotypes over time

in the media, and television programming specifically, leads viewers to cultivate beliefs

about the real world that match with the media content (Gerbner, 1998). This theory

emphasises the idea that male and female children are transformed into masculine and feminine adults through a variety of gender socialization forces and processes. The potentially sexist cultural context present in children's media, as it is in adults' magazines (Plakoyiannaki & Zotos, 2009), provides an important site for investigation of the impact of gender-stereotypic portrayals in young children's magazines.

The Present Study

The present study aims to address the following primary research question: Are messages depicted on young children's magazine covers gender stereotypic in nature? More specifically, the study aims to examine 1) Whether magazines aimed at boys and girls are presented in gender-stereotypic colours; 2) Whether magazines aimed at girls contain more female than male characters on the front cover, and whether magazines aimed at boys contain more male than female characters on the front cover; 3) If there is a difference in the amount that male and female characters speak, and whether this also varies by the target audience; 4) Whether male and female characters display different behaviours, specifically in terms of how active/passive they are; 5) Whether the themes and activities promoted on the front of the magazines are gender-typed according to the target audience, and 6) If gender-neutral magazines, i.e. those aimed at both boys and girls, are less gender-stereotypic in nature than the magazines aimed specifically at boys or girls. An extensive literature search was performed to examine the extent of gender stereotypic content contained within other forms of children's media, such as books and television shows. The following hypotheses and coding categories used within the present study are based on previous literature.

Hypotheses. Given findings from previous studies that show girls and boys prefer same-gender models (e.g. Bandura & Bussey, 1984), it was hypothesised that firstly, on the front covers of the boys' magazines there would be significantly more male than female characters present, and on the front covers of the girls' magazines there would be

significantly more female than male characters present. On the front of the neutral magazines it was expected that there would similar numbers of male and female characters.

Secondly, following previous research findings in other media formats that female characters possess more passive roles than male characters (e.g. Schwartz & Markam, 1985), it was hypothesised that across all magazine types, there would be significantly more female passive than female active characters, but significantly more male active than male passive characters. There was also expected to be significantly more female than male characters 'posing' across all magazine types.

Thirdly, in line with arguments that colour is used as a clear indicator of gender (Orenstein, 2011), it was expected that both boys' and girls' magazines would be presented in gender-stereotypic rather than gender-counterstereotypic or gender neutral colour schemes. The neutral magazines were expected to be presented in gender neutral colours.

Fourth, it was hypothesised that there would be a higher number of characters speaking on the front of boys' and neutral magazines compared to girls' magazines, and it was expected that amongst those speaking characters, a significantly higher proportion of them would be male than female, and that male characters would say significantly more words than female characters. This follows previous literature highlighting women's background roles and men's dominance in the media (e.g. Signorelli, 2001).

In relation to the themes of 'appearance' and 'risk' (based on Gerding & Signorelli, 2014), it was predicted that girls' magazines would contain significantly more words related to appearance than to risk, and that appearance-related words would be significantly higher in girls' magazines than boys' or neutral magazines. Additionally, it was expected that boy's magazines would contain significantly more words related to risk than appearance, and that risk-related words would be significantly higher in boys' magazines than girls' or neutral magazines. This is line with previous analyses of

children's television shows which have found that appearance is discussed significantly more in relation to girls than boys, whereas boys are portrayed as more adventurous and heroic than girls (Bereaud, 1975; Lauzen & Dozier, 2002; Plakoyiannaki & Zotos, 2009).

Finally, adding a unique element to the present study, which to our knowledge has not been analysed before, the number of creative and word-based activities promoted on the magazine front covers were coded. In line with common gender norms that girls are more creative than boys (Blakemore et al., 2008), it was hypothesised that significantly more creative than word-based activities would be promoted on the girls' magazine front covers, whilst significantly more word-based than creative activities would be promoted on the front of the boys' magazines. There were expected to be no significant difference in the types of activities promoted on the front of the neutral magazines.

Method

Magazine Selection

Nine magazines were chosen based on the top-selling magazines for pre-school and young children from January 2015 – July 2015 (Audit Bureau of Circulations, 2015). Circulation numbers during this period determined which the top-selling magazines were. The magazines were split into three categories based on intended audience information from the publishers; three magazines were targeted at girls (Disney's Princess, Disney's Frozen, and Sparkle World); three magazines were targeted at boys (Fireman Sam, Bob the Builder, and Thomas & Friends); and three magazines were gender-neutral, i.e. targeted at both boys and girls (Peppa Pig - Bag O' Fun, CBeebies, and Fun to Learn - Peppa Pig). The target age group of each magazine differed slightly, but all were aimed at children younger than 9 years of age (see Table 8.1 for summary). Twelve front covers were analysed for each magazine, however, due to difficulties accessing the front covers for one of the magazines (Peppa Pig – Bag O' Fun), only ten issues of this magazine were coded. Therefore 106 magazine front covers were analysed in total; they were all published

between January 2015 and December 2015. The front covers were accessed online via www.newsstand.co.uk. Sampling ceased when 12 issues had been coded, however, as some magazines were published fortnightly and some monthly, sampling took place between January – June 2015 for the fortnightly issues, but continued until December 2015 for the monthly issues (see Table 8.1 for details).

Table 8.1

Summary of magazines analysed

Magazine	Intended audience – Gender	Intended audience – Age group (years)	No. of magazines sold Jan 2015 – Jul 2015	Publication frequency	No. of issues coded
Disney's Princess	Girls	4 - 8	46,495	Fortnightly	12
Disney's Frozen	Girls	3 - 7	91,011	Monthly	12
Sparkle World	Girls	4 - 9	40,781	Fortnightly	12
Fireman Sam	Boys	2 - 6	28,037	Monthly	12
Bob the Builder	Boys	2 - 4	26,802	Monthly	12
Thomas & Friends	Boys	2 - 7	41,996	Fortnightly	12
Peppa Pig – Bag O' Fun	Girls & boys	3 - 7	66,051	Monthly	10

| CBeebies | Girls & boys | 3 - 6 | 49,354 | Fortnightly | 12 |
| Fun to Learn – Peppa Pig | Girls & boys | 3 - 7 | 80,317 | Fortnightly | 12 |

Coding Criteria

A coding scheme was developed to record relevant information about each front cover. The intended audience (i.e. girls', boys', or neutral) was recorded for each magazine, as well as the issue number, month, and year of publication. Front covers were then coded on the following criteria; there were 2 nominal variables and 15 ordinal variables (see Appendix C for materials used to record data).

Characters. The total number of male and female characters were counted for each magazine front cover. Each character was only counted once and characters which did not appear to be one gender or the other were counted as 'ambiguous'. Therefore, three ordinal variables were created (male characters, female characters, ambiguous characters) and scores ranged from 0 to 20, as 20 was the maximum number of characters present on any one of the magazine front covers.

Character behaviour. The total number of female and male characters displaying 'active' and 'passive' behaviour were counted for each magazine front cover. Any characters which coders had previously identified as 'ambiguous' in regards to their gender were excluded from this analysis; only those coded as 'male' or 'female' were included. 'Active' behaviour was defined as obvious physical movement, whilst 'passive' behaviour was defined as standing/sitting still or inactivity. In any instances where it was unclear whether a character's behaviour was 'active' or 'passive', coders counted this as 'ambiguous'. Therefore six ordinal variables were created (female active, male active,

female passive, male passive, female ambiguous, male ambiguous), with scores ranging from 0 – 20.

Colour schemes. The predominant colour schemes of the magazine front covers were examined to identify whether they were presented in a stereotypical way in line with the target audience of the magazine. The colour schemes were defined as gender-stereotypic if they were pink/purple in colour in the 'girls'' magazines, and blue/red/black in colour on the 'boys'' magazines, and assigned a score of '1'. The colour schemes were defined as gender-counterstereotypic in colour if they were presented in pink/purple in the 'boys'' magazines and blue/red/black in the 'girls'' magazines, and assigned a score of '2'. The colour schemes were defined as gender neutral if they were presented in a variety of colours, and assigned a score of '3'. All assigned scores were arbitrary as this was treated as a nominal variable.

Speaking characters. It was coded 'yes' (1) or 'no' (0) whether each front cover contained characters which were speaking. This was a dichotomous variable. If coded 'yes', the front covers were then coded for the number of male and female speaking characters (from 0 – 20) and the number of words that male and female characters spoke (0 – 11; 11 was the maximum number of words spoken on any one of the front covers). Therefore, four ordinal variables were created; male speaking characters, female speaking characters, total number of words spoken by male characters, total number of words spoken by female characters.

Themes. The number of words related to the themes of 'appearance' and 'risk' were counted for each magazine front cover. Examples of 'appearance' related words included words such as 'beauty', 'jewellery', and 'hairstyles'. Examples or 'risk' related words included words such as 'danger', 'save', and 'rescue'. Two ordinal variables were created; appearance-related words, and risk-related words. Scores ranged from 0 – 5 as 5

was the maximum number of words which related to either of themes on the front of a single magazine issue.

Activities. The number of creative and word-based activities promoted on the front of each magazine cover was counted. Creative activities were associated with art, and included things such as colouring, sticking, and craft activities. Word-based activities included things such as stories, reading, and word searches. Two ordinal variables were created; creative activities and word-based activities, with scores ranging from $0 - 7$, as 7 was the maximum number of creative or word-based activities promoted on the front of a single magazine issue.

Coder Training

There were three female coders: the first author and two undergraduate psychology students who were recruited via a research experience scheme. Both were proficient in quantitative analysis. The first author created an initial coding framework and then met with the coders on several occasions to discuss the coding categories, provide operationalised definitions of the variables, and practice coding on example issues before each coder then independently coded three front covers which were not included in the final sample. After this practice coding, all coders met to discuss and compare results and any procedural queries. The coding framework underwent minor adjustments to clarify coding criteria before the main analysis began (see Appendix C).

Reliability Analysis

Krippendorf's alpha (Krippendorf, 1980) was used to assess inter-coder reliability. All coders independently coded 20% of the sample (21 issues). It is strongly recommended that variables must reach an alpha of .65 in order to be considered reliable; all variables in the present study achieved an alpha of at least .71, therefore all variables were included in the main analysis. See Table 8.2 for summary.

Table 8.2

Reliability: Krippendorf's Alpha for Variables Included in the Analysis

Variable	Alpha	Definition	Categories/Scale
Female Characters (O)	.97	How many female characters are present	0 – 20*
Male Characters (O)	.96	How many male characters are present	0 – 20*
Ambiguous Characters (O)	.91	How many gender-ambiguous characters are present	0 – 20*
Female Active (O)	.85	How many of the female characters are displaying 'active' behaviour	0 – 20*
Male Active (O)	.92	How many of the male characters are displaying 'active' behaviour	0 – 20*
Female Passive (O)	.95	How many of the female characters are displaying 'passive' behaviour	0 – 20*
Male Passive (O)	.87	How many of the male characters are displaying 'passive' behaviour	0 – 20*
Colour Scheme (N)	.91	Colour scheme of the front cover	Gender-stereotypic, gender-counterstereotypic, gender-neutral
Characters Speaking (N)	.95	Are any of the characters speaking	Yes, No
Male Speaking Characters (O)	.91	How many male characters are speaking	0 – 20*

Variable	Alpha	Definition	Categories/Scale
Female Speaking Characters (O)	.91	How many female characters are speaking	0 – 20*
Male Words (O)	.89	How many words do the male characters say	0 – 11**
Female Words (O)	.90	How many words do the female characters say	0 – 11**
Appearance theme (O)	.75	How many words relate to the theme of appearance	0 – 5***
Risk theme (O)	.75	How many words relate to the theme of risk	0 – 5***
Creative Activities (O)	.75	How many creative activities are mentioned	0 – 7****
Word-based Activities (O)	.71	How many word-based activities are mentioned	0 – 7***

* A maximum of 20 characters appeared on the front covers which were included in analyses.
** A maximum of 11 words were spoken by characters
*** A maximum of 5 words related to appearance/risk themes
**** A maximum of 7 creative/word-based activities were mentioned

Results

Overview of analyses

Mixed Analysis of Variance (ANOVA) tests were performed on ordinal variables, with target audience (girls' vs. boys' vs. neutral) always included as a between-subjects variable. Two-way Chi-square analyses were performed on nominal variables. See Table 8.3 for a summary of means for all ordinal variables.

Table 8.3

Summary of Means and Standard Deviations for All Study Variables

		Magazine type			
		Girls' magazines	Boys' magazines	Neutral magazines	Total
Female characters	*M*	4.36	0.17	1.68	2.07
	SD	2.44	0.38	1.09	1.30
Male characters	*M*	0.25	2.58	1.68	1.50
	SD	0.44	1.16	1.04	0.88
Female active characters	*M*	0.81	0.03	0.94	0.59
	SD	1.06	0.17	0.74	0.66
Male active characters	*M*	0.19	0.72	1.03	0.65
	SD	0.40	0.97	0.76	0.71
Female passive characters	*M*	3.53	0.14	0.68	1.45
	SD	2.82	0.35	0.91	1.36
Male passive characters	*M*	0.06	0.69	0.65	0.47
	SD	0.23	0.95	1.01	0.73
Female posing characters	*M*	2.17	0.08	0.12	0.79
	SD	1.60	0.28	0.41	0.76
Male posing characters	*M*	0.00	0.39	0.26	0.22
	SD	0.00	0.65	0.51	0.39

		Girls' magazines	Boys' magazines	Neutral magazines	Total
Female speaking characters	M	0.00	0.03	0.12	0.05
	SD	0.00	0.17	0.33	0.17
Male speaking characters	M	0.00	0.67	0.32	0.33
	SD	0.00	0.68	0.64	0.44
Appearance-related words	M	1.86	0.03	0.00	0.63
	SD	1.71	0.17	0.00	0.63
Risk-related words	M	0.00	0.22	0.03	0.08
	SD	0.00	0.42	0.17	0.20
Creative activities	M	2.69	2.53	2.73	2.65
	SD	1.85	1.87	1.44	1.72
Word-based activities	M	1.11	0.81	0.47	0.80
	SD	1.12	0.62	0.56	0.77

Main analysis

Gender of the characters. To examine the number of male and female characters

on the magazine front covers, a 2 (Character gender: male vs. female) x 3 (Target

audience: girls vs. boys vs. neutral) mixed ANOVA was performed with target audience as

a between subjects factor. Although characters whose gender was not clear were coded as

'ambiguous', they were excluded from the following analyses as we were interested in the

number of male versus female characters only. Mauchly's test of sphericity was non-

significant; it can therefore be assumed that the assumption of sphericity had not been

violated. Analyses revealed a main effect of character, $F(1, 103) = 9.77$, $p = .002$, $\eta_p^2 = .09$,

whereby there were significantly more female characters than male characters present across all of the magazine front covers.

There was also a significant interaction between the character's gender and target audience, $F(2, 103) = 113.26$, $p < .001$, $\eta_p^2 = .69$, whereby the number of male and female characters presented on the magazine front covers differed by the target audience of the magazine. Pairwise comparisons (with bonferroni correction) revealed that, as hypothesised, there were significantly more female characters in the girls' magazines than the boys' ($p < .001$, $d = 2.97$) and neutral magazines ($p < .001$, $d = 1.51$), and likewise there were significantly more male characters in the boys' magazines than the girls' ($p < .001$, $d = 2.91$) and neutral magazines ($p < .001$, $d = 0.82$). There were also significantly more female characters than male characters on the front of girls' magazines ($p < .001$, $d = 2.85$), and more male characters than female characters on the front of boys' magazines ($p < .001$, $d = 3.13$). Interestingly, there were equal numbers of male and female characters on the front of the neutral magazines. See Table 8.3 and Figure 8.1 for means and standard deviations.

Behaviour of the characters. Each character was coded as either displaying 'active' or 'passive' behaviour. For characters in which it was difficult to determine their behaviour, they were coded as 'ambiguous'. For the purpose of these analyses, only those coded as displaying 'active' or 'passive' behaviour were included. To examine whether male or female characters were more active or passive across the different types of magazine, a 4 (Behaviour: male active vs. male passive vs. female active vs. female passive) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed with target audience as a
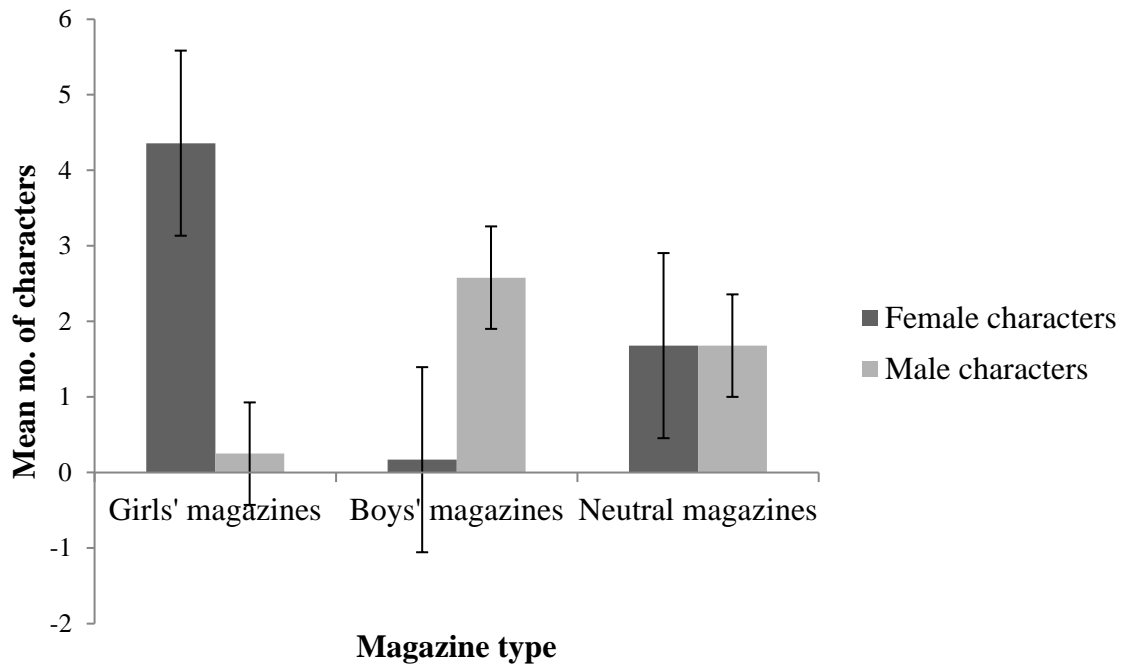
Fig.8.1. Mean Number of Male and Female Characters as a Function of Magazine Type. Error Bars Represent Standard Error.

between subjects factor. Mauchly's test of sphericity was non-significant; it can therefore be assumed that the assumption of sphericity had not been violated. Analyses revealed a main effect of behaviour $F(3, 309) = 16.04$, $p < .001$, $\eta_p^2 = .14$, such that the number of female passive characters was significantly higher than any other combination across all types of magazines. As hypothesised, pairwise comparisons revealed that there were significantly more female passive characters than female active characters ($p = .001$, $d = 0.56$), and also more female passive than male passive characters ($p < .001$, $d = 0.64$), and than male active characters ($p < .001$, $d = 0.53$). All other comparisons were non-significant ($p > .05$), therefore the hypothesis that there would be more male active than male passive characters overall was not supported.

However, there was a significant interaction between the behaviour of the characters and the target audience of the magazines, $F(6, 309) = 29.89$, $p < .001$, $\eta_p^2 = .37$. Pairwise comparisons (with Bonferroni correction) revealed that in the girls' magazines there were significantly more female passive characters present than any other

combination; there were significantly more female passive characters than male active

characters ($p < .001$, $d = 2.07$), than male passive characters ($p < .001$, $d = 2.27$), and than

female active characters ($p < .001$ $d = 1.40$).

Pairwise comparisons also indicated that there were significantly more male active

characters in the boys' magazines than in the girls' magazines ($p = .011$, $d = 0.77$), and

significantly more male active characters in the neutral magazines than the girls'

magazines ($p < .001$, $d = 1.45$). There were significantly more male passive characters in

the boys' than the girls' magazines ($p = .003$, $d = 1.07$), and significantly more male

passive characters in the neutral magazines than the girls' magazines ($p = .008$, $d = 0.95$).

There were also significantly more female active characters in girls' magazines than boys'

magazines ($p < .001$, $d = 1.26$), and in the neutral magazines compared to the boys'

magazines ($p < .001$, $d = 1.98$). Finally, pairwise comparisons revealed significantly more

female passive characters in the girls' magazines than in both the boys' magazines (p

$< .001$, $d = 2.13$), and the neutral magazines ($p < .001$, $d = 1.52$). All other comparisons

were non-significant ($p > .05$). See Table 8.3 and Figure 8.2 for means and standard

deviations.

Posing. To examine how many of the male and female passive characters were

'posing' and whether this differed by magazine type, a 2 (Character gender: male vs.

female) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed,

with target audience as a between subjects factor. Analyses revealed a main effect of

character gender ($F (1, 103) = 33.95$, $p < .001$, $\eta_p^2 = 0.25$) whereby, as hypothesised, there

were significantly more female than male characters that were posing across all magazine

types.
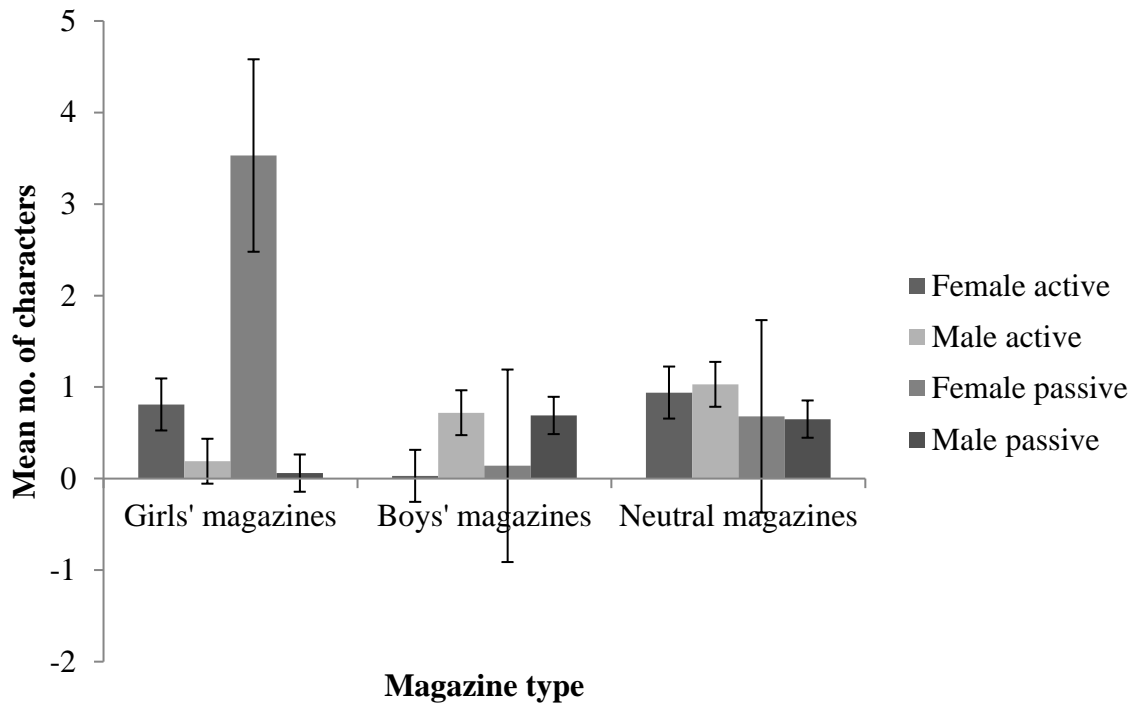
Fig. 8.2. Mean Male and Female Character behaviour as a Function of Magazine Type. Error Bars Represent Standard Error.

There was also a significant character gender x target audience interaction (F (2, 103) = 67.18, $p < .001$, $\eta_p^2 = 0.57$). Pairwise comparisons (with Bonferroni correction) revealed that there were significantly more male posing characters in the boys' than the girls' magazines ($p = .002$, $d = 0.60$), and significantly more female posing characters in the girls' than both the boys' ($p < .001$, $d = 2.22$) and the neutral magazines ($p < .001$, $d = 2.03$). All other comparisons were non-significant ($p > .05$). See Table 8.3 for means and standard deviations.

Colour scheme. Each magazine was coded as either 'Gender-stereotypic', 'Gender-counterstereotypic' or 'Gender neutral' in colour. A two-way chi-square test was performed to examine the association among colour scheme and magazine type. See Table 8.4 for frequencies. As > 20% of cells had an expected count of less than 5, Fisher's Exact Test is reported (Yates, Moore, & McCabe, 1999). In support of hypotheses, both girls' and boys' magazines were significantly more likely to be presented in gender-stereotypic

(100%; 78%) than gender-counterstereotypic (0%; 3%) or gender neutral colours (0%;

19%, respectively), and neutral magazines were more likely to be presented in gender

neutral (97%) than gender-stereotypic (3%) or gender-counterstereotypic colours (0%), χ^2

= 91.01, p < .001, Cramer's V = .61.

Post hoc tests using adjusted z scores and a bonferroni correction for multiple

comparisons (p must be < .005 to indicate significance when contingency table is 3 x 3; see

Beasley & Schumaker, 1995) revealed that the neutral magazines were presented in

significantly less gender-stereotypic colours than expected (z = -8.48, p < .001), but

significantly more gender-neutral colours than expected (z = 8.66, p < .001); this is in line

with hypotheses. Conversely, the boys' magazines were presented in marginally less

gender-neutral colours than expected (z = -2.79, p = .005), whilst the girls' magazines were

presented in significantly more gender-stereotypic colours than expected (z = 5.86, p

< .001), and significantly less gender-neutral colours than expected (z = -5.75, p < .001).

Table 8.4

Frequencies of Colour Schemes for Each Magazine Type

	Girls' magazines	Boys' magazines	Neutral magazines	Total
Gender-stereotypic colours	36	28	1	65
Gender counter-stereotypic colours	0	1	0	1
Gender-neutral colours	0	7	33	40
Total	36	36	34	

Speaking. Overall, only 28.3% of characters were speaking across all of the front covers. A two-way chi-square test was performed to examine the association among the frequency of speaking and magazine type. Analyses revealed that 0% of characters were speaking on the front of the girls' magazines, 56% were speaking on the front of boys' magazines, and 29% of characters were speaking on the front of the neutral magazines, χ^2 (2) = 27.41, $p < .001$, Cramer's $V = .51$, supporting the hypothesis that there would be a significantly higher number of characters speaking on the front of boys' and neutral magazines compared to girls' magazines.

To examine how many of the speaking characters were male and female, a 2 (Character gender: male vs. female) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed, with target audience as a between-subjects factor. Analyses revealed a significant main effect of character gender, F (1, 103) = 28.97, $p < .001$, η_p^2 = .22, whereby, as expected, the speaking characters were significantly more likely to be male than female, across all magazine types.

There was also a significant interaction between character gender and target audience, F (2, 103) = 13.18, $p < .001$, $\eta_p^2 = .20$. Pairwise comparisons (with Bonferroni correction) revealed that on the front cover of the boys' magazines, there were significantly more male than female speaking characters ($p < .001$, $d = 1.49$), and the same pattern was observed on the neutral magazine front covers ($p < .001$, $d = 0.41$). There were no significant differences in the number of male and female speaking characters in the girls' magazines (as there were no speaking characters on the front of girls' magazines), nor were there any significant differences in the number of female speaking characters across different magazine types ($p > .05$). However, pairwise comparisons revealed that there were significantly more male speaking characters in the boys' magazines than in both the girls' magazines ($p < .001$, $d = 0.99$) and the neutral magazines ($p = .025$, $d = 0.53$), and in the neutral magazines than the girls' magazines ($p = .039$, $d = 0.50$).

To examine the number of words male and female characters said and whether this differed according to target audience, a 2 (Character gender: male vs. female) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed, with target audience as a between-subjects variable. Analyses revealed a significant main effect, $F(1, 103) = 31.26$, $p < .001$, $\eta_p^2 = .23$, whereby, supporting hypotheses, male characters spoke significantly more words than female characters across all magazine types.

There was also a significant interaction between character gender and target audience, $F(2, 103) = 13.02$, $p < .001$, $\eta_p^2 = .20$. Pairwise comparisons (with Bonferroni correction) revealed on the front cover of the boys' magazines, male characters said significantly more words than female characters ($p < .001$, $d = 1.62$), and the same pattern was observed in the neutral magazines ($p = 012$, $d = 0.58$). All other comparisons were non-significant ($p > .05$). See Table 8.3 and Figure 8.3 for means and standard deviations.
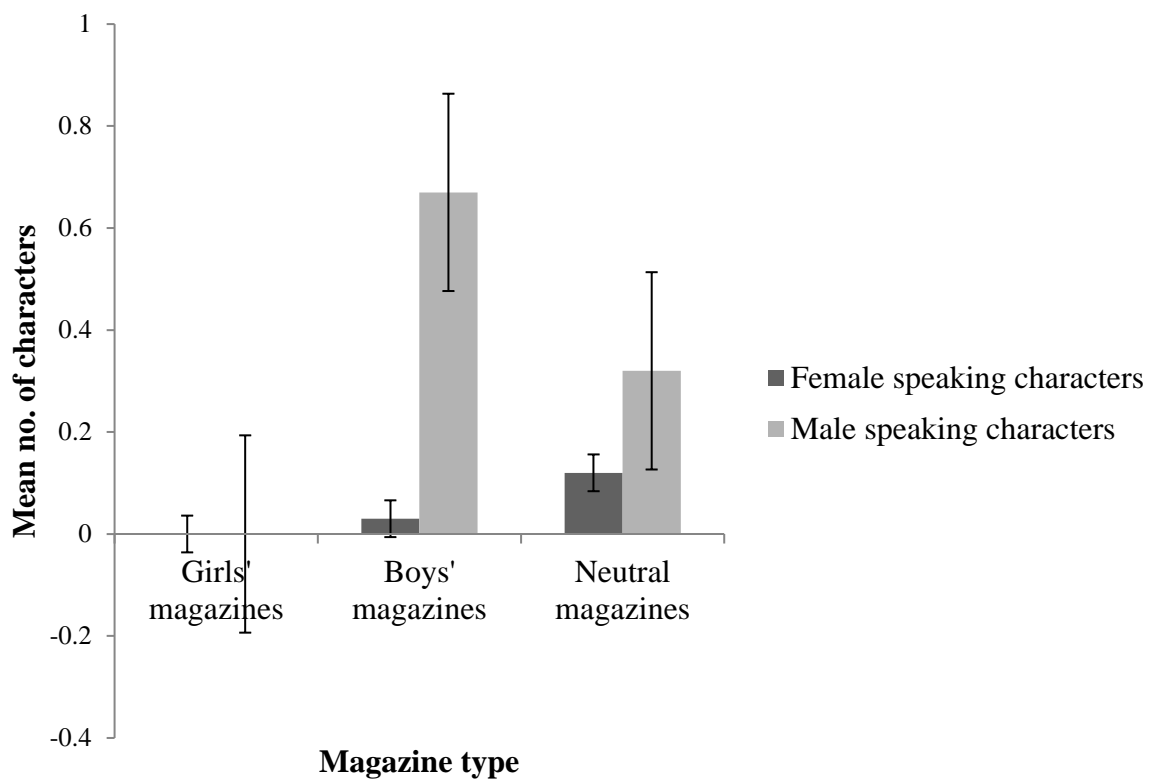
Fig. 8.3. Mean Number of Male and Female Speaking Characters as a Function of Magazine Type. Error Bars Represent Standard Error.

Themes. To examine whether the number of words related to the themes of risk and appearance was affected by target audience, a 2 (Word type: appearance vs. risk) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed, with target audience as a between-subjects factor. Analyses revealed a significant main effect of word type, F (1, 103) = 29.30, $p < .001$, $\eta_p^2 = .22$, whereby there were significantly more words related to appearance ($M = 0.64$) than to risk ($M = 0.08$) across all types of magazine.

There was also a significant interaction between word type and target audience, F (2, 103) = 43.30, $p < .001$, $\eta_p^2 = 0.46$. Pairwise comparisons (with Bonferroni correction) revealed that in the girls' magazines, as hypothesized, significantly more words related to appearance than to risk ($p < .001$, $d = 1.09$). The differences in the frequency of these words in the boys' and neutral magazines were non-significant ($p > .05$), refuting the hypothesis that boys' magazine front covers would contain more risk-related than appearance-related words. However, supporting hypotheses, there were significantly more words related to risk in the boys' magazines than in both the girls' magazines ($p = .002$, $d = 0.52$), and the neutral magazines ($p = .009$, $d = 0.63$), and significantly more words related to appearance in the girls' magazines than in both the boys' (, $p < .001$, $d = 1.95$) and the neutral magazines ($p < .001$, $d = 1.09$). All other comparisons were non-significant ($p > .05$). See Table 8.3 and Figure 8.4 for means and standard deviations.
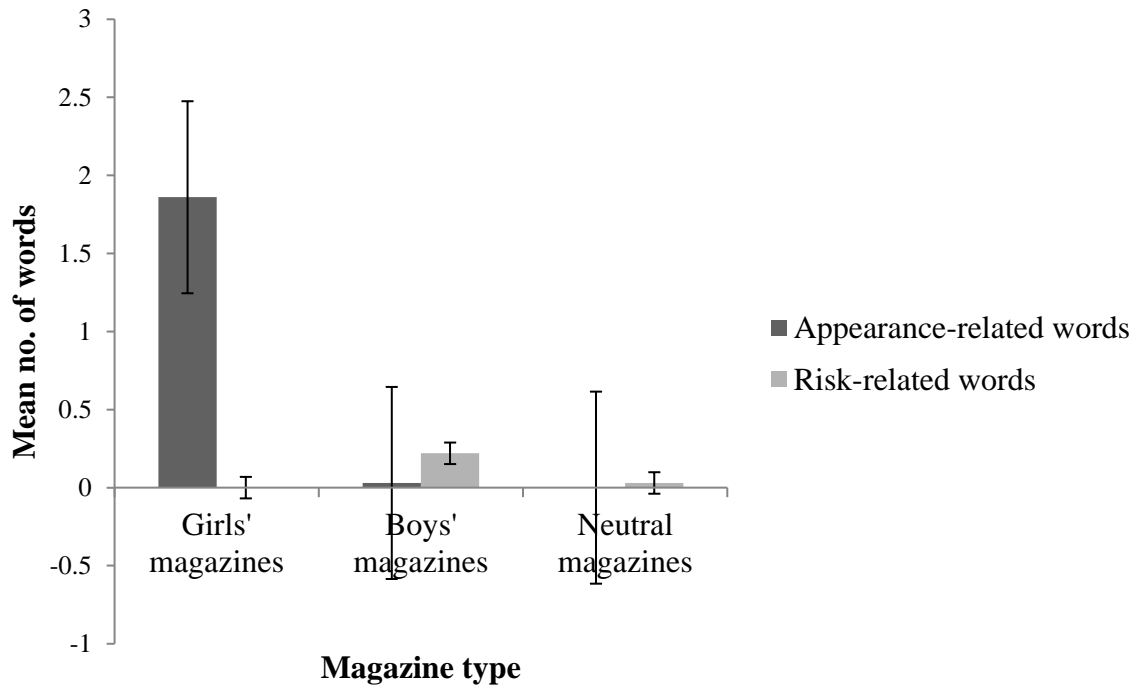
Fig. 8.4. Mean Number of Appearance and Risk Related Words as a Function of Magazine Type. Error Bars Represent Standard Errors.

Creative and word-based activities. To examine the type of activities that were promoted on the front of the magazines and whether this differed by target audience, a 2 (Activity type: creative vs. word-based) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was conducted, with target audience as a between-participants factor. Analyses revealed a significant main effect of activity type, $F (1, 103) = 107.90$, $p < .001$, $\eta_p^2 = 0.51$, whereby creative activities were promoted significantly more than word-based activities across all magazine types. The interaction between activity type and target audience was non-significant ($p > .05$); therefore the type of activity that was promoted was not affected by who the magazine was aimed at, refuting the hypothesis that significantly more creative than word-based activities would be promoted on the girls' magazine front covers, whilst significantly more word-based than creative activities would be promoted on the front of the boys' magazines.

Discussion

Overview of findings

This study aimed to examine, for the first time in a British sample, the prevalence of gender-stereotypic messages portrayed on the front cover of pre-school and young children's magazines. This study makes a unique and important contribution to the literature on the role of children's media in the socialisation of gender stereotypes, as despite other forms of media such as television and books receiving scholarly attention, children's magazines have been largely overlooked, despite their popularity with parents and children (Statista, 2016).

The present study found support for the majority of hypotheses, and it can be inferred from the findings that young children's magazine covers are edited differently in terms of both their style and content depending on whether they are aimed at girls, boys, or both boys and girls. It was found that magazines aimed solely at boys or girls were presented in gender-stereotypic colours (i.e. pink/purple for girls, and blue/red/black for boys), whilst gender-neutral magazines were presented in a variety of colours. Girls' magazines contained more female than male characters, whilst boys' magazines contained more male than female characters, but there was no difference in the number of male and female characters present in the gender-neutral magazines. Therefore the gender-stereotypic nature of boys' and girls' magazines is being reinforced through the gender of the characters displayed on the front covers.

In terms of the characters' behaviour, female characters were more likely to be passive than active, and more likely to be presented as posing than male characters, which follows gender-stereotypic norms, and interestingly, girls' magazine front covers contained no speaking characters, whilst boys' and neutral magazines did. Speaking characters were also far more likely to be male than female and thus male characters said more words than female characters; reinforcing the notion that females are more passive than males. In line

with other research exploring gender-typed messages in children's media (e.g. Kahlenberg & Hein, 2010), the theme of appearance was far more prevalent than the theme of risk on the front of girls' magazines, and occurred more frequently than in boys' or neutral magazines, confirming the stereotype that girls' appearance is focused on much more than boys'.

However, in relation to several hypotheses related to male characters and the boys' magazines, predictions were not supported. For example, there were not more male active than passive characters overall, and boys' magazine front covers did not refer to the theme of risk significantly more than it did appearance. Therefore, there may be more flexibility around the behaviour for male characters and the themes which appear in boys' magazines than there are for female characters and girls' themes. Additionally, refuting hypotheses, the type of activities promoted (creative vs. word-based) did not differ according to the target audience, but creative activities were promoted more frequently than word-based activities overall; perhaps due to the young age of the target audiences. Overall, our analysis reveals that female characters in particular are repeatedly portrayed in gender stereotypic ways, and the themes promoted on the magazine front covers follow traditional gender norms in line with the target audience. The evidence that gender-neutral magazines contained less stereotypic information demonstrates that the portrayal of gender norms is in line with target audiences.

Limitations and future directions

From the present study we are unable to determine whether the gendered messages present in these young children's magazines affect children's gender-related cognitions, such as attitudes, preferences, and behaviours. Future research should aim to experimentally examine the impact of children's magazines on these factors, as at present it is too simplistic to claim that children readily accept and are affected by the messages that are transmitted through magazine content; this will be addressed by Study 5. It is also

important to investigate how readily children accept the gender stereotypic information presented in these magazines, and whether they use the characters within them as role models for their behaviour.

Additionally the present content analysis focused only on magazine covers. The next step would be to perform a full analysis of the content contained within the whole magazine issue to examine in closer detail the messages which are being conveyed to children via this media format. This will be addressed by Study 4. It is also important to note that content analyses are susceptible to researcher bias issues, even when reliability co-efficients are relatively high. As character gender was treated as binary and coders were asked to count and code behaviours for male and female characters separately, coders may have become aware of the aims of the study and therefore exaggerated the instances of stereotypic behaviour among characters.

As highlighted by Hata (2014), it is important to note that although children may be attracted to these magazines, it is ultimately parents and other adults who purchase them. Therefore, the content and presentation of magazine covers may not necessarily represent what boys and girls desire, but rather what adults deem as appropriate for their children to view. Social cognitive theories of gender development view children as active rather passive agents; seeking out information from their environment which confirms gender differences between males and females and reinforces gender stereotypes (Martin et al., 2002). Lipkin (2009) reiterates this idea that children decide which information to attend to, specifically in the media, but also highlights that gender stereotypes are so pervasive that they are seen as the norm, and therefore children aspire to these stereotypes for social acceptance.

By including more counter-stereotypic examples of male and female characters, and more variation in the design and presentation of young children's magazines, not only

will children benefit from viewing greater flexibility in gender norms, but marketers may also benefit by increasing readership numbers. Kolbe and Muehling (1995) support the idea that counter-stereotypic examples can have a positive effect on product sales as the items become more appealing to both male and female audiences. In relation to children's magazines, there may be some boys that particularly enjoy the Frozen franchise, yet they or their parents may be deterred from purchasing the affiliated magazine due to the stereotypically feminine content and presentation of the magazine cover. Although marketers' aims are primarily commercial, it is important for them also to acknowledge their social responsibilities in relation to the portrayal of gender-stereotypic information, and the limiting effect this may have on children's identity, abilities, and aspirations (Napoli & Murgolo-Poore, 2003; Pollay, 1986).

In conclusion, this study provides the first insight into the prevalence of gender stereotypic messages in young children's media and how stereotypes are reinforced on magazine front pages via colour and character behaviour. Important future research questions which have been prompted by this study are 1) To what extent are gender stereotypes portrayed in the rest of the magazines' content, and 2) What effect does exposure to gender stereotypic and counter-stereotypic information via this platform have on children's gender-related cognitions? These questions will be addressed in Study 4 and Study 5.

Chapter 9 Study 4: Gender Stereotypic Content in Pre-School Children's Print Magazines

The present study extended Study 3 by analysing the prevalence of gender stereotypic messages throughout entire magazines issues. A content analysis was undertaken on 42 new issues of the same nine magazines previously examined (Disney's Princess, Disney's Frozen, Sparkle World, Fireman Sam, Bob the Builder, and Thomas & Friends, Peppa Pig - Bag O' Fun, CBeebies, and Fun to Learn - Peppa Pig). Within each magazine, the extensive coding framework analysed the colour scheme, the number of male and female characters, character behaviour, themes, how often children were instructed to ask for an adult's help with an activity, and the number of activities identified as educational. Key findings were that male characters were more active than female characters, males were more aggressive than females, significantly more activities were explicitly identified as educational in the boys' and neutral magazines compared to the girls' magazines, and instructions to ask for an adult's help were present significantly more in the girls' magazines than in both the boys' and neutral magazines. The themes of fashion and home also appeared significantly more in the girls' than the boys' magazines. Therefore, supporting Study 3, young children's magazines communicate gender stereotypic norms on various dimensions and are a means of strengthening and maintaining gender stereotypes. However, this media format could also be used as a way to challenge gender stereotypes; this possibility is also discussed.

Introduction

Study 3 revealed that the front covers of young children's magazines are edited based on the target audience to adhere to and promote gender stereotypes. This finding supports socialisation and cultivation theories of gender development which suggest that environmental stimuli, such as the media, contribute to children's gender stereotype knowledge. However, further investigation is required to understand the extent of gender stereotypic information portrayed throughout entire issues of children's magazines. The present study will therefore extend Study 3 by analysing the prevalence of male and female characters in young children's magazines, and the extent of gender stereotypic behaviour and themes according to the target audience. This study will also uniquely examine whether the activities and stories which the magazines contain display gender stereotypic content, and if gender-related norms such as helplessness in girls and educational achievement in boys are promoted.

As discussed in *Chapter 4,* research has shown that historically women have been underrepresented in the media, appearing in significantly lower numbers than men, contradicting real-world distributions (e.g., McNeil, 1975; Tedesco, 1974). More recent research however has shown that more female characters than ever before are now appearing in prime-time television shows, with Glascock (2001) finding that around 40% of characters are now female. Glascock (2001) also found that more women are now depicted in job roles than earlier studies had found. However, male characters were still twice as likely to be portrayed in managerial positions as females, occupying more prestigious roles, and male characters were also found to display more physical violence than females, whilst females displayed more affectionate behaviour. Glascock's (2001) findings support previous studies which have shown the extent of gender-typed behaviour in television (e.g., Greenberg, 1980; Signorelli, 1989; Lauzen, Dozier, & Horan, 2008), but the author does highlight that whilst gender inequities persist on-screen, this gap has

lessened in recent decades, and the differences which are demonstrated perhaps reflect real world differences in gender roles, as proposed by social role theory (Eagly, 1987). Therefore, some progress appears to have been made with regard to equal representation, but less so in terms of gender stereotypic roles.

Within children's television shows, male characters have also been shown to outnumber female characters (Aubrey & Harrison, 2004; Thompson & Zerbinos, 1995), with adult female characters being particularly underrepresented. Robinson and Anderson (2006) found that only 23% of older characters in children's animated shows were female, with a similar pattern being found in Disney films (Robinson, Callister, Magoffin, & Moore, 2006). As with television shows targeted at adults, children's shows have also been found to depict male characters as more aggressive than females, and in a greater number of leadership roles (Thompson & Zerbinos, 1995), whilst females are portrayed in stereotypic ways via their body language, assuming deferent and passive positions (Browne, 1998). These trends may be particularly damaging to girls as having fewer same-gender role models than boys may lead to the assumption that women and girls are less important than men and boys (Signorelli, 1989), and when female characters are present they tend to be depicted in less assertive roles (Browne, 1998). Foster (2016) and Skinner (2013) found similar trends in children's literature, and Hata (2014), as discussed in *Chapter 8,* found gender stereotypic content in Japanese magazines aimed at pre-school age girls.

Although extensive research has examined the prevalence of gender stereotypes in children's television, advertising, and books, children's magazines have received much less attention, despite them remaining a popular media outlet (Statista, 2016). Study 3 revealed that this media format warrants further scholarly attention as it was clear from analyses that the front covers of children's magazines are edited in line with gender norms. But of course, children and parents read entire issues of magazines, not just their front

covers, thus it is important to examine the content within these magazines to assess whether these gender stereotyped messages continue throughout the subsequent pages.

Previous research analysing the content of children's television shows has found that female characters often display deferential behaviours towards males, and are frequently depicted requiring assistance (e.g., Bereaud, 1975; Kolbe & Abanese, 1996; Weitzman et al., 1972). Therefore the present study will examine not only female and male characters' behaviour for evidence of gender-stereotypic portrayals such as this, but the activities which are included in children's magazines will also be analysed to investigate whether magazines aimed at girls include explicit instructions to seek adult assistance more so than magazines aimed at boys or magazines aimed at both girls and boys.

Additionally, the magazine activities will also be coded for educational content. Although in most of the developed world education is compulsory for both boys and girls, historically, a greater emphasis has been placed on boys' education than girls (Blakemore et al., 2008), and girls still continue to experience greater anxiety in relation to academic performance (Pomerantz, Altermatt, & Saxon, 2002), indicating that boys and girls experience different expectations related to education. Following the findings from Study 3 that female characters were depicted in stereotypically passive ways, and the theme of appearance was focused on significantly more in girls' magazines than the other types of magazines, the present study aimed to extend this investigation by examining whether gender stereotypes also spread to the educational content of activities in girls' vs. boys' magazines.

The Present Study

The present study aimed to extend Study 3 by analysing the content of entire issues of young children's magazines. Specifically, the present study aimed to examine 1) Whether the titles of magazines aimed at boys and girls are presented in gender-stereotypic

colours; 2) Whether magazines aimed at girls contain more female than male characters, and whether magazines aimed at boys contain more male than female characters; 3) If the boys', girls', and gender neutral magazines focus on different topics to one another; 4) Whether male and female characters display different gender-typed behaviours to one another; 5) Whether the activities in the magazines are explicitly identified as educational, and if this differs according to target audience; 6) If there are indications that children should seek an adult's help with an activity and if this differs according to target audience; and 7) If gender-neutral magazines, i.e. those aimed at both boys and girls, are less gender-stereotypic in nature than the magazines aimed specifically at boys or girls.

Hypotheses. Following findings from Study 3, and previous arguments that colour is used as a clear indicator of gender (Orenstein, 2011), it was hypothesised that firstly, both boys' and girls' magazine titles would be presented in gender-stereotypic rather than gender-counterstereotypic or gender neutral colours. The neutral magazines were expected to be presented in gender neutral colours.

Secondly, it was hypothesised that boys' magazines would contain significantly more male than female characters, and the girls' magazines would contain significantly more female than male characters. In the neutral magazines it was expected that there would be no significant difference in the number of male and female characters depicted. This is following findings from Study 3.

Thirdly, in line with gender stereotypes and previous research findings that female characters are regularly depicted engaging in household and appearance-related tasks (e.g. Furnham & Mak, 1999; Kahlenberg & Hein, 2010), it was expected that in the girls' magazines, significantly more pages would be dedicated to the themes of 'Food', 'Fashion', and 'Home' than 'Jobs', and that these would occur more frequently in the girls' than in the boys' or neutral magazines. Conversely, following previous research findings

that males occupy high-power positions and are depicted in occupational roles more than females (e.g., Kolbe & Abanese, 1996; Weitzman et al., 1972), it was expected that the theme of 'Jobs' would occur more frequently than any of the other themes in the boys' magazines, and more so than in the girls' or neutral magazines. These topics were derived from Hata (2012; 2014).

Fourth, in line with gender stereotypes, it was expected that the stories in girls' magazines would demonstrate significantly more co-operation between the characters, and reference marriage significantly more than competition, and that the themes of co-operation and marriage would occur more frequently in the girls' than the boys' magazines. The categories of co-operation and competition were based on Larson's (2010) research.

In relation to the activities included in the magazines, following previous research findings that girls are stereotypically depicted as more helpless than boys (e.g. Gerding & Signorelli, 2014), it was expected that readers of the girls' magazines would be instructed to ask for an adult's help significantly more than readers of the boys' magazines. In line with gender stereotypes, it was also expected that the activities in the boys' magazines would be highlighted as educational significantly more than the activities in the girls' magazines. These two coding categories are particularly novel and are specifically relevant to the types of activities (e.g. 'cut and stick') contained within children's magazines.

Building on Study 3, the more detailed analysis of the whole magazine issues in the present study allows us to examine more complex behaviours of the characters. Therefore, with regard to differences in male and female character behaviour, it was expected that male characters would display significantly more instances of dominance, function ranking, utilitarian contact, bravery, and aggression than female characters, whereas female characters were expected to display significantly more instances of licensed withdrawal,

deference, feminine touch, and primping than male characters, and this was expected to be evident in all types of magazine. It was also expected that male characters would be rated as overall more aggressive and more active than female characters (see *Chapter 4* for a more detailed discussion of previous findings pertaining to this; the inclusion of these categories was based on research by Browne (1998), Aubrey and Harrison (2004), and Gerding & Signorelli, 2014). See appendix D for the coding framework which provides detailed definitions of these categories.

Finally, it was hypothesised that the adjectives used to describe the characters would vary according to the character's gender. It was expected that female characters would be described as 'pretty', 'caring', and 'kind' more than 'fast', 'strong', 'brave', or 'clever' and that the former words would be used to described female characters more frequently than male characters. The opposite was expected for male characters, and this was not predicted to differ by target audience as it was expected that characters would be depicted in stereotypic ways across all magazines. To our knowledge, the adjectives used to describe male and female characters have not been analysed before, therefore hypotheses are based on gender stereotypic expectations rather than specific previous studies.

Method

Magazine Selection

Magazines directed towards pre-school and primary-school aged boys and girls were examined. The details of the magazines which were reviewed are presented in Table 9.1. The magazines analysed were those ranked by the Audit Bureau of Circulations (ABC) as the top-selling young children's magazines in the UK and Ireland during January to June, 2015 (ABC, 2015). Magazines were split into three groups based on objective criteria used by the magazine publishers, and nine different magazines were reviewed in total; three of these magazines were targeted at girls, three at boys, and three at both boys

and girls (see Table 9.1). Fourteen issues of each type of magazine were analysed,

therefore 42 issues were coded in total.

Table 9.1

Summary of Magazines Analysed

Magazine	Target audience – Gender	Target audience – Age (years)	No. of copies sold Jan – Jun 2015	Publication frequency	No. of issues coded
Disney's Princess	Girls	4 – 8	46,545	Fortnightly	6
Disney's Frozen	Girls	3 – 7	91,011	Monthly	5
Sparkle World	Girls	4 – 9	48,749	Fortnightly	3
Fireman Sam	Boys	2 – 6	29,028	Monthly	6
Bob the Builder	Boys	2 – 4	26,802	Monthly	3
Thomas & friends	Boys	2 – 7	42,010	Fortnightly	5
CBeebies	Girls & boys	3 -6	69,466	Fortnightly	5
Peppa Pig – Bag 'O fun	Girls & boys	3 – 7	67,305	Monthly	4
Peppa Pig – fun to learn	Girls & boys	3 – 7	86,059	Fortnightly	5

All reviewed magazines were published between January and June, 2016. Some magazines published issues more frequently than others; therefore some magazines had more coded issues than others. However, it was ensured that an equal number of magazines in each target-audience group were included in analyses ($N = 14$). This was achieved by randomly selecting cases for each target audience using the related function on SPSS.

Training of coders

Six female undergraduate psychology students analysed the magazines. A pre-test of the coding instrument was completed before analysing the data; each coder practiced using the coding scheme on one issue of a CBeebies magazine (not included in the final analysis) and these ratings were discussed with the first author and with each other until it was clear that the coding of the variables had been understood. Coding categories, key terms, and definitions were clarified and some minor adjustments were made to the coding scheme where there were any ambiguities.

To ensure coders were blind to the hypotheses, each coder analysed seven issues of magazines which shared the same target audience e.g. one coder analysed three issues of Disney's Frozen, and four issues of Disney's Princess magazines so that they remained unaware that some magazines were targeted at boys and others at girls. Coders worked independently of one another, separately coding each issue they were assigned, and the first author did not form part of the coding team so as to remain unbiased.

Reliability Analysis. Krippendorf's alpha (Krippendorf, 1980) was used to assess inter-coder reliability. Each coder analysed the same six magazine issues using the coding scheme after the initial analyses were complete. It is strongly recommended that variables must reach an alpha of .65 in order to be considered reliable; all variables in the present study achieved an alpha of at least .74, therefore all variables were included in the main analysis. See Table 9.2 for summary.

Coding scheme

The final coding scheme is reproduced in Appendix D. The first author provided copies of this to the six coders after minor changes had been made following the first training session. Categories for analysis were devised after extensively reviewing the literature. Several aspects of the magazines were analysed:

Colour of magazine titles. The colour of the magazine titles were examined to identify whether they were presented in a stereotypical way in line with the target audience of the magazine. The titles were defined as stereotypical if they were pink/purple in colour on the 'girls'' magazines, and blue/red/black in colour on the 'boys'' magazines, and assigned an arbitrary score of '1'. The titles were defined as counter-stereotypical in colour if they were presented in pink/purple on the 'boys'' magazines and blue/red/black on the 'girls'' magazines, and assigned a score of '2'. The titles were defined as neutral if they were presented in a variety of colours, and assigned a score of '3'. All assigned scores were arbitrary as this was treated as a nominal variable. This was the same as the coding used in Study 3.

Characters. The total number of male and female characters were counted for each magazine issue. Each character was only counted once and characters which did not appear to be one gender or the other were counted as 'ambiguous'. Therefore, three ordinal variables were created (male characters, female characters, ambiguous characters) and scores ranged from 0 to 72, as 72 was the maximum number of any type of character present in the magazines. This was the same as the coding used in Study 3.

Themes. The total number of pages in each magazine issue that were dedicated to the following topics were counted; the themes were 'Food', 'Fashion', 'Home', and 'Jobs'. These four topics were based on the five topics used by Hata, Azuma, Masuda, and Mizuno (2012) and Hata (2014). Hata (2014) also included the topic 'celebrity'; however

this was excluded from the current study as it is not a topic which regularly occurs in young children's magazines. See Appendix D for the examples of the themes provided to coders. Four ordinal variables were created with scores ranging from $0 - 35$, as 35 was the maximum number of pages dedicated to any one theme across all magazine issues.

Stories. The total number of stories in each magazine issue were counted. During training the coders were shown several examples of stories in children's magazines, so it was clear how they differed from other pages which contained activities or factual information. Each story, even if spread over several pages, was only counted once. Therefore, one ordinal variable ('Stories') was created, with scores ranging from $0 - 5$, as 5 was the maximum number of stories included in any one issue.

To examine the messages which the stories contained, coders counted how many of the stories per issue displayed; competition between the characters, referenced 'getting married'; or demonstrated co-operation or helping behaviour amongst the characters. If these behaviours/themes were demonstrated they were only counted once per story. Therefore, a further three ordinal variables were created for 'Competition', 'Marriage', and 'Co-operation', with scores ranging from $0 - 3$, as 3 was the maximum number of any one story-theme contained in one issue. These themes were based on the those used by Larson (2010).

Activities. On the pages which contained activities for the children, we were interested in the how often the reader was instructed to ask for an adult's help. Therefore, coders counted each instance in which there was an explicit message (in words or via symbols) encouraging the reader to ask for an adult's help. The total number of instances was counted for each issue. Therefore, one ordinal variable 'Adult help' was created, with scores ranging from $0 - 8$, as 8 was the maximum number of times an instruction to seek help was presented in any one issue.

Similarly, we wished to identify how many of the activity pages were identified as 'educational', either via symbols or words. Therefore, coders counted each instance where an activity was explicitly identified as educational, and a total 'education' score was calculated for each magazine issue, with scores ranging from 0 – 33, as 33 was the maximum number of times activities were identified as educational in any one issue.

Character behaviour. Based on Browne (1998), the following behaviours were coded for male and female characters. The total number of occurrences of each behaviour were tallied separately for male and female characters to allow for comparison of the genders. The behaviours which we coded for were 'licensed withdrawal', 'deference' and 'dominance', 'function ranking', 'utilitarian contact' and 'feminine touch'. 'Bravery/rescue' and 'primping' behaviours were also analysed based on Aubrey and Harrison's (2004) and Gerding and Signorelli's (2014) codes. See Appendix D for definitions of each of the above behaviours. Coders were provided with these definitions during training. The coding of these behaviours resulted in 16 ordinal variables; see Table 9.2 for details.

Coders were also required to rate aggression; the total number of male and female characters who displayed aggressive behaviour were tallied separately, and each character was only counted once even if they displayed aggression multiple times. This led to two ordinal variables; one for male aggression and one for female aggression. Coders were also asked to rate on a scale of 1 (no aggression) to 5 (very high levels of aggression) how aggressive overall the male and female characters were in the issue. Coders provided one rating for the male characters overall, and one rating for the female characters overall, resulting in two further ordinal variables.

We also wanted to know how active/passive the characters' behaviour was. Therefore, as with aggression, coders were asked to rate on a scale of 1 (Very low activity

levels: Passive or quiet) to 5 (Very high activity levels; busy, doing a lot) how active the male and female characters were in the issue. Coders provided one rating for the male characters overall, and one rating for the female characters overall, leading to two ordinal variables.

Character description. To examine how the characters were described in the magazines, coders counted the number male and female characters which were referred to using the following adjectives; 'fast', 'strong', 'brave', 'pretty', 'caring', 'kind', and 'clever'. The total number of male characters described by each of these adjectives was tallied for each issue, and the total number of female characters described by each of these adjectives was tallied for each issue, which led to 14 ordinal variables. See Table 9.2 for details.

Table 9.2

Reliability: Krippendorf's Alpha for Variables Included in the Analysis

Variable	Alpha	Definition	Categories/Scale
Colour Scheme (N)	1.00	Colour scheme of the front cover	Gender-stereotypic, gender-counterstereotypic, gender-neutral
Female Characters (O)	1.00	How many female characters are present	0 – 41*
Male Characters (O)	1.00	How many male characters are present	0 – 55*
Ambiguous Characters (O)	.91	How many gender-ambiguous characters are present	0 – 72*
Food Theme (O)	.90	How many pages are dedicated to Food topics	0 – 24*
Fashion Theme (O)	.88	How many pages are dedicated to Fashion topics	0 – 13*
Home Theme (O)	.78	How many pages are dedicated to Home topics	0 – 12*
Job Theme (O)	.88	How many pages are dedicated to Job topics	0 – 35*
Stories (O)	.95	Total number of stories included	0 – 5*

Variable	Alpha	Definition	Categories/Scale
Competition (O)	.81	How many stories demonstrate competition between characters	0 – 2*
Marriage (O)	.88	How many stories reference 'getting married'	0 – 1*
Co-operation (O)	.86	How many stories demonstrate co-operation or helping behaviour amongst characters	0 – 3*
Adult help (O)	.92	How many times is reader instructed to ask for an adult's help	0 – 8*
Educational Activities (O)	.98	How many activities are identified as 'Educational'	0 – 33*
Male Licensed Withdrawal (O)	.77	No. of times male characters display 'licensed withdrawal' behaviour	0 – 6*
Female Licensed Withdrawal (O)	.80	No. of times female characters display 'licensed withdrawal' behaviour	0 – 4*
Male Deference (O)	.75	No. of times male characters display 'deference' behaviour	0 – 1*
Female Deference (O)	.76	No. of times female characters display 'deference' behaviour	0 – 5*
Male Dominance (O)	.80	No. of times male characters display 'dominance'	0 – 10*

Variable	Alpha	Definition	Categories/Scale
Female Dominance (O)	.78	No. of times female characters display 'dominance' behaviour	0 – 14*
Male Function Ranking (O)	.76	No. of times male characters display 'function ranking' behaviour	0 – 19*
Female Function Ranking (O)	.75	No. of times female characters display 'function ranking' behaviour	0 – 18*
Male Utilitarian Contact (O)	.75	No. of times male characters display 'utilitarian contact' behaviour	0 – 30*
Female Utilitarian Contact (O)	.80	No. of times female characters display 'utilitarian contact' behaviour	0 – 47*
Male Feminine Touch (O)	.74	No. of times male characters display 'feminine touch' behaviour	0 – 4*
Female Feminine Touch (O)	.78	No. of times female characters display 'feminine touch' behaviour	0 – 6*
Male Bravery/Rescue (O)	.82	How many male characters demonstrate an act of bravery/rescue	0 – 7*
Female Bravery/Rescue (O)	.80	How many female characters demonstrate an act of bravery/rescue	0 – 6*

Variable	Alpha	Definition	Categories/Scale
Male Primping (O)	.85	How many male characters attempt to improve their appearance	0 – 4*
Female Primping (O)	.95	How many female characters attempt to improve their appearance	0 – 7*
Male Aggression (O)	.90	How many male characters demonstrate aggressive behaviour	0 – 2*
Female Aggression (O)	.86	How many female characters demonstrate aggressive behaviour	0 – 3*
Male Aggression overall (O)	.96	How aggressive overall are the male characters in the issue	1 - 5
Female Aggression overall (O)	.94	How aggressive overall are the female characters in the issue	1 - 5
Male Activity (O)	.94	How active overall are the male characters in the issue	1 - 5
Female Activity (O)	.95	How active overall are the female characters in the issue	1 - 5
Male Fast (O)	.90	No. of male characters described as 'Fast'	0 - 2*
Female Fast (O)	.89	No. of female characters described as 'Fast'	0 - 1*

Variable	Alpha	Definition	Categories/Scale
Male Strong (O)	.92	No. of male characters described as 'Strong'	0 – 3*
Female Strong (O)	.90	No. of female characters described as 'Strong'	0 – 1*
Male Brave (O)	.95	No. of male characters described as 'Brave'	0 – 3*
Female Brave (O)	.96	No. of female characters described as 'Brave'	0 – 1*
Male Pretty (O)	.89	No. of male characters described as 'Pretty'	0 – 1*
Female Pretty (O)	.95	No. of female characters described as 'Pretty'	0 – 1*
Male Caring (O)	.96	No. of male characters described as 'Caring'	0 – 2*
Female Caring (O)	.96	No. of female characters described as 'Caring'	0 – 2*
Male Kind (O)	.90	No. of male characters described as 'Kind'	0 – 2*
Female Kind (O)	.92	No. of female characters described as 'Kind'	0 – 2*
Male Clever (O)	.95	No. of male characters described as 'Clever'	0 – 1*
Female Clever (O)	.92	No. of female characters described as 'Clever'	0 – 1*

* Scales range from minimum to maximum number of characters displaying each behaviour or instances of a theme

Results

Overview of analyses

Mixed Analysis of Variance (ANOVA) tests were performed on ordinal variables, with target audience (girls vs. boys vs. neutral) always included as a between-subjects factor. Two-way chi-square analyses were performed on nominal variables.

Main analysis

Colour of title. 50% of the magazine titles were identified as gender-stereotypic in colour, 11.9% as counter-stereotypic in colour, and 38.1% as neutral in colour across all magazines. 50% of the girls' magazine titles were stereotypic in colour, 35.7% counter-stereotypic, and 14.3% neutral. 100% of the boys' magazine titles were categorised as stereotypic in colour, and 100% of the magazines targeted at both boys and girls were identified as having gender-neutral colour titles. A two-way chi-square analysis was performed to examine associations between title colour and target audience. Fisher's exact test is reported as some cells had expected frequencies of less than 5. Analyses revealed that observed counts were significantly different from expected counts, $\chi^2 = 43.35$, $p < .001$, Cramer's $V = .74$, supporting the hypothesis that colour title would vary according to the target audience of the magazine. See Table 9.3 for frequencies.

Post hocs tests using adjusted z scores and a bonferroni correction for multiple comparisons (p must be $< .005$ to indicate significance when contingency table is 3 x 3; see Beasley, Randall, & Schumaker, 1995) revealed that magazines titles for the neutral magazines were significantly less gender-stereotypic in colour than expected ($z = -4.58$, $p < .001$), but significantly more gender-neutral in colour than expected ($z = 5.84$, $p < .001$); this is in line with hypotheses. Conversely, the boys' magazine titles were significantly more gender-stereotypic in colour than expected ($z = 4.58$, $p < .001$), and significantly less gender-neutral in colour than expected ($z = -3.59$, $p < .001$); this is also in line with

hypotheses. Surprisingly, the girls' magazines titles were presented in significantly more gender-counter-stereotypic colours than expected ($z = 3.37$, $p < .001$), which is contrary to hypotheses.

Table 9.3

Frequencies of Gender-stereotypic, Gender-counterstereotypic, and Gender-neutral colour titles as a Function of Target Audience

	Girls' magazines	Boys' magazines	Neutral magazines	Total
Gender-stereotypic colours	7	14	0	21
Gender-counter-stereotypic colours	5	0	0	5
Gender-neutral colours	2	0	14	16
Total	14	14	14	

Character Gender. A 2 (Character Gender: male vs female) x 3 (Target Audience: girls vs boys vs neutral) mixed ANOVA was performed to examine any differences in the number of male and female characters in the different types of magazine. Character gender was included as a within-subjects factor, and target audience as a between-subjects factor. The effect of character gender was non-significant, $F (1, 39) = 2.88$, $p = .098$, $\eta_p^2 = .07$, but, as hypothesised, there was a significant interaction between character gender and target audience, $F (2, 39) = 5.87$, $p = .006$, $\eta_p^2 = .23$. Post hoc analyses revealed that there were significantly more male ($M = 16.93$) than female ($M = 7.00$) characters in the magazines aimed at boys ($p = .001$, $d = 1.71$). The differences in the number of male and female characters within the girl's and neutral magazines were non-significant ($p > .05$). This tells us that a similar number of male and female characters were included in these types of magazines.

There were significantly more female characters in the girls' magazines ($M =$ 18.00) than the boys' magazines ($M = 7.00$), $p = .001$, $d = 1.45$. All other comparisons were non-significant. Therefore hypotheses are partially supported. See Table 9.4 for means.

Table 9.4

Number of Male and Female Characters in Each Type of Magazine. Means and Standard Deviations.

		Magazine type			
		Girls' magazines	Boys' magazines	Neutral magazines	Total
Female characters	*M*	18.00	7.00	12.43	12.48
	SD	12.27	2.88	6.64	7.26
Male characters	*M*	15.29	16.93	13.14	15.12
	SD	15.89	8.75	9.69	11.44

Themes. A 4 (Theme: food vs fashion vs home vs jobs) x 3 (Target Audience: girls vs boys vs neutral) mixed ANOVA was performed to examine differences in the number of pages dedicated to different themes across the different types of magazine, based on Hata's (2014) content analysis. Theme was entered as a within-subjects factor, and target audience as a between-subjects factor. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2 (5) = 48.53$, $p < .001$, therefore Greenhouse-Geisser corrected tests are reported ($\varepsilon = .55$). Analyses revealed a significant main effect of theme, $F(1.66, 64.76) = 9.83$, $p < .001$, $\eta_p^2 = .20$. Pairwise comparisons (with Bonferroni correction) revealed that the theme of 'Jobs' ($M = 6.48$, $SD = 10.78$) appeared significantly more frequently than the theme of 'Food' ($M = 2.02$, $SD = 4.12$, $p = .026$, $d = 0.60$), 'Fashion' ($M = 1.52$, $SD = 2.93$,

$p = .005$, $d = 0.72$), and 'Home' ($M = 1.29$, $SD = 2.45$, $p = .004$, $d = 0.78$) across all magazines.

There was also a significant interaction between theme and audience gender, $F(3.32, 64.76) = 12.67$, $p < .001$, $\eta_p^2 = .39$. Pairwise comparisons (with Bonferroni correction) revealed that the theme of 'Fashion' was more prevalent in the girls' magazines ($M = 4.29$, $SD = 3.81$), than in both the boys' magazines ($M = 0.00$, $SD = 0.00$, $p < .001$, $d = 1.13$), and the neutral magazines ($M = 0.29$, $SD = 0.47$, $p < .001$, $d = 1.87$). The theme of 'Home' also occurred significantly more frequently in the girls' ($M = 3.21$, $SD = 3.33$) than the boys' ($M = 0.00$, SD 0.00, $p = .001$, $d = 0.96$) and the neutral magazines ($M = 0.64$, $SD = 1.28$, $p = .006$, $d = 1.14$). However, the theme of 'Jobs' was more prevalent in the boys' magazines ($M = 15.86$, $SD = 14.21$) than in both the girls' magazines ($M = 1.57$, $SD = 1.60$, $p < .001$, $d = 1.81$), and the neutral magazines ($M = 2.00$, $SD = 4.47$, $p < .001$, $d = 1.48$). All other comparisons were non-significant ($p > .05$), and the theme of 'Food' was equally likely to appear in the girls', boys', and neutral magazines. Therefore hypotheses were partially supported.

When examining the prevalence of themes within each different type of magazine, the theme of 'Jobs' ($M = 15.86$, $SD = 14.21$) was significantly more likely to appear than any other theme in the boys' magazines ('Food': $M = 0.29$, $SD = 0.61$, $p < .001$, $d = 2.10$; 'Fashion': $M = 0.00$, $SD = 0.00$, $p < .001$, $d = 1.12$; 'Home': $M = 0.00$, $SD = 0.00$, $p < .001$, $d = 1.12$), supporting hypotheses. All other comparisons were non-significant ($p > .05$), therefore there were no significant differences in the prevalence of themes in the girl's or the neutral magazines. See Figure 9.1 and Table 9.5 for means.

Table 9.5

Means and Standard Deviations of Themes Included in Each Magazine

Theme		Magazine			
		Girls'	Boys'	Neutral	Total
Food	M	3.29	0.29	2.50	2.03
	SD	2.81	0.61	6.33	3.25
Fashion	M	4.29	0.00	0.29	1.53
	SD	3.81	0.00	0.47	1.43
Home	M	3.21	0.00	0.64	1.28
	SD	3.33	0.00	1.28	1.54
Job	M	1.57	15.86	2.00	6.48
	SD	1.60	14.21	4.47	6.76
No. of stories	M	3.29	2.00	1.64	2.31
	SD	0.73	0.00	0.50	0.41
Competition	M	0.21	0.43	0.29	0.31
	SD	0.43	0.65	0.47	0.52
Marriage	M	0.14	0.00	0.00	0.05
	SD	0.36	0.00	0.00	0.12
Co-operation	M	1.86	1.71	1.57	1.71

	SD	0.77	0.73	0.51	0.67
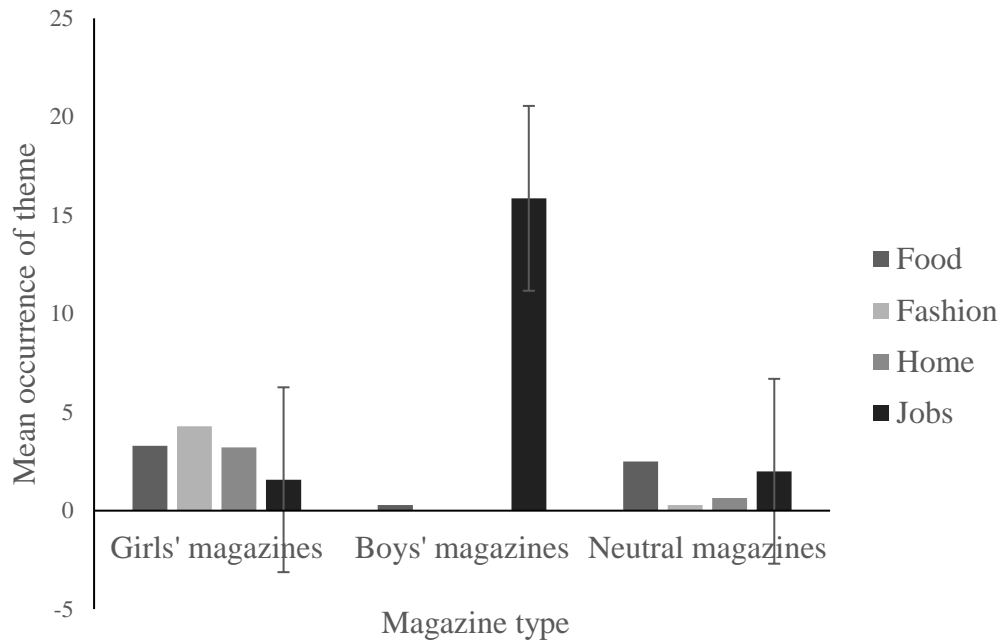
Fig. 9.1. Mean Occurrence of Themes as a Function of Magazine Type. Error Bars Represent Standard Errors.

Stories. To examine if there were differences in the number of stories included in girls', boys', and neutral magazines, a one-way ANOVA was performed. Levene's test was significant, $F (2, 39) = 10.93$, $p < .001$, indicating unequal variances, therefore Brown-Forsythe corrected degrees of freedom are reported. Analyses revealed a significant main effect of target audience, $F (2, 38.57) = 40.48$, $p < .001$, $\eta_p^2 = 0.68$. Post hoc tests with Games-Howell correction (to account for unequal variances) revealed that there were significantly more stories in the girls' magazines ($M = 3.29$, $SD = 0.73$) than in the boys' ($M = 2.00$, $SD = 0.00$, $p < .001$, $d = 3.49$) and neutral magazines ($M = 1.64$, $SD = 0.50$, $p < .001$, $d = 2.66$). All other comparisons were non-significant ($p > .05$). See Table 9.5.

To examine themes within the stories themselves, a 3 (Story theme: competition vs marriage vs co-operation) x 3 (Target audience: girls vs boys vs neutral) mixed ANOVA was performed. Mauchly's test indicated that the assumption of sphericity had been

violated, $\chi^2 (2) = 27.59$, $p < .001$, therefore Greenhouse-Geisser corrected tests are reported ($\varepsilon = .66$). Analyses revealed a significant main effect of story theme, $F (1.32, 51.45) = 128.82$, $MSE = 0.40$, $p < .001$, $\eta_p^2 = .768$. Pairwise comparisons (with Bonferroni correction) revealed that the stories demonstrated 'Competition' between characters ($M = 0.31$, $SD = 0.52$) more frequently than 'Getting married' ($M = 0.05$, $SD = 0.22$, $p = .009$, $d = 0.70$), but less frequently than 'Co-operation' ($M = 1.71$, $SD = 0.67$, $p < .001$, $d = 2.33$). 'Co-operation' was also displayed more frequently than 'Getting married' ($p < .001$, $d = 3.69$). The interaction between story theme and target audience was non-significant ($p > .05$), refuting hypotheses that story themes would differ according to target audience. See Table 9.5.

Adult help. To examine the number of times readers were instructed to ask for an adult's help and whether this differed according to the target audience of the magazine, a one-way ANOVA was performed with target audience (girls vs boys vs neutral) as a between-subjects factor. Analyses revealed a main effect of target audience, $F (2, 39) = 4.87$, $p = .013$, $\eta_p^2 = 0.20$. In line with hypotheses, post hoc tests (with Bonferroni correction) revealed that instructions to ask for an adult's help were present significantly more in the girls' magazines ($M = 3.14$, $SD = 2.28$) than in both the boys' magazines ($M = 1.36$, $SD = 1.08$, $p = .023$, $d = 1.06$), and the neutral magazines ($M = 1.50$, $SD = 1.45$, $p = .041$, $d = 0.88$). All other comparisons were non-significant ($p > .05$); see Figure 9.2 and Table 9.6.

Table 9.6

Means and Standard Deviations for Instructions of Adult Help and Educational Symbols

	Magazine			
	Girls'	Boys'	Neutral	Total

Adult help	*M*	3.14	1.36	1.50	2.00
	SD	2.28	1.08	1.45	1.60
Education	*M*	1.07	16.21	13.86	10.38
	SD	2.13	9.29	10.46	7.29
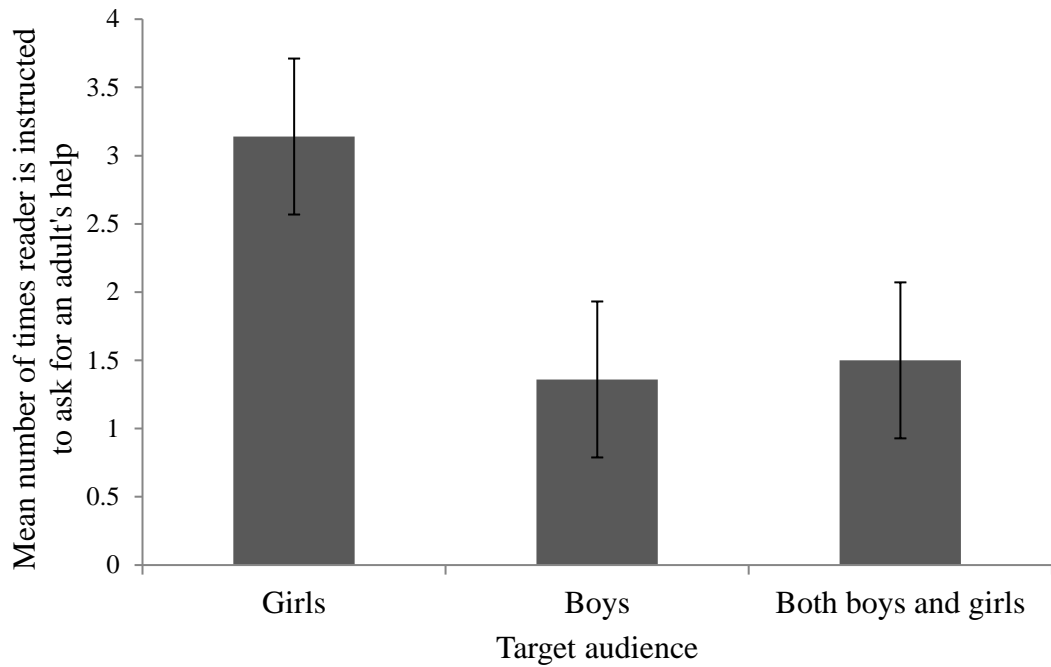
Fig. 9.2. Mean number of times reader was instructed to ask for an adult's help in each type of magazine. Error bars represent standard errors.

Educational activities. To examine whether the number of activities which were explicitly identified as educational differed according to the target audience of the magazine, a one-way ANOVA was performed with target audience (3: girls vs boys vs neutral) as a between-participants variable. The Levene's statistic was significant, $F(2, 39)$ = 14.65, $p < .001$, therefore Brown-Forsythe adjusted statistic is reported. Analyses revealed a significant main effect of target audience; $F(2, 26.82) = 13.93$, $p < .001$. Pairwise comparisons indicated that a significantly higher number of activities were identified as educational in both the boys' ($M = 16.21$, $SD = 9.29$, $p < .001$) and neutral magazines ($M = 13.86$, $SD = 13.86$, $p = .001$), than the girls' magazines ($M = 1.07$, $SD =$

2.13). Games-Howell statistics are reported as these are adjusted for the violation of

homogeneity of variance. All other comparisons were non-significant ($p > .05$; see figure

9.3 and Table 9.6).
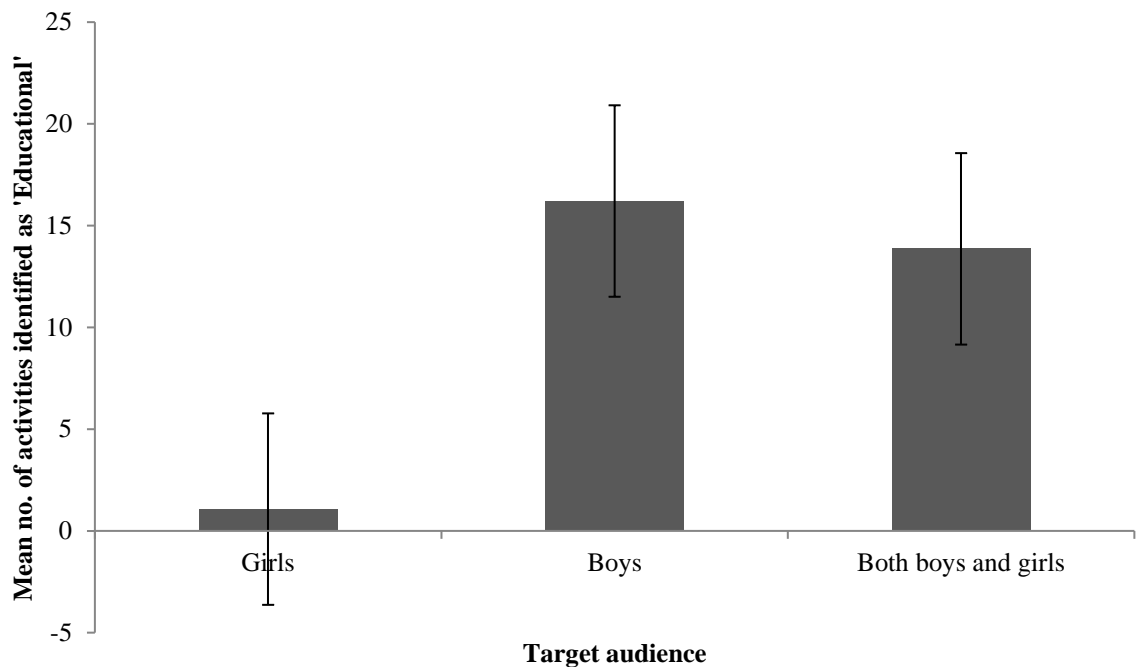
Fig. 9.3. Mean Number of Educational Activities Included in Each Type of Magazine. Error Bars
Represent Standard Errors.

Character behaviour. To examine whether the behaviours displayed by the

characters differed according to character gender and target audience, a 9 (Behaviour:

licensed withdrawal vs deference vs dominance vs function ranking vs utilitarian contact

vs feminine touch vs bravery/rescue vs primping vs aggression) x 2 (Character gender:

male vs female) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was

performed. Behaviour and Character Gender were included as within-subjects factors, and

target audience as a between-subjects factor.

Analyses revealed that the effect of character gender was non-significant[2], F (1, 39)

= 0.65, p = .425, η_p^2 = .02, but there was a significant main effect of behaviour; Mauchly's

test indicated that the assumption of sphericity had been violated, χ^2 (35) = 360.83, p

< .001, therefore Greenhouse-Geisser corrected tests are reported ($\varepsilon = .25$); F (2.00, 77.79)

$= 10.36$, $p < .001$, $\eta_p^2 = .21$.

[2]Any main effects of character gender within these analyses are inconsequential as merely reflect the number of male and female characters depicted in the magazines.

Pairwise comparisons (with Bonferroni correction) revealed that, across all types of

magazine, characters displayed function ranking behaviour significantly more than

licensed withdrawal ($p = .007$, $d = 0.73$), deference ($p < .001$, $d = 1.01$), bravery ($p = .038$,

$d = 0.72$), primping ($p = .001$, $d = 0.94$), aggression ($p = .001$, $d = 1.00$), and feminine

touch ($p = .004$, $d = 0.75$). Additionally, utilitarian contact behaviour was displayed by

characters significantly more than deference ($p = 0.20$, $d = 0.91$), primping ($p = .026$, $d =$

0.87), and aggression ($p = 0.18$, $d = 0.90$). All other comparisons were non-significant (p

$> .05$). See Table 9.7 for all means.

Analyses also revealed that there was a significant two-way interaction between

behaviour and target audience, F (16, 312) $= 4.26$, $p < .001$, $\eta_p^2 = .18$. Pairwise

comparisons (with Bonferroni correction) indicated that, contrary to hypotheses, licensed

withdrawal behaviour occurred significantly more (across male and female characters) in

the boys' magazines than in both the girls' ($p = .004$, $d = 1.05$) and the neutral magazines

($p = .011$, $d = 0.88$). Function ranking behaviour occurred significantly more frequently in

the neutral magazines than in both the girls' ($p = .011$, $d = 1.02$) and the boys' magazines

($p = .030$, $d = 0.80$), and utilitarian contact also occurred significantly more frequently in

the neutral than the girls' magazines ($p = .007$, $d = 1.37$). All other comparisons were non-

significant ($p > .05$).

Examining behaviour in only the girls' magazines (across males and female

characters), there appeared to be no significant differences in the prevalence of different

behaviours (all comparisons $p > .05$). However, in the boys' magazines, licensed

withdrawal was displayed by the characters significantly more than deference ($p < .001$, d = 1.03), feminine touch ($p = .037$, $d = 1.19$), and primping ($p = .007$, $d = 1.48$), and marginally more than aggression ($p = .052$, $d = 0.86$). Additionally, in the neutral magazines, function ranking was displayed significantly more than licensed withdrawal ($p < .001$, $d = 1.38$), deference ($p < .001$, $d = 1.51$), dominance ($p = .033$, $d = 0.73$), feminine touch ($p < .001$, $d = 1.12$), bravery ($p = .005$, $d = 1.14$), primping ($p < .001$, $d = 1.36$), and aggression ($p < .001$, $d = 1.38$). Utilitarian contact was also displayed by the characters significantly more than feminine touch ($p = .004$, $d = 1.21$), bravery ($p = .002$, $d = 1.23$), primping ($p = .002$, $d = 1.31$), and aggression ($p = .001$, $d = 1.37$) in the neutral magazines. All other comparisons were non-significant ($p > .05$).

Analyses also revealed a significant two-way interaction between character gender and target audience, $F(2, 39) = 15.91$, $p < .001$, $\eta_p^2 = .45$; pairwise comparisons for the frequency of male and female characters in each type of magazine have previously been reported above. Finally, there was also a two-way interaction between behaviour and character gender. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(35) = 203.29$, $p < .001$, therefore Greenhouse-Geisser corrected tests are reported ($\varepsilon = .42$); $F(3.32, 129.37) = 2.72$, $p = .042$, $\eta_p^2 = .07$. Pairwise comparisons (with Bonferroni correction) indicated that deference behaviours occurred significantly more among female ($M = 0.55$, $SD = 1.11$) than male characters ($M = 0.12$, $SD = 0.33$, $p = .016$, $d = 0.60$), as did feminine touch (female characters: $M = 0.95$, $SD = 1.55$; male characters: $M = 0.50$, $SD = 0.97$, $p = .012$, $d = 0.36$), and primping behaviours (female characters: $M = 0.62$, $SD = 1.41$; male characters: $M = 0.12$, $SD = 0.63$, $p = .014$, $d = 0.49$). However, aggressive behaviour was present among the male characters ($M = 0.55$, $SD = 0.74$) significantly more than the female characters ($M = 0.24$, $SD = 0.62$, $p = .004$, $d = 0.46$). All other comparisons between male and female characters were non-significant ($p > .05$), therefore, hypotheses were partially supported.

Male Characters. Examining the prevalence of behaviours separately for male and female characters, pairwise comparisons revealed that amongst male characters, licensed withdrawal behaviours ($M = 0.95$, $SD = 1.67$) occurred significantly more often than deference behaviours ($M = 0.12$, $SD = 0.33$, $p < .001$, $d = 0.83$), and significantly more than

primping behaviours ($M = 0.12$, $SD = 0.63$, $p = .001$, $d = 0.72$). However, function ranking ($M = 2.50$, $SD = 3.67$) and utilitarian contact behaviours ($M = 4.36$, $SD = 6.22$) occurred significantly more than licensed withdrawal ($p = .006$, $d = 0.58$; $p < .001$, $d = 0.86$, respectively). Additionally, dominance ($M = 1.33$, $SD = 2.76$), function ranking ($M = 2.50$, $SD = 3.67$), utilitarian contact ($M = 4.36$, $SD = 6.22$), feminine touch ($M = 0.50$, $SD = 0.97$), and bravery behaviours ($M = 0.90$, $SD = 1.43$) were all displayed significantly more than licensed withdrawal among the male characters ($p = .006$, $d = 0.78$; $p < .001$, $d = 1.19$; $p < .001$, $d = 1.29$; $p = .010$, $d = 0.58$; $p = .001$, $d = 0.89$, respectively). Pairwise comparisons also revealed that dominance behaviours ($M = 1.33$, $SD = 2.76$), occurred significantly more than primping ($M = 0.12$, $SD = 0.63$, $p = .009$, $d = 0.71$), but significantly less than utilitarian contact ($M = 4.36$, $SD = 6.22$, $p = .001$, $d = 0.67$) amongst the male characters, whilst function ranking ($M = 2.50$, $SD = 3.67$) occurred significantly more than feminine touch ($M = 0.50$, $SD = 0.97$, $p < .001$, $d = 0.86$), bravery ($M = 0.90$, $SD = 1.43$, $p = .013$, $d = 0.63$), primping ($M = 0.12$, $SD = 0.63$, $p < .001$, $d = 1.11$), and aggression ($M = 0.55$, $SD = 0.74$, $p = .001$, $d = 0.88$). Finally amongst the male characters, utilitarian contact ($M = 4.36$, $SD = 6.22$) occurred significantly more frequently than feminine touch ($M = 0.50$, $SD = 0.97$, $p < .001$, $d = 1.07$), bravery ($M = 0.90$, $SD = 1.43$, $p < .001$, $d = 0.90$), primping ($M = 0.12$, $SD = 0.63$, $p < .001$, $d = 1.24$), and aggressive behaviours ($M = 0.55$, $SD = 0.74$, $p < .001$, $d = 1.09$), whilst bravery and aggressive behaviour both occurred significantly more frequently than primping ($p = .002$, $d = 0.76$; $p = .009$, $d = 0.62$, respectively). See Figure 9.4 for means.

Female Characters. Pairwise comparisons revealed that amongst female characters, function ranking ($M = 2.76$, $SD = 3.89$) and utilitarian contact behaviours ($M = 3.19$, $SD = 7.47$) occurred significantly more frequently than licensed withdrawal ($M = 0.55$, $SD = 0.99$; $p < .001$, $d = 0.91$; $p = .022$, $d = 0.62$, respectively), and significantly more frequently than deference behaviours ($M = 0.55$, $SD = 1.11$; function ranking: $p < .001$, $d = 0.88$;

Table 9.7

Character Behaviour Means and Standard Deviations as a Function of Character Gender and Target Audience

	Target Audience													
	Girls				Boys				Neutral					
	Male characters		Female characters		Male characters		Female characters		Male characters		Female characters		Total	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Licensed withdrawal	0.21	0.58	0.36	0.75	2.36	2.21	0.71	1.20	0.29	0.61	0.57	1.02	0.75	1.33
Deference	0.14	0.36	1.00	1.52	0.00	0.00	0.36	0.93	0.21	0.43	0.55	1.11	0.34	0.73
Dominance	0.14	0.36	0.79	1.05	2.21	3.45	0.29	0.83	1.33	2.76	0.81	2.31	1.07	2.54
Function ranking	0.43	0.94	2.29	1.49	2.93	2.46	0.64	1.39	4.14	5.28	2.76	3.89	2.63	3.78
Utilitarian contact	0.36	0.75	0.71	0.61	4.57	5.40	1.50	1.74	8.14	7.71	7.36	12.02	3.78	6.85
Feminine touch	0.64	0.93	1.50	1.99	0.14	0.54	0.21	0.58	0.71	1.27	1.14	1.51	0.73	1.26
Bravery	0.36	0.93	0.36	0.84	1.64	1.95	0.57	0.76	0.71	0.91	1.14	1.56	0.80	1.29
Primping	0.00	0.00	1.21	1.85	0.07	0.27	0.07	0.27	0.29	1.07	0.57	1.45	0.37	1.02
Aggression	0.21	0.43	0.21	0.43	0.86	0.86	0.14	0.54	0.57	0.76	0.36	0.84	0.40	0.68

utilitarian contact: $p = .022$, $d = 0.62$). Function ranking also occurred significantly more frequently than dominance behaviours ($M = 0.81$, $SD = 2.31$, $p = .001$, $d = 0.63$), feminine touch ($M = 0.95$, $SD = 1.55$, $p = .003$, $d = 0.67$), bravery ($M = 0.69$, $SD = 1.14$, $p = .001$, $d = 0.82$), primping ($M = 0.62$, $SD = 1.41$, $p = .001$, $d = 0.81$), and aggressive behaviours ($M = 0.24$, $SD = 0.62$, $p < .001$, $d = 1.12$) among female characters.

Additionally, utilitarian contact occurred significantly more frequently than bravery ($p = .025$, $d = 0.58$), primping ($p = .027$, $d = 0.58$), and aggressive behaviour ($p = .009$, $d = 0.73$), and marginally more frequently than feminine touch ($p = .050$, $d = .50$). Finally, feminine touch and bravery occurred significantly more frequently than aggressive behaviour ($p = .008$, $d = 0.67$; $p = .021$, $d = 0.51$) among female characters. All other comparisons were non-significant ($p > .05$).

The three-way interaction between behaviour, character gender, and target audience meanwhile, was non-significant, $F (16, 312) = 1.62$, $p = .063$, $\eta_p^2 = .08$.

Aggression. Coders rated how aggressive overall the male and female characters were in each issue on a scale of 1 to 5, with 5 indicating very high levels of aggression. To examine any differences between overall male and female levels of aggression and whether this varied according to the type of magazine, a 2 (Character gender: male vs. female) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed. Analyses revealed a significant main effect of character gender, $F (1, 39) = 9.12$, $p = .004$, $\eta_p^2 = .19$, whereby male characters displayed significantly higher aggression ($M = 0.55$, $SD = 0.74$) than female characters ($M = 0.24$, $SD = 0.62$), however a significant interaction between character gender and target audience qualified this effect, $F (2, 39) = 4.26$, $p = .021$, $\eta_p^2 = .18$.
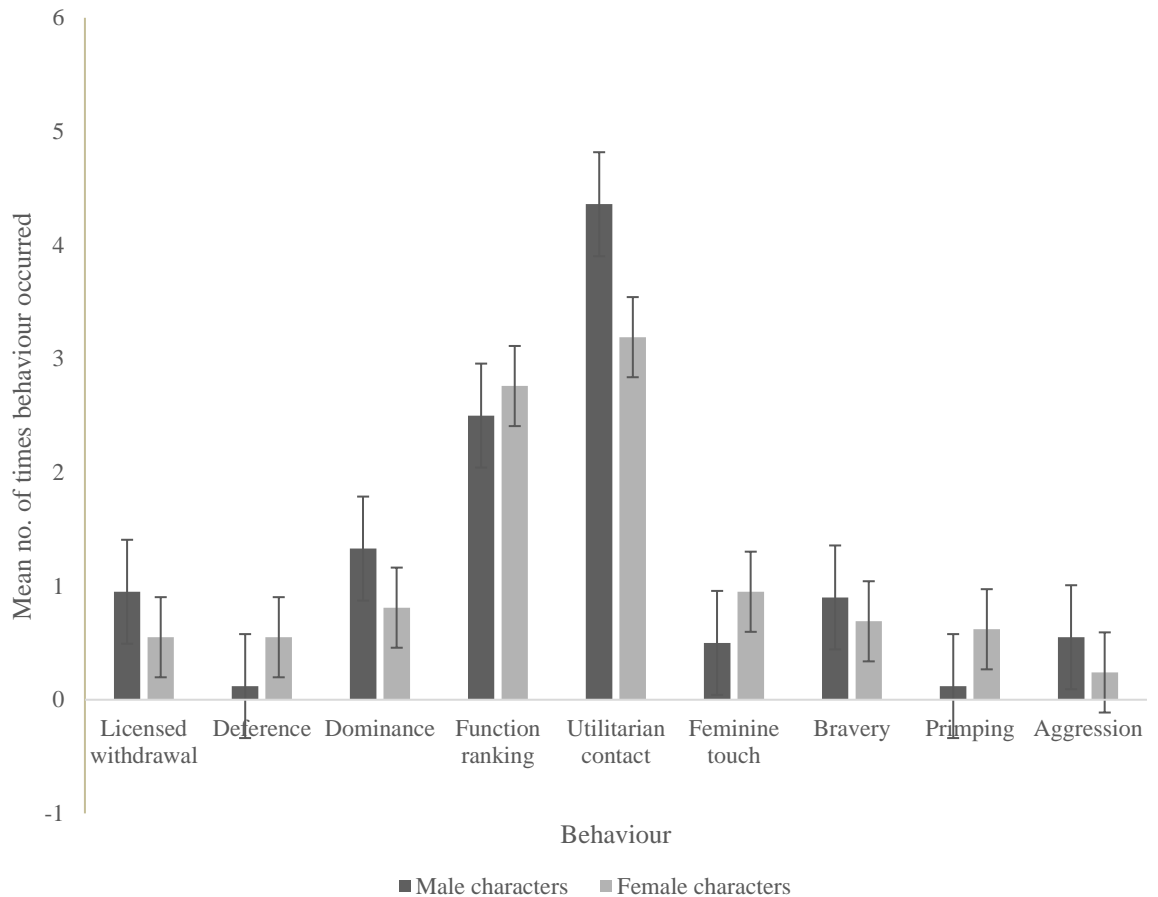
Figure 9.4. Mean Occurrence of Behaviour across all Magazines, as a Function of Character Gender. Error Bars Represent Standard Errors.

Pairwise comparisons (with Bonferroni correction) revealed that within the boys' magazines only, male characters were significantly more aggressive ($M = 0.86$, $SD = 0.86$) than female characters ($M = 0.14$, $SD = 0.54$, $p < .001$, $d = 1.03$). All other comparisons are non-significant ($p > .05$). See Table 9.7.

Activity levels. Coders rated how active overall the male and female characters were in each issue on a scale of 1 to 5, with 5 indicating very high levels of activity. To examine any differences between overall male and female levels of activity and whether this varied according to the type of magazine, a 2 (Character gender: male vs. female) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed. Analyses revealed a significant main effect of character gender, $F (1, 39) = 18.24$, $p < .001$, $\eta_p^2 = .32$, whereby male characters were more active $M = 4.31$, $SD = 0.90$) than female

characters ($M = 3.57$, $SD = 1.42$) across all types of magazine. There was also a significant interaction between character gender and target audience, $F (2, 39) = 45.11$, $p < .001$, $\eta_P^2 = .70$. Pairwise comparisons (with Bonferroni correction) revealed that male characters were more active in the boys' than the girls' magazines ($M = 4.86$, $SD = 0.36$; $M = 3.86$, $SD = 1.17$, $p = .007$, $d = 1.30$, respectively), but female characters were significantly more active in the girls' ($M = 5.00$, $SD = 0.00$) than in both the boys' ($M = 2.00$, $SD = 0.78$, $p < .001$, $d = 7.69$) and the neutral magazines ($M = 3.71$, $SD = 0.91$, $p < .001$, $d = 2.80$). Female characters were also significantly more active in the neutral than the boys' magazines ($p < .001$, $d = 2.01$). All other comparisons were non-significant ($p > .05$).

Examining the levels of activity of the male and female characters within each type of magazine, pairwise comparisons revealed that females ($M = 5.00$, $SD = 0.00$) were significantly more active than males ($M = 3.86$, $SD = 1.17$) in the girls' magazines ($p < .001$, $d = 1.93$), whilst males were significantly more active ($M = 4.86$, $SD = 0.36$) than females ($M = 2.00$, $SD = 0.78$) in the boys' magazines ($p < .001$, $d = 5.02$). There was no significant differences in the activity levels of male and female characters in the neutral magazines ($p > .05$). See Table 9.7.

Table 9.7

Overall Character Aggression and Activity Levels Means and Standard Deviations as a Function of Character Gender and Target Audience

Behaviour		Male characters				Female characters			
		Girls'	Boys'	Neutral	Total	Girls'	Boys'	Neutral	Total
Overall aggression	M	1.21	2.14	1.07	1.47	1.29	1.21	0.86	1.12
	SD	0.43	0.95	0.73	0.70	0.61	0.43	0.66	0.57
Overall activity	M	3.86	4.86	4.21	4.31	5.00	2.00	3.71	3.57
	SD	1.17	0.36	0.70	0.74	0.00	0.78	0.91	0.56

Table 9.8

Adjectives Means and Standard Deviations as a Function of Character Gender and Target Audience

Adjective		Male characters				Female characters			
		Girls'	Boys'	Neutral	Total	Girls'	Boys'	Neutral	Total
'Fast'	M	0.00	0.36	0.07	0.14	0.07	0.00	0.07	0.05
	SD	0.00	0.75	0.27	0.34	0.27	0.00	0.27	0.18
'Strong'	M	0.00	0.14	0.29	0.14	0.14	0.00	0.07	0.07
	SD	0.00	0.54	0.83	0.46	0.36	0.00	0.27	0.21
'Brave'	M	0.21	0.36	0.36	0.31	0.07	0.07	0.21	0.12
	SD	0.80	0.75	0.93	0.83	0.27	0.27	0.43	0.32
'Pretty'	M	0.07	0.00	0.00	0.02	0.21	0.00	0.00	0.07
	SD	0.27	0.00	0.00	0.09	0.43	0.00	0.00	0.14
'Caring'	M	0.00	0.00	0.29	0.10	0.14	0.00	0.36	0.17
	SD	0.00	0.00	0.73	0.24	0.36	0.00	0.63	0.33
'Kind'	M	0.00	0.14	0.21	0.12	0.29	0.07	0.29	0.22
	SD	0.00	0.54	0.58	0.37	0.47	0.27	0.61	0.45
'Clever'	M	0.07	0.00	0.29	0.12	0.14	0.07	0.21	0.14
	SD	0.27	0.00	0.47	0.25	0.36	0.27	0.43	0.35

Adjectives. To examine the words used to describe male and female characters in the different types of magazine, a 7 (Adjectives: fast vs. strong vs. brave vs. pretty vs.

caring vs. kind vs. clever) x 2 (Character gender: male vs female) x 3 (Target audience: girls vs. boys vs. neutral) mixed ANOVA was performed, with adjectives and character gender included as within-subjects factors, and target audience as a between-subjects factor. Analyses revealed no effect of character gender or of adjectives, nor was the interaction between adjectives and target audience significant ($ps > .05$). However, there was a significant interaction between character gender and target audience, $F(2, 39) = 4.42$, $p = .019$, $\eta_p^2 = .19$; pairwise comparisons exploring this interaction have already been reported above[2]. Contrary to hypotheses, the interaction between character gender and adjectives was non-significant; Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(20) = 93.94$, $p < .001$, therefore Greenhouse-Geisser corrected tests are reported ($\varepsilon = .61$); $F(3.64, 142.10) = 2.07$, $p = .094$, $\eta_p^2 = .05$. The three-way interaction between character gender, target audience, and adjectives also non-significant ($p > .05$). See Table 9.8.

Discussion

The present study aimed to examine the prevalence of gender stereotypic messages in young children's magazines. In line with hypotheses, it was found that magazines targeted at boys had titles which were presented in masculine-typed colours, and the neutral magazines had titles which were presented in gender neutral colours. Mirroring Study 3's findings, there were more male than female characters in the boys' magazines but no significant difference in the number of male and female characters in the gender neutral magazines, nor the girls' magazines In regards to the themes portrayed in the magazines, hypotheses that 'fashion' and 'home' themes would occur more frequently in girls' than boys' or neutral magazines were met, supporting findings from Hata (2014), as was the prediction that the theme of 'jobs' would occur more frequently than other theme in the boy's magazines. The theme of 'jobs' also appeared more frequently in the boys' than the girls' or neutral magazines.

However, contrary to predictions, magazines targeted at girls had titles which were depicted in gender counterstereotypic colours more often than expected. Cunningham and Macrae (2011) found that consumer products were dominated by gendered colours; in terms of the magazines this was found in relation to the colour schemes for the male audiences but not for the female audiences. This may reflect the stricter gender norms for boys than for girls; whereby girls can cross gender boundaries more readily and like masculine-colours, but boys actively avoid pink (see LoBue & DeLoache, 2010). Similarly, there were more male than female characters in the boys' magazines but not more female than male characters in the girls' magazines, and more female characters were included in girls' than boys' magazines. This reinforces ideas that boys require male role models, but girls will attend equally to female and male role models (see Katz & Walsh, 1991; Slaby & Frey, 1975).

Also, contrary to hypotheses, the themes of the stories did not differ significantly according to target audience, with the theme of co-operation being depicted most frequently overall. However, when it came to the magazines' activities, explicit instructions to seek adult help were included significantly more frequently in the girls' magazines than the boys' or neutral magazines, as predicted. A significantly greater number of activities were also identified as 'educational' via words or symbols in the boys' and neutral magazines compared to the girls'. This was also in line with hypotheses and to our knowledge is the first time this has been analysed within children's media. The latter two findings are particularly concerning as they strengthen notions that girls are less independent than boys and require more assistance, and also that the activities girls are engaging within these magazines may not be educationally beneficial, or least are not promoted as such. In line with the finding that the themes of fashion and home are more prominent in the girls' than the boys' or neutral magazines, and the theme of jobs more prominent in the boys' magazines, gender typed messages appear to be omnipresent in this

media format, which may limit children's, especially girls', beliefs about what behaviours and characteristics are valued.

With regards to the male and female characters' behaviour, supporting hypotheses, it was found that female characters displayed significantly more deference, primping, and feminine touch behaviours than male characters, whereas male characters displayed significantly more aggression than female characters and were overall rated as more active. These findings support previous research which has demonstrated the gender-typed behaviour of male and female characters in children's media (e.g., Browne, 1998; Glascock, 2001; Greenberg, 1980; Hata, 2014; Lauzen, Dozier, & Horan, 2008; Signorelli, 1989), but for the first time demonstrating that they also exist in young children's magazines in the UK.

Finally, it was hypothesised that the adjectives used to describe the characters would vary according to the character's gender, however, this hypothesis was refuted as there were no significant differences in the way male and female characters were described, nor were there differences according to the target audience. This finding could be explained by the low means for this dependent variable; it is likely that characters' qualities were not described in-text very often; therefore there were very small differences between the adjectives used, although there were differences in male and female characters' behaviour.

Overall, this in-depth analysis of young children's magazine content supports Study 3's findings and previous research which has shown that gender stereotypes are embedded in children's media (e.g., Browne, 1998; Glascock, 2001; Greenberg, 1980; Hata, 2014; Lauzen, Dozier, & Horan, 2008; Signorelli, 1989), and that the content they depict is edited in line with gender norms for their target audience, thus communicating gender stereotypic norms to readers on various dimensions. This study is the first to demonstrate

that strong gender-typed messages linked to character's behaviour, themes, and activities are embedded throughout young children's magazines which are circulated widely within the UK. The findings support socialisation theories of gender development such as social learning theory (Bandura, Ross, & Ross, 1961; Mischel; 1966) and social role theory (Eagly, 1987) which emphasize the importance of environmental information and role models in driving gender-related knowledge and stereotypes, as well as supporting cultivation theory (Gerbner, 1998) which posits that repetition of themes and stereotypes in the media lead viewers to internalise norms and beliefs about the real world that match with the media content.

The current findings are particularly worrying for girls as, compared to the boys, magazines targeted at this group were likely to focus on appearance and the home, and significantly less likely to focus on jobs and highlight activities as educational. These archaic messages do little to promote gender equality and signify to girls that their interests should remain in the domain of appearance and the home. These magazines appear to promote independence in boys more than girls, as well as encouraging them to think more about future goals by referring to jobs and education.

Although it is clear from the present findings that gender stereotypic messages are prevalent in children's magazines and are likely to lead to the development of masculine and feminine stereotypes, the present study cannot determine this causal link. Cognitive theories of gender development also emphasize the importance of children themselves in interpreting gender-related information in accordance with their gender schemas and developmental stage, rather than assuming that this information in their information is passively absorbed (Kohlberg, 1966; Martin & Halverson, 1981). Although the present findings support socialisation theories of gender development and it is logical that repeated exposure to the strong gender-typed content presented in these magazines would affect children's attitudes and behaviour, it would be inappropriate to assume that this is the case

without experimentally testing this. Therefore Study 5 of the current thesis aims to overcome this limitation by examining the effect of gender stereotypic and counterstereotypic models presented in children's magazines on gender-typed preferences, stereotypes, and playmate choice.

In addition, it is important for future research to consider who buys these magazines. It is likely that parents, rather than children themselves, select and purchase these magazines; hence, the content does not necessarily reflect what children are interested in but rather what parents believe is appropriate according to their children's gender (Hata, 2014). As highlighted by Study 1, and previous research (e.g., Freeman, 2007), parents tend to reject gender stereotypes when asked, however, we know from Study 2 that these explicit egalitarian attitudes are contradictory to parents' implicit gender attitudes. We also know that automatic, unconscious, biases affect behaviour; therefore, parents' implicit gender-related attitudes may be driving magazine choices for their children, particularly if decisions are being made quickly. This should be investigated by future studies.

In conclusion, it is clear that the magazines analysed in this study contain different content according to the gender of the target audience which adheres to gender stereotypic norms. Although the effect of this gender-typed content on children's attitudes and behaviour cannot be determined from the present study, nor was that the aim, it is likely that the pervasiveness of these gender stereotypes informs children's ideas about what is socially acceptable for their own gender and encourage adherence to gender norms (see Lipkin, 2009). This is particularly concerning for readers of 'girls'' magazines, as outdated stereotypes related to appearance and the lack of attention drawn to education and jobs within these issues could potentially stifle girls' aspirations and limit their interests. Parents should be aware of the extent of gender stereotyped information portrayed by these magazines so that they can make informed choices when purchasing them for their

children. Marketers and editors of this media format are responsible for the content it delivers and therefore should consider how extensive the gender stereotypes are. As well as examining the direct effect of this magazine content on children's gender-related attitudes and behaviour, attempts should be made by researchers to inform parents and marketers of the limitations these gender stereotypic messages can have, with a view to minimising their portrayal via children's media sources.

Chapter 10 Study 5: Peer Toy Play as a Gateway to Children's Gender Flexibility:

The Effect of (Counter)Stereotypic Portrayals of Peer Models in Children's

Magazines[3]

Extensive evidence has documented the gender stereotypic content of children's media, and media is recognized as an important socializing agent for young children. Yet, the precise impact of children's media on the endorsement of gender-typed attitudes and behaviours has received less scholarly attention. We investigated the impact of stereotypic and counter-stereotypic models presented in children's magazines on children's gender flexibility around toy play and preferences, playmate choice, and social exclusion behaviour (N = 82, age 4-7 years). Children were randomly assigned to view a boy and girl model of a similar age on a magazine page playing with either a gender stereotypic or counter-stereotypic toy. In the stereotypic condition, girl models were portrayed with a toy pony and boy models were portrayed with a toy car; these toys were reversed in the counter-stereotypic condition for the girl and boy models. Results revealed significantly greater gender flexibility around toy play and playmate choices among children in the counter-stereotypic condition compared to the stereotypic condition, and boys in the stereotypic condition were more accepting of gender-based exclusion than girls. However, there was no difference in children's own toy preferences between the stereotypic and counter-stereotypic condition, with children preferring more gender-typed toys overall. Implications of the findings for media, education and parenting practices are discussed, and the potential for counter-stereotypic media portrayals of toy play to shape the gender socialization of young children is explored.

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[3] The data presented in this study has been published online: Spinner, L., Cameron, L., & Calogero, R. (2018). Peer Toy Play as a Gateway to Children's Gender Flexibility: The Effect of (Counter)Stereotypic Portrayals of Peers in Children's Magazines. *Sex Roles*. https://doi.org/10.1007/s11199-017-0883-3

Introduction

Gender-normative attitudes and behaviours, and their accompanying stereotypes, dominate children's media and popular culture (Blakemore & Centers, 2005; Leaper et al., 2002; Murnen et al., 2016; Thompson & Zerbinos, 1995). Portrayals of boys tend to emphasize masculine gender roles and stereotypically masculine play and toys; whereas portrayals of girls tend to emphasize feminine gender roles and stereotypically feminine play and toys (Cherney & London, 2006; Kahlenberg & Hein, 2010). As discussed in *Chapter 4,* these gendered messages are communicated through various forms of children's media, including TV programming and advertisements (Bakir, 2013; Bakir & Palan, 2013; Merskin, 2002), books (Foster, 2016; Skinner, 2013), video games (Miller & Summers, 2007; Sheldon, 2004), and print magazines (Spinner, Cameron, & Tenenbaum, 2016). Exposure to gender-stereotyped models in children's media has implications for children's social and gender-specific development (Coyne et al., 2014; Signorielli, 2001), and one important domain that has been understudied is the impact on children's gender flexibility in their preferences for toys and playmates. In the present study, we build on studies 3 and 4 in the present thesis and previous investigations of the impact of gendered media on children by testing the effect of exposure to gender-typed toy play by peer models in children's print magazines on young children's gender flexibility in toy and playmate preferences. In particular, we examined the extent to which various indicators of children's gender flexibility, including gender-based social exclusion, may be undermined and/or bolstered by peer models' (counter)stereotypic displays of toy play through this medium.

Gender Flexible Attitudes and Behaviour

Gender flexibility refers to an open-minded attitude around gender roles. Ruble and Martin (1998) defined it as "the willingness to apply an attribute to both sexes, rather than just to one or the other, or the recognition of the relativity of stereotypes (e.g., that norms could be different in another culture)" (p. 947). This flexibility around gender can be expressed in a multitude of ways and directed toward the self and/or others, with children

tending to show more tolerance toward others' gender flexible behaviour, but less so toward their own gender flexible behaviour (Katz & Ksansnak, 1994). Two specific contexts within which children might be able to express gender flexible behaviour are their toy preferences and playmate preferences. Gender-typed toys and same-gender playmates are preferred in children as young as 4 years old (Ruble, Balaban, & Cooper, 1981). The entrenchment of gender stereotypes and prejudice at such an early and formative stage of development has implications for children's identities, aspirations, and achievements (Cimpian, Mu, & Erikson, 2012) as well as the perpetration of gender-related bullying, peer victimization, and social exclusion (Killen & Stangor, 2001).

Moreover, in westernized societies, gender segregation remains a salient feature of our lives and surrounding environments, and contributes to poor gender relationships (Leaper, 1994). Gender segregation of peer groups is one of the most salient aspects of children's social and cognitive development (Geary & Bjorklund, 2000; Killen & Stangor, 2001; Maccoby, 2002). By 6 years of age, children spend significantly more time playing with children of the same gender compared to the other gender (Maccoby & Jacklin, 1987). Martin and Fabes (2001) found that playing in same-gender peer groups increases gender-stereotyped behaviour. Social exclusion can have severe consequences for children, including reduced academic motivation and success, and a negative impact on mental health and wellbeing (Buhs, Ladd, & Herald, 2006). Identifying strategies to encourage mixed-gender and counter-stereotypic play is useful because these experiences expose children to a wider variety of play styles and expand opportunities for cognitive and social development (Fabes et al., 2003). It is therefore important to find a way to encourage mixed-gender friendships in children as a means of attenuating gender-typed behaviour. We focus on gender flexibility in the present study as one potentially malleable social-cognitive factor that might improve gender relationships for children now and for the adults they will later become.

Children's Print Magazines as Gender Socializing Medium

There are a number of theoretical accounts for how gender identity develops and why it is relatively inflexible. According to gender schema theory (Bem, 1981, 1983), deeply rooted gender polarization in cultural discourse and social institutions promotes the development of cognitive schemas for gender in children at an early age, whereby children acquire a learned readiness to evaluate, organize, and filter information and behaviour in terms of what boys and girls should and should not do (Martin & Ruble, 2004). From the perspective of cognitive social learning theorists (Bussey & Bandura, 1999, 2004), environmental agents provide and reward models of gender-normative behaviour for children to observe and imitate, thereby shaping and reinforcing gender-role attitudes and behaviour. Cultivation theory argues that the repetition of themes and stereotypes over time in the media, and television programming specifically, leads viewers to cultivate beliefs about the real world that match with the media content (Gerbner, 1998). Together, these theoretical accounts converge on the idea that male and female children are transformed into masculine and feminine adults through a variety of gender socialization forces and processes.

Media represent a powerful socializing agent of gender-role norms because they communicate our cultural definitions of gender normativity in a myriad of formats and settings. To date, much of the research on the impact of gender-stereotypic portrayals in media has been conducted in the United States (Collins, 2011), with less evidence available from other Western countries. Indeed, despite shifts in the gender roles assumed by women and men in recent decades (Rich, 2005), and the increased professional achievements of women (Hunt, 2004), the UK largely remains a "masculine" society (Hofstede, 2001): Despite the fact that the gender pay gap is the lowest it has even been in the UK, women still earn more than 18 percent less than their male counterparts, and occupations remain highly gender-segregated (Government Equalities Office, 2016). The dominant portrayals of women in popular British print magazine advertisements continue to perpetuate gender stereotypical representations of them (Plakoyiannaki & Zotos, 2009).

Moreover, the actual and aspirational choices for occupations among girls living in the UK continue to reflect deeply entrenched gender roles (Gould, 2008), with markedly more girls indicating they want to be models (32%) or actors (29%) compared to engineers (4%) or scientists (14%). This sexist cultural context provides an important site for investigation of the impact of gender-stereotypic portrayals in children's media and how we might attenuate it.

Children's magazines represent one print-based medium that remains popular among young children, with approximately 1.8 million children's magazines being sold in the UK in 2015 (Statista, 2016a) and 45% of 5- to 7-year-olds in the UK being classified as regular readers of magazines, books, or comics (Statista, 2016b). Children's magazines present gender stereotypes through the images, activities, emotions, colours, advertisements, and narratives featured throughout the pages. A unique feature of children's magazines is the use of reader's pages, which feature photos of actual readers of the magazine and information about them, as opposed to fictional and/or less identifiable characters. Shutts et al. (2010) demonstrated that children prefer objects and activities endorsed by models of the same gender and age as them, even though children fail to acknowledge the influence of these social categories on their decisions. We also know that peers are strong enforcers of gender-normative play (Kornienko et al., 2016). We propose that portrayals of age-matched peers who share an interest with readers through the magazine may serve as effective social models for the communication of gender-typed attitudes and behaviours in media aimed at young children, especially gender-typed toy play.

Gender-Typed Toys and Toy Play as Gender Socializing Cultural Products

Children's toys represent influential cultural products that are strongly gender-stereotyped (Cherney & London, 2006), even in societies with an explicit emphasis on gender equality policies, such as Sweden (Nelson, 2005). This pattern is unsurprising given

the extent to which many popular toys feature gender-stereotyped characteristics in their design (Blakemore & Centers, 2005; Murnen et al., 2016), and explicitly labelled as "boy toys" or "girl toys" in the marketing of these products and within the stores where they are sold (Auster & Mansbach, 2012; Kahlenberg & Hein, 2010)—consumers would be hard-pressed to miss the "pink aisle" in any major toy store. Findings from experimental studies indicate that children prefer gender-typed toys in terms of both their function and colour (Weisgram et al., 2014; Wong & Hines, 2015). For example, Weisgram et al. (2014) found boys prefer masculine to feminine toys, and girls dislike masculine toy and colour combinations more than any other toy type and colour combination. Research has also shown that children's toy preferences are influenced by the *way* in which toys are modelled and *who* is modelling them (e.g., Bradbard & Endsley, 1983). Children favour novel toys when they are identified with the children's own gender, and toys modelled by a same-gender child are rated as more attractive (Shell & Eisenberg, 1990).

This gender divide in toy preferences merits scientific and practitioner interest because different types of toys facilitate different types of play, and play types have been associated with different developmental trajectories for social and cognitive skills in children. Research with young children has shown that traditional toys for boys (e.g., cars, video games) facilitate the development of visuo-spatial skills and promote a more agentic orientation toward self and others (De Lisi & Wolford, 2002; Jirout & Newcombe, 2015), whereas traditional toys for girls (e.g., dolls, Disney princesses) facilitate the development of nurturing and empathy skills and promote a more communal and appearance-focused orientation toward self and others (Coyne et al., 2016; Dittmar et al., 2006; Li & Wong, 2016). In addition, there is evidence that children's cultural products, including toys, are becoming more sexualized in gender divergent ways (Boyd & Murnen, 2017; Zurbriggen & Roberts, 2013). One study has also linked gender-stereotyped toy play to the career cognitions of 4-to-7-year old children (Sherman & Zurbriggen, 2014). Specifically, girls who played with Barbie indicated fewer future career options for themselves compared to

what they indicated for boys, whereas girls who played with Mrs. Potato Head did not indicate such differences in future career options. No comparable effect was observed for boys. Thus, the toys that children prefer to play with matters for their overall development.

Effects of Counter-stereotypic Models on Gender Flexible Attitudes and Behaviour

Research with children has shown that children's gender flexibility can be increased through exposure to counter-stereotypic and non-traditional models of gender-related behaviour (Abad & Pruden, 2013; Steyer, 2014). Indeed, if stereotypic portrayals and models provide one mode of gender socialization, then counter-stereotypic portrayals and models provide another mode of gender socialization. For example, after exposure to counter-stereotypic portrayals of women in television commercials (vs. stereotypic portrayals), both girls and boys reported less gender-typed views toward women (Pingree, 1978). After exposure to counter-stereotypic (vs. stereotypic) portrayals of female characters in children's books, both girls and boys demonstrated stronger preferences for gender neutral toys compared to gender-typed toys (Ashton, 1983). Focusing specifically on highly gender-typed children over a 4-month period, researchers demonstrated a significant shift away from gender-typed toy play after exposure to fictional stories featuring gender neutral and gender counter-stereotypic toy play, but only for girls (Green, et al., 2004). Pike and Jennings (2005) further demonstrated that young participants exposed to "real children" engaged in toy play in traditional (all boys) or non-traditional (all girls) settings in television commercials were more likely to categorize toys as appropriate for "both boys and girls" if they have seen the non-traditional commercial; and this effect was stronger for boys than girls. Collectively, these findings suggest that gender-typed toy preferences and attitudes are malleable.

Encounters with counter-stereotypic gender-related behaviour may also impact gender-related attitudes and behaviour beyond toy play preferences. Research has demonstrated that self-perceptions, interests, and pursuits are affected by exposure to gender counter-stereotypic models. For example, exposure to female protagonists

displaying gender atypical behaviour in children's books increased the number of activities

and occupations identified as gender appropriate for women to undertake amongst 111 3rd

and 4th grade boys and girls (Scott & Feldman-Summers, 1979). Children who were

assigned gender-neutral textbooks to practice their reading later judged more activities as

appropriate for girls and boys than those who were assigned gender-typed textbooks

(Karniol & Gal-Disegni, 2009). Nhundu (2007) also found that girls in Zimbabwe who

read biographical stories of women in gender atypical careers adjusted their own career

aspirations in non-traditional directions. On the while, given the fact that pervasive

portrayals of gender stereotypes more broadly serve to channel and limit children's

interests, experiences, and activities over time (Serbin et al., 1994), these findings

underscore the importance of investigating the potential for counter-stereotypic models and

representations of gender-related behaviour to increase children's gender flexibility.

Less research has examined the effects of counter-stereotypic gender portrayals on

children's perceptions of other children and their behaviour toward them. Research in

children with congenital adrenal hyperplasia (CAH) and without CAH has provided some

insights (Pasterski et al., 2011). Using the Playmate and Play Style Preferences Structured

Interview (PPPSI) and cartoon depictions of peers, children were presented with a social

conflict whereby they had to choose between an other-gender playmate who was playing

with a same-gender toy (e.g. for boys, a girl playing with vehicles) or a same-gender

playmate who was playing with an other-gender toy (e.g. for boys, a boy playing with a tea

set). Most relevant to the present study, the findings for the unaffected children

demonstrated that boys chose playmates based on the play style of the peer rather than the

peer's gender label, whereas girls chose playmates based on play style and peer gender

label. Thus, play style, rather than gender per se, may underlie gender segregated play in

children.

These findings are consistent with Martin, Fabes, Hanish, Leonard, and Dinella's

(2011) cognitive-behavioural similarity model, which proposes that children can overcome

preferences for same-gender peers if there are behavioural similarities with an other-gender

peer. For instance, a boy may display a similar preference for playing with a girl who

enjoys trucks as he would for playing with a boy. In other words, children who engage in

counter-stereotypic play may be integral to normalizing gender desegregation and gender

inclusion. Research with older children has indicated that by the age of nine, children are

aware of the potential for exclusion by their peers if they challenge gender-stereotypic

group norms by engaging in counter-stereotypic activities, especially if boys try to engage

in female-stereotypic activities (Mulvey & Killen, 2015). It is less desirable for boys to

exhibit feminine behaviour or engage in feminine activities than it is for girls to exhibit

masculine behaviour or engage in masculine activities, and therefore boys are more likely

than girls to be penalized and excluded by peers for breaking from gender norms

(Blakemore, 2003; Horn, 2008). The overall findings from Pasterski et al.'s (2011) study

suggest that a perceived shared interest in a play activity may be a critical piece to

cultivating more gender flexibility and less social exclusion, as children's preferences for

gender-typed toys and toy play appear earlier in development and before the emergence of

gender-segregated group play (Campbell, Shirley, & Caygill, 2002; Serbin et al., 1994). To

date, there is limited research on this possibility in young children.

The Present Study

The present study integrates and extends previous research on the effects of gender

stereotypic vs. counter-stereotypic media portrayals of children on a set of gender flexible

attitudes and behaviour in young children, and also builds on the findings from studies 3

and 4 in the present thesis by experimentally testing the effect of magazine content on

different dimensions of children's gender flexibility.

We focused on the impact of portrayals of children engaged in gender stereotypic

or counter-stereotypic toy play in print magazines, depicted in the form of real children

playing with their toys and who were fellow readers of the magazine, and in a format made

to resemble the content of a Reader's Page that is often found in children's magazines. The depictions of the children included an age-matched male and female child to bolster the validity and potential impact of the peer model (Bartini, 2006). The child models were depicted as playing with a toy deemed appropriate for their own gender (stereotypic toy play) or a toy deemed appropriate for the other gender (counter-stereotypic toy play). This design allowed us to randomly assign children to view magazine content that portrayed a boy and girl engaged in stereotypic toy play or magazine content that portrayed a boy and girl engaged in counter-stereotypic toy play.

We also used a variety of markers of gender flexibility to assess the degree to which the magazine content would differentially shift the gender-related preferences and attitudes of young children. Specifically, we examined whether exposure to counter-stereotypic (vs. stereotypic) peer models through this medium would impact preferences for gender-typed toys, attitudes toward gender-typed toy play, playmate preferences, and the endorsement of gender-based social exclusion. The focus on playmate preferences and gender-based social exclusion represent particularly understudied outcomes among this developmental age group of 4–7 year-olds, especially in the context of stereotyped media content exposure. We focused on this age range because it is between these ages that children's gender identity and gender-related knowledge, attitudes, and behaviours develop significantly (Serbin & Sprafkin, 1986; Signorella et al., 1993; Zosuls et al., 2009).

In the present study, we tested the following ten hypotheses. Firstly, across conditions, we expected that gender flexible toy play would be positively correlated with age (hypothesis 1), because as children begin to understand conservation of gender, their beliefs about the toys that girls and boys can play with become less rigid (Huston, 1983; Kohlberg, 1966).

For gender-typed toy preferences, we expected an interaction between participant gender and toy type, whereby boys would prefer to play with masculine toys over feminine toys and girls would prefer to play with feminine toys over masculine toys (hypothesis 2a).

We also expected a three-way interaction between participant gender, condition, and toy type whereby children in the counter-stereotypic condition would prefer other gender toys more than children in the stereotypic condition, demonstrating greater gender flexibility around toy type (hypothesis 2b).

For gender-typed toy play, we expected a main effect of participant gender on gender-typed toy play, whereby girls would demonstrate more gender flexible attitudes towards toy play than boys (hypothesis 3a). We also expected a main effect for condition, whereby children in the counter-stereotypic condition would be more likely to label toys as being for both boys and girls compared to children in the stereotypic condition, demonstrating more gender flexible attitudes around toy play (hypothesis 3b).

For gender-typed playmate choice, we expected both girls and boys to be more likely to choose a same-gender than an other-gender playmate in the stereotypic condition, whereas we did not expect to observe this bias in the counter-stereotypic condition (hypothesis 4a), thereby demonstrating more gender flexible attitudes around playmate preferences in the counter-stereotypic condition. Also in the counter-stereotypic condition, we expected that boys would be more likely than girls to choose an other-gender playmate compared to a same-gender playmate (hypothesis 4b). We also expected that the reasons children would provide for their playmate choice would be more likely refer to toy play style than the playmate's gender in the counter-stereotypic condition, whereas we expected toy play style and playmate's gender to be given as reasons in the stereotypic condition (hypothesis 4c).

For gender-based social exclusion, we expected a main effect for participant gender, whereby boys would report more endorsement of gender-based social exclusion than girls (hypothesis 5a). We also expected a main effect for condition, whereby children in the counter-stereotypic condition would report less endorsement of gender-based social exclusion than children in the stereotypic condition (hypothesis 5b), demonstrating more gender flexibility around play groups and less gender-based social exclusion in the

counter-stereotypic condition. Finally, we expected an interaction between participant gender and condition, whereby boys would report more gender-based social exclusion scores than girls in the stereotypic condition, and posed an exploratory hypothesis for the counter-stereotypic condition, whereby boys may report significantly less gender-based social exclusion than girls or continue to show significantly more gender-based social exclusion than girls, given the greater rigidity of gender rules for boys demonstrated in previous research (Mulvey & Killen, 2015).

Method

Participants

We recruited 96 British children who were between the ages of four and eight years old. Of this initial sample, 10 participants failed to complete all measures due to time constraints and were not included in the final analysis. In addition, given that only four 8-year-olds completed the study, these data were also not included in the final analysis due to minimal representation of this age group. The final sample subjected to analysis included 82 children (40 boys and 42 girls) aged 4–7 years old (M_{age} = 5.4 years). Children were recruited from an urban primary school in a generally low SES neighbourhood. The sample was predominantly White, reflecting the low ethnic diversity in the area. Ethical approval was obtained from the Research Ethics Committee at the University of Kent and we complied with British Psychological Society guidelines for research with children. Head teacher, parental, and participant consent were obtained prior to commencement of the study.

Procedure

Children were told that they were going to be shown a magazine page which contained some pictures of children playing with their favourite toys, and that they would be asked a few questions about what they thought of the pictures. Children were reminded that there were no right or wrong answers and that their answers were private. Once verbal

consent had been obtained, children were randomly assigned to the stereotypic or counter-stereotypic condition. In the stereotypic condition, children viewed a magazine page featuring a male child playing with a car and female child playing with a pony, while in the counter-stereotypic condition they viewed a magazine page featuring a male child playing with a pony and a female child playing with a car. Participants viewed the magazine page for two minutes. Whilst the child viewed the magazine page, the experimenter read aloud the following words from the page: "We love it when you write to us with interesting facts about your life, so this week we have asked our readers to send in photos of them playing with their favourite toys. Check out Sarah and Thomas' photos below!" Text in speech bubbles was presented next to the male and female children which the experimenter also read aloud. In the stereotypic condition, next to the female child read: "Hello! My name is Sarah, and my favourite toy is My Little Pony! I have lots, and play with them every day." Next to the male child read: "Hello! My name is Thomas, and every day I like to play with my cars. They're my favourite toys!" In the counter-stereotypic condition the content of the speech bubbles was identical except for the child's name; the name "Sarah" was replaced with "Thomas" and "Thomas" with "Sarah" to reflect the counter-stereotypic toy preferences displayed by the children in the images. These pages are representative of those found in children's magazines, where children's photos and letters to the magazine are displayed, or the magazine presents a feature on a reader.

Immediately after viewing the assigned magazine pages, children completed a series of measures that assessed gender flexible attitudes and behaviour. All study materials were presented via Qualtrics on tablet computers. Children completed the measures individually with an experimenter in a quiet area.

Measures of Gender Flexibility

Gender-typed toy preferences. To assess gender flexible toy preferences, we presented children with pictures of eight different toys, including four stereotypically feminine toys (a wand, a pony, a baby doll, and a tea set) and four stereotypically

masculine toys (a truck, a jet fighter plane, a tool kit, and a car), based on Blakemore and Centers's (2005) categorization of toys as "Strongly Feminine Toys" and "Strongly Masculine Toys." The toys were presented to participants individually and in a randomized order. We coded children's responses to the same question for the eight toys listed above: "How much do you like this toy?" Children selected from one of three response options based on a scale depicting schematic faces: "Not at all" (depicted with a frowning face and coded as 1), "A little" (depicted with a slightly smiling face and coded as 2), or "A lot" (depicted with a broadly smiling face and coded as 3). Total scores were calculated separately for the feminine toys ($\alpha = .89$) and masculine toys ($\alpha = .77$) by summing the response for the four toys in each category separately. Scores for both types of toys could range from 4 to 12, with higher scores indicating a greater preference for the respective toy type.

Gender-typed toy play. To assess gender flexible attitudes around toy play, we coded children's responses to the following question for the eight toys listed above: "Who should play with this toy?" Children selected from one of three response options, which were also paired with the corresponding gender symbols that appear on restroom signs: "Only Girls" (coded as 0), "Only Boys" (coded as 0), or "Both Girls and Boys" (coded as 1). Children could respond verbally or by pointing to the symbols of their choice (Weisgram et al., 2014). Total scores were calculated by summing the assigned codes across the eight toys. Scores could range from 0 to 8, with higher scores indicating more gender flexible attitudes toward toy play. It should be noted that no children indicated a counter-stereotypical endorsement, for example "only boys should play with dolls". This means that all responses coded as '0' were stereotypical responses.

Gender-typed playmate choice. To assess gender flexible attitudes in playmate choice, children were presented with pictures of the child models they had viewed on the magazine pages (i.e. either the boy and girl engaged in stereotypic or counter-stereotypic toy play) and were asked: "If you had to choose one of the children to play with, which one

would you choose, the girl or the boy?" If children selected a girl playmate this was coded as 0; if they selected a boy playmate this was coded as 1. After selecting a playmate, we coded children's responses to the question: "Why would you choose to play with this child?" Responses were coded into categories based on whether they referred to the gender label of the child model (coded 1), the type of toy played with by the child model (coded 2), or some other feature (coded as 3).

Gender-based social exclusion. We adapted a measure from Killen & Stangor (2001) to assess gender flexible attitudes around social exclusion. We presented two scenarios to the children, in a randomized order, and coded their responses. To assess the tendency to exclude the girl from boys' play, we presented the following scenario: "Imagine that a group of boys are playing with cars. This girl (from the magazine page they viewed) comes over and asks if she can play. Two of the boys say that she cannot play because she is a girl. Is it alright or not alright for the boys to tell the girl that she can't play?" To assess the tendency to exclude the boy from girls' play, we presented the following scenario: "Imagine that a group of girls are playing with dolls. This boy (from the magazine page they viewed) comes over and asks if he can play. Two of the girls say that he cannot play because he is a boy. Is it alright or not alright for the girls to tell the boy that he can't play?" For each scenario, children selected from one of three response options to indicate the extent to which they believed it was all right to exclude the child from play: "Not alright" (coded 1), "A little bit alright" (coded 2), or "Alright" (coded 3). A total gender-based exclusion score was computed by summing the responses given for the two scenarios. Scores ranged from 2 to 6, with higher scores indicating that gender-based social exclusion was more acceptable.

Results

Table 10.1 presents the overall means and standard deviations for the study variables, as well as the zero-order correlations for the associations among the continuous

variables and point-biserial correlations for associations with the dichotomous variable (i.e., gender-typed playmate choice). Power analyses indicated that the statistical tests were sufficiently powered and the sample size was adequate for each planned analysis, with power to find an effect ranging between 74% and 99% across all analyses (Howell, 1992). Correlational analyses were performed separately on the boys' and girls' scores to examine initial relationships between the gender flexibility variables; see Table 10.1 for all correlation co-efficients. In relation to age, analyses revealed that firstly, in support of hypothesis one, there was a significant positive relationship between age and flexibility around gender-typed toy play in both boys ($r = .41$, $p = .009$) and girls ($r = .56$, $p < .001$); as children's age increased they were more likely to believe that both boys and girls should play with both masculine and feminine toys. Secondly, there was a significant negative relationship between age and own-gender-typed toy preference amongst boys ($r = -.36$, $p = .026$) *and* girls ($r = .55$, $p < .001$); as age increased, boys showed less interest in the masculine toys and girls showed less interest in the feminine toys. Analyses also revealed a significant negative relationship between age and acceptance of gender-based social exclusion, but only amongst the boys ($r = -.39$, $p = .014$); as age increased, boys showed less acceptance of gender-based social exclusion across both conditions. No other variables correlated significantly with age.

Table 10.1

Descriptive Statistics and Correlations for All Study Variables as a Function of Participants' Gender

	Girls	Boys			Correlations			
Variables	*M* (*SD*)	*M* (*SD*)	1	2	3	4	5	6
1. Age	5.38 (0.99)	5.43 (0.87)	--	-.55**	.09	.56**	.01	-.28
2. Gender-typed feminine toy preference	10.97 (1.39)	6.34 (2.55)	-.25	--	-.12	-.36*	-.03	-.04
3. Gender-typed masculine toy preference	6.34 (2.55)	10.82 (1.39)	-.36*	-.12	--	.35*	-.04	.12
4. Flexibility in gender-typed toy play	3.51 (2.67)	2.74 (2.54)	.41**	.33*	-.03	--	.30	-.27
5. Gender-typed playmate choice	0.24 (0.44)	0.70 (0.46)	-.12	-.27	-.16	-.42**	--	-.04
6. Gender-based social exclusion	2.57 (1.23)	3.03 (1.41)	-.39*	-.27	-.04	-.22	.13	--

Note. Values for girls (*n* = 42) are presented above the diagonal; for boys (*n* = 40), below. Point-biserial correlations are reported for the associations with the dichotomous variable of gender-typed playmate choice, where 0 = girl playmate, and 1 = boy playmate. Higher scores indicate greater preference for gender-typed masculine and feminine toys and greater flexibility in gender-typed toy play, whereas higher scores for gender-based social exclusion indicate more exclusion of other-gender playmates, and therefore *less* flexibility in this domain. Higher scores for playmate choice indicate more preference for a boy playmate.
*p <.05. **p < .01.

Also amongst boys, there was a significant positive relationship between flexibility around gender-typed toy play and feminine toy preference scores ($r = .33$, $p = .040$), and a significant negative correlation between flexibility around gender-typed toy play and playmate choice ($r = -.42$, $p = .007$); as flexibility around toy play increased, so did the likelihood that boys would choose a female playmate, across both conditions. There were no other significant correlations amongst the variables for boys.

Amongst girls, analyses revealed a significant negative relationship between flexibility around gender-typed toy play and interest in feminine toys ($r = -.36$, $p = .023$), and a significant positive relationship between flexibility around gender-typed toy play and interest in masculine toys ($r = .35$, $p = .027$). There were no other significant correlations amongst the variables for girls.

Primary analyses

Hypotheses for gender-typed toy preferences. We expected an interaction between participant gender and toy type, whereby boys would prefer to play with masculine toys over feminine toys and girls would prefer to play with feminine toys over masculine toys (hypothesis 2a). We also expected a three-way interaction between participant gender, condition, and toy type, whereby children in the counter-stereotypic condition would prefer other-gender toys more than children in the stereotypic condition, demonstrating greater gender flexibility around toy preferences (hypothesis 2b).

To test this set of hypotheses, we conducted a 2 (Condition: stereotypic vs. counter-stereotypic) x 2 (Participant Gender: girls vs. boys) x 2 (Toy Type: masculine vs feminine) mixed analysis of covariance (ANCOVA) on ratings of preference for masculine and feminine toys, with participant gender and condition as the between-subjects factors, toy type as the within-subjects factor, and age was entered as a covariate. In support of hypothesis 1a, we observed a significant interaction between participant gender and toy type, $F (1, 75) = 197.55$, $p < .001$, $\eta_p^2 = .73$. Pairwise comparisons revealed that girls

preferred the feminine toys ($M = 10.97$) to the masculine toys ($M = 7.32$; $p < .001$, $d = 2.21$), and boys preferred the masculine toys ($M = 10.82$) to the feminine toys ($M = 6.34$; $p < .001$, $d = 2.27$). However, we did not observe support for hypothesis 1b, as the interaction between participant gender, condition, and toy type was not significant, $F(1, 75) = 1.60$, $p = .210$, $\eta_p^2 = .02$, suggesting that condition did not affect children's gender flexibility around toy preferences. See Table 10.2 for means and standard deviations.

Table 10.2

Means and Standard Deviations for Gender-typed Masculine and Feminine Toy Preference scores as a Function of Condition and Participant Gender

	Stereotypic condition		Counter-stereotypic condition		Feminine toys *M*	*SD*	Masculine toys *M*	*SD*
	Feminine toys *M*	Masculine toys *M*	Feminine toys *M*	Masculine toys *M*				
Female participants	11.05	7.68	10.89	6.95	10.98	1.37	7.34	1.92
Male Participants	6.33	10.44	6.33	11.19	6.33	2.55	10.85	1.39

Hypotheses for gender-typed toy play. We expected a main effect of participant gender on gender-typed toy play, whereby girls would demonstrate more gender flexible attitudes toward toy play than boys (hypothesis 3a). We also expected a main effect for condition, whereby children in the counter-stereotypic condition would be more likely to label toys as being for both boys and girls compared to children in the stereotypic condition, demonstrating more gender flexible attitudes around toy play (hypothesis 3b).

Across conditions, we also expected gender flexible toy play would be positively

correlated with age (hypothesis 3c).

To test this set of hypotheses, we conducted a 2 (Participant Gender) x 2

(Condition) between-subjects ANCOVA on attitudes toward gender-typed toy play, with

age entered as a covariate. Refuting hypothesis 2a, attitudes toward gender-typed toy play

did not vary as a function of participant gender, F (1, 75) = 3.02, p = .086, η_p^2 = .04.

However, in support of hypothesis 2b, there was a significant main effect of condition, F

(1, 75) = 4.29, p = .042, η_p^2 = .05, whereby attitudes toward gender-typed toy play were

significantly more flexible among children in the counter-stereotypic condition (M = 3.64)

compared to the stereotypic condition (M = 2.60). Children were more likely to endorse

masculine toys and feminine toys as appropriate for both boys and girls if they had viewed

magazine content depicting peer models playing with counter-stereotypic toys.

Hypotheses for gender-typed playmate choice. We expected that both girls and

boys would be more likely to choose a same-gender than an other-gender playmate in the

stereotypic condition, whereas we did not expect to observe this bias in the counter-

stereotypic condition (hypothesis 4a), thereby demonstrating more gender flexible attitudes

around playmate preferences in the counter-stereotypic condition. Also in the counter-

stereotypic condition, we expected that boys would be more likely than girls to choose an

other-gender playmate compared to a same-gender playmate (hypothesis 4b). We also

expected that the reasons children provide for their playmate choice would more likely

refer to toy play style than the playmate's gender in the counter-stereotypic condition,

whereas we expected toy play style and playmate's gender to be given as reasons in the

stereotypic condition (hypothesis 4c).

To test this set of hypotheses, we conducted two-way chi-square tests with Yates

correction for continuity to examine the association among participant gender and gender-

typed playmate choice for each condition. In support of hypothesis 4a, in the stereotypic

condition, girls were significantly more likely to choose a same-gender playmate (91% vs.

9%) and boys were significantly more likely to choose a same-gender playmate (94% vs.

6%) compared to an other-gender playmate, χ^2 (1) = 26.51, p < .001, Cramer's V = .85;

however this pattern was not observed in the counter-stereotypic condition, where girls

(50% vs. 50%) and boys (45% vs. 55%) were equally likely to select an other-gender vs.

same-gender playmate, respectively, χ^2 (1) = 0.00, p = 1.00, Cramer's V = .05. However,

this finding refutes hypothesis 4b, as in the counter-stereotypic condition, boys were not

more likely than girls to choose an other-gender over a same-gender playmate. The actual

frequencies are presented in Table 10.3.

To examine children's reasoning behind their playmate preferences, we conducted

two one-sample chi-square tests separately for each condition. In support of hypothesis 4c,

children in the counter-stereotypic condition were significantly more likely to refer to the

playmate's play style than the playmate's gender (58% vs. 26%) or another reason (16%)

when choosing one of the playmates, χ^2 (2) = 10.95, p = .004, Cramer's V = .38; however

this pattern was not observed in the stereotypic condition, where children were equally

likely to refer to the playmate's gender (23%), play style (46%), or another reason (31%)

for choosing their playmate, χ^2 (2) = 3.23, p = .199, Cramer's V = .20. The actual

frequencies are presented in Table 10.4.

Table 10.3

Frequencies of Playmate Choice as a Function of Participant Gender and Condition

	Participant Gender		Total
	Female	Male	
Stereotypic Condition			
Chose female playmate	21	2	22
Chose male playmate	1	17	18
Counter-stereotypic Condition			
Chose female playmate	10	10	20
Chose male playmate	9	11	20

Hypotheses for gender-based social exclusion. We expected a main effect for participant gender, whereby boys would report more endorsement of gender-based social exclusion than girls (hypothesis 5a). We also expected a main effect for condition, whereby children in the counter-stereotypic condition would report less endorsement of gender-based social exclusion than children in the stereotypic condition (hypothesis 5b). Finally, we expected an interaction between participant gender and condition, whereby boys would report more gender-based social exclusion scores than girls in the stereotypic condition, and posed an exploratory hypothesis for the counter-stereotypic condition, whereby boys may report significantly less gender-based social exclusion than girls or, given the greater rigidity of gender rules for boys demonstrated in previous research, continue to demonstrate significantly more gender-based social exclusion than girls.

To test this set of hypotheses, we conducted a 2 (Condition) x 2 (Participant Gender) between-subjects ANCOVA on gender-based social exclusion scores, with age as a co-variate. Counter to our expectations for hypothesis 5a or 5b, there was no significant

main effect for participant gender, $F(1, 77) = 2.75$, $p = .101$, $\eta_p^2 = .03$, or condition, $F(1, 77) = 0.25$, $p = .620$, $\eta_p^2 = .00$. However, the analysis did reveal a significant interaction, $F(1, 77) = 4.59$, $p = .035$, $\eta_p^2 = .06$. Pairwise comparisons revealed significantly more endorsement of gender-based social exclusion for boys ($M = 3.27$) compared to girls ($M = 2.23$) in the stereotypic condition $p = .008$, $d = 0.92$, but not between boys ($M = 2.81$) and girls ($M = 2.89$) in the counter-stereotypic condition, $p = .733$, $d = 0.06$, suggesting some attenuation of boys' gender-typed biases around play style and playmates if they are already aware that the child possesses a counter-stereotypic play style.

Table 10.4

Frequencies of Reasons for Playmate Choice in each Condition

	Stereotypic Condition	Counter-stereotypic condition	Total
Playmate's gender	9	10	19
Playmate's play style	18	22	40
Other	12	6	18
Total	39	38	

Discussion

The present study investigated the impact of stereotypic and counter-stereotypic peer models presented in children's magazines on children's gender flexibility around gender-typed toy preferences for themselves and others, playmate choices, and endorsement of gender-based social exclusion. Most of the hypotheses were fully supported and a number of important patterns were observed. Children did not demonstrate more gender flexible attitudes in their own preferences for gender-typed toys (i.e., girls

preferred feminine toys and boys preferred masculine toys) after exposure to counter-stereotypic content. However, children in the counter-stereotypic condition did demonstrate more gender flexible attitudes toward the toy play of other boys and girls, labelling masculine toys and feminine toys as appropriate for both boys and girls more often than children in the stereotypic condition. This study therefore builds on the findings from studies 3 and 4 by experimentally demonstrating that the content children view via magazines *does* affect the strength of their gender-typed attitudes in some domains.

In addition, we observed a strong preference for same-gender playmates over other-gender playmates among children in the stereotypic condition, but we observed no preference for same-gender playmates over other-gender playmates among children in the counter-stereotypic condition. This choice of playmate in the counter-stereotypic condition appeared to be driven more by the type of toy play being modelled by the child than the child's gender. Using a more explicit indicator of social exclusion, it was found that in the stereotypic condition, boys were more supportive of gender-based exclusion, than were girls. Meanwhile in the counter-stereotypic condition there were no significant differences between boys and girls in their endorsement of gender-based exclusion, due to a reduction in boys' endorsement of exclusion.

This study represents the first investigation of the impact of "real" counter-stereotypic peer models in children's magazines on children's gender flexibility around toy and playmate attitudes and preferences. On the whole, the findings suggest that exposure to counter-stereotypic content that challenges gender-typed toy play may be a useful strategy for attenuating gender-typed attitudes and behaviour in young children, at least more flexible thinking around the gender-typed toy play of other boys and girls.

In contrast to Green et al. (2004) who used fictional characters to display counter-stereotypic gender models, we found that "real" counter-stereotypic gender models shifted boys' as well as girls' gender-typed attitudes. This suggests that life-like examples of children engaged in counter-stereotypic toy play (in a media format) may be more effective

at changing children's gender-typed attitudes than the use of fictional characters. The use of real children as peer models may also facilitate greater perceived behavioural similarity with the peer models, which has been linked to the potential countering of gender-typed attitudes and behaviours (Martin et al., 2011). Children may have perceived themselves as similar to the other-gender peer model in the counter-stereotypic condition if the peer model displayed similar toy preferences to them, and this possibility should be tested in future research.

Although it was hypothesized that exposure to the counter-stereotypic models in the magazine would amplify children's gender flexibility, it is perhaps unsurprising that children's *own* preferences for toys remained gender-typed. This pattern is consistent with previous research, which has shown children's gender attitudes are easier to manipulate than their behaviours (for example, Bigler & Liben, 1990, in the context of gender-typed occupations). Children's own gender-related attitudes may be less flexible because of the increased risk of peer rejection associated with preferences (and behaviours) that break gender norms. Therefore, more intensive interventions with peer reinforcement may be required to effectively change children's own gender-typed toy preferences. This underscores the idea that a single exposure to gender atypical toy play would not affect deeply entrenched attitudes (Weisgram et al., 2014; Wong & Hines, 2015), a point we return to in the Limitations section.

The fact that such exposure did alter attitudes around *other's* toy play was consistent with expectations and warrants further consideration. There is some evidence to suggest that exposure to non-traditional toy play in television commercials can increase gender flexible attitudes around toy play in children between six and eight years old (Pike & Jennings, 2005). Given the role of toy play style in directing children's social and cognitive development (Alexander, 2003; Alexander & Hines, 2002; Blakemore et al., 2008; Blakemore & Centers, 2005; De Lisi and Wolford, 2002), it behoves scholars and practitioners to understand how we can harness toy play to maximize potential and growth

for all children. Furthermore, engagement with a wider variety of toys that cross traditional gender lines may increase the possibility for more cross-gender friendships to develop and be sustained, which has also shown to be beneficial for children's development (Fabes, et al., 2003).

Limitations and Future Research Directions

Although we reported some interesting results regarding the gender flexibility of young children, this study is not without its limitations. First, we recognize the impact of the present study may be limited by the fact that we did not include a control condition against which to compare the direction of the observed effects. In future research, we would recommend a comparison against a peer model playing with a gender-neutral toy (e.g., a puzzle) as well as against a non-exposure condition, which would reflect a truer baseline for gender flexible attitudes and behaviours. Furthermore, future research should standardize the images of the models across conditions. Future research should also directly compare exposure to life-like peer models with storybook characters to examine whether these affect gender flexibility to different extents. Second, we examined behavioural intentions in the context of hypothetical scenarios and contrived stimuli presented to children. An important next step in this program of research would be to examine toy and playmate preferences in the context of viewing counter-stereotypic peer models in magazines in more natural settings where actual behaviour can be observed.

Third, we presented children with one exposure to a single magazine page and the impact on gender attitudes and preferences was measured immediately afterwards. This design was adopted with the intention of providing a snapshot of how media can impact children's gender attitudes and preferences. Clearly a more intensive and regular intervention using counter-stereotypic models would be necessary for long-lasting change, and future research is required in order to examine the long-term impact of such an intervention program. Such research would also determine whether the effects observed are

due to 'priming' or more substantial changes to children's understanding of and adherence to gender stereotypes.

Fourth, the relatively small sample size limited our ability to detect small and moderate effects of the magazine exposure, and also precluded us from making age-based comparisons. However, analyses revealed that gender flexibility as measured by gender-typed toy play, own gender-typed toy preference, and gender-based exclusion (boys only) was correlated with age. Therefore, within the narrow age range tested here (4-7 years), age trends in gender flexibility were evident. Between the ages of 4- and 7-years, children undergo considerable changes in their understanding of and adherence to gender stereotypes. Rigidity and adherence to stereotypes appears to increase linearly from 4- to 6-years-old, and begins to decline thereafter (Serbin & Sprafkin, 1986; Signorella et al., 1993; Trautner et al., 2005). Future research should include a larger sample size to allow a thorough examination of developmental changes in behavioural (e.g. social exclusion, playmate preference) and attitudinal aspects of gender flexibility. Moreover, the differential effect of exposure to stereotypic and counter-stereotypic "real-life" peer models in media across this age range should also be examined. For example, research on encoding and memory processes has found that young children misremember or incorrectly process gender counter-stereotypic information to match their pre-existing gender schema (Liben & Signorella, 1980; Martin & Halverson, 1983; Signorella & Liben, 1984). This research would suggest that a single exposure to "real life" counter-stereotypic peer models would have a stronger impact among the older children in our sample. This possibility warrants further study.

We also limited the playmate choice and social exclusion measures to ask about the peer models presented to the children in the magazine. This was done in order to enhance the realistic nature of the scenarios. Future research could adapt the methods employed here to test the generalizability of this finding to new children and social situations. It would also be beneficial to include an additional response option of "both" in the playmate

choice measure to allow children to express a preference for playing with both girls and boys, instead of restricting their response to choosing one gender over the other, which may be masking children's gender flexible preferences. The PPPSI (Pasterski et al., 2005) could also be included in future research to gain more detailed information about children's play style and playmate preferences beyond what the present study was able to obtain.

It is noteworthy that, as hypothesized, the effect of counter-stereotypic models on children's gender-typed toy play and playmate preference was the same across boys and girls. In fact, for endorsement of gender-based exclusion, exposure to counter-stereotypic models brought boys' attitudes in line with girls' more flexible views. This attenuation of gender bias in younger boys is, therefore, especially revealing. It could be argued that it is easier to change girls' gender-related attitudes and behaviours, compared to boys', as greater resistance to gender atypical attitudes and behaviour is often observed among boys (Bussey & Perry, 1982; Mulvey & Killen, 2015). Furthermore, masculine traits, toys and behaviours are generally accepted as being of "higher status" than their feminine counterparts, and research has shown that children are aware of these status differences (Ruble, Martin, & Berenbaum, 2006). For that reason, it may be easier to persuade girls to move towards masculine toy preferences, for instance, than persuading boys to choose feminine toys (Blakemore, 2003, Horn, 2008). As boys and girls responded to the counter-stereotypic models similarly in the present study, the use of "real-life" children in a magazine format may overcome some of the difficulties in adjusting boys' gender-typed attitudes. However, it would be interesting for future studies to examine the social status associated with masculine and feminine toys and activities in tempering the impact of stereotypic and counter-stereotypic models on children's gender flexibility.

Practice Implications

The findings of the present study have several implications. First, these findings suggest it is possible to shift children toward more gender flexible attitudes and change children's views on gender-related play. This possibility counters lay beliefs that gender segregation and gendered toy preference are inevitable in young children, and adds to literature emphasizing the potential for change in children's attitudes about gender-related play and friendships.

In particular, the findings suggest more regular exposure to counter-stereotypic content in the media could be an effective strategy to promote gender flexibility and combat gender-related bullying (Bigler, 1999; Bussey & Perry, 1982). That such an acute exposure shifted attitudes, underscores the impact that repeated exposure to gender stereotypical media can have on young children. These findings suggest that presenting children with counter-stereotypic peer models through magazines could be used to encourage children to play with own and other-gender toys, play in mixed-gender groups, and reduce gender-based social exclusion and bullying for both gender-typical and gender-atypical children.

Educators, parents and policy-makers might benefit from this research and the approach tested to increase gender flexibility in children. This exposure technique could be extended for use in the classroom, providing more regular exposure to counter-stereotypic models in children's media, through a series of magazine articles, or news stories, that feature such models. Children could also be asked to model and create their own resources. Moreover, the research shows that children consider both play style and gender when selecting a playmate. This suggests that highlighting behavioural similarities in children could encourage mixed-gender play. We suggest encouraging mixed-gender play by teachers and parents, despite the apparent gender segregation during play, as boys and girls are willing to play with one another if they possess similar toy and play style interests.

Conclusion

Exposure to counter-stereotypic peer models in a magazine format enhances gender flexibility among young children. Children who are exposed to "real life" peer models engaged in counter-stereotypic (vs. stereotypic) play were more flexible in their attitudes towards what other children can play with, and were more likely to choose an other-gender playmate, using play style as a guide more so than s the playmate's gender. Furthermore, boys' stronger endorsement of social exclusion in the stereotypical condition was attenuated in the counter-stereotypical condition. Building on Studies 3 and 4, the results of the present study underscore the impact of media (specifically print media) on children's developing understanding of gender and conformity to gender stereotypes, but also highlights the potential use of media to challenge and disrupt gender-typed toy choices and playgroups in young children. In particular, the research highlights the potential use of "real life" models in children's print media to normalize counter-stereotypic attitudes, and perhaps behaviours, as an important avenue of future research, and intervention. On the whole, these results suggest that the observed play style and toy preferences of others could be used as a "gateway" to gender desegregation in children. We hope the present study will inspire more research to explore this possibility in children.

Chapter 11: General Discussion

Within this general discussion a summary of the research aims will be provided, followed by an overview of the key findings from the current studies. Limitations of the research will be discussed alongside key avenues for future research. Theoretical and practical implications and applications of the current research will also be explored before drawing final conclusions.

A Summary of the Research Aims and Key Findings

The studies in the present thesis aimed to further examine the ways in which parents, peers, and the media socialise children's gender stereotypes in relation to their toy preferences and gender-related attitudes. As gender remains a primary source of inequality across societies, understanding children's gender development is important beyond the academic study of it alone. Women are still under-represented in the fields of Science, Technology, Engineering, and Maths (STEM; Greenfield et al., 2002) and politics in the western world (Inter-Parliamentary Union, 2012), and whilst girls outperform boys academically at school, this success is not matched at a career level, with women trailing behind men in terms of senior positions and pay (Office for National Statistics, 2016). This thesis therefore aimed to shed further light on the role of social and cognitive factors in the development of children's gender stereotypes, and explore how gender-stereotypic beliefs may be challenged.

Drawing on several socialisation theories, including social learning theory (Bandura, Ross, & Ross, 1961), social role theory (Eagly, 1987), and cultivation theory (Gerbner, 1998), the present thesis takes a holistic approach to investigating the role of environmental agents in children's gender development. In line with social cognitive (Bussey & Bandura, 1999) and cognitive developmental theories of gender development (Bem, 1981; Kohlberg, 1966; Martin & Halverson, 1981), the present research also considered the role of children themselves as independent agents in exploration of gender-

related knowledge. Hypothesising from a variety of theoretical perspectives allowed the present studies to explore a large number of variables using a mixed methods approach. This thesis therefore makes a unique contribution to our understanding of the factors which influence children's gender-related cognitions, and reinforces the importance of considering both internal and external drivers of gender development.

The first two studies focused on the role of toys, parents, and children's cognitive selves in gender stereotype development, whilst studies three, four, and five focused on the role of the media and peers. Studying a wide range of environmental agents facilitated a broad range of research methods, ranging from experimental studies to content analyses. Examining gender in this way is a particular strength of this thesis, and makes a unique contribution to the literature.

Vitally, Study 2, in which an established measure of implicit bias was applied to the study of gender stereotypes, lead to the distinctive finding that parents possess stronger unconscious gender biases in relation to children's toys than children themselves do; thus, parents' automatic behaviour (based on these implicit biases) may be guiding children's gender-typed toy preferences to a greater extent than parents are aware, and could explain why children believe their parents possess gender-typed attitudes towards toys despite parents appearing to hold far more neutral attitudes (as unveiled in study 1). The present thesis also contributes to the literature examining the role of toy function and toy colour on children's preferences and gender-typed attitudes, and how the distinctive features of 'girls' and 'boys' toys are incorporated into developing gender schemas, guiding gender-norm understanding. The findings pertaining to the role of parents and toys have important implications for caregivers and marketers; these will be discussed in greater detail later in the chapter.

The present research also demonstrates for the first time the extent of gender stereotypic content depicted in British children's magazines. Despite a large number of studies examining this in other forms of children's media, such as television, advertisements, and films, magazines aimed at young children have largely been ignored by researchers, even though they are a popular media format (Statista, 2016a). Therefore, studies three and four make an important contribution to the literature examining the role of the media in children's gender development. Gender stereotypes were found to be highly prevalent within young children's magazines and the magazines' content and style was found to be edited in line with gender norms, differing according to the target audience. Amongst other findings, crucially, for the first time, it was found that magazines aimed at boys contained significantly more educational activities than magazines aimed at girls, which is particularly concerning given the disparities in girls' and boys' academic subject choices and later career decisions. This finding has important implications for the editors of these magazines who have a moral responsibility to ensure that boys and girls are offered equal opportunities to develop social, cognitive, and educational skills. Further implications of these findings will be discussed later in this chapter.

Finally, the present research also aimed to examine the role of peer models in children's gender-related attitudes and preferences. By using a novel format, a reader's page of a child's magazine, Study 5 provided promising findings that exposure to counterstereotypic peer models can increase children's gender flexibility in relation to attitudes towards others' toy play, playmate choice, and gender-based social exclusion. Importantly, this demonstrates how an easily edited magazine and real child models could be used as an intervention to increase gender flexibility in the future.

Therefore, the studies in the present thesis have demonstrated how parents, toys, peers, and the media all contribute to children's understanding of a gendered world, and the findings can inform the continued development of interventions to increase children's

gender flexibility. The present research also emphasizes the importance of continuing to explore the ways in which gender stereotypes are socialised, alongside the role of cognitive development, to fully understand how and at what age the development of these stereotypes can be optimally challenged.

Research Implications, Limitations, and Future Directions

  Study 1. This study revealed that both girls and boys preferred toys stereotypic for their own gender, in terms of both function and colour, to toys stereotypically associated with the other gender, and children believed their parents would like them to play with the toys that they themselves like to play with. Additionally, toy colour appeared to be more important than toy function in determining preference for cross-gender typed toys, as there was a trend for girls to like the feminine toys less when presented in masculine colours, and for the boys to like the masculine toys less when presented in feminine colours. There was also a negative relationship between gender constancy and gender stereotype flexibility, and children were less flexible about the toys boys and girls can play with than their parents, particularly in regards to the feminine-typed toys.

  Theoretical implications. Study 1 reiterates the importance of examining children's toys as a socialising agent of children's gender norm understanding. Supporting Weisgram et al. (2014), this study demonstrated the importance of both toy colour and toy function in determining children's gender-typed toys preferences and gender stereotypic attitudes towards toy play. The findings support both socialisation and cognitive theories of gender development. Firstly, it is clear that the salient masculine- and feminine-typed features of the toys were familiar to the children and drove their gender stereotypic preferences and attitudes, as girls preferred feminine over masculine toys and boys preferred masculine over feminine toys. Children also divided toy play of others along gendered lines; thus it is clear that information about toy colour and toy function is incorporated into children's

gender schemas (Bem, 1981; Martin & Halverson, 1981), likely as a result of repeated exposure to gender-typed toys in everyday life.

The finding that gender constancy was negatively related to gender flexibility supports cognitive developmental theories of gender development (Frey & Ruble, 1992; Kohlberg, 1966; Zucker et al., 1999) which suggest that as children acquire greater understanding of gender they are motivated to adhere to gender norms, leading to an increase in gender-typed attitudes and behaviour. However, in the present study there was no correlation between gender constancy and age; either this relationship is not linear, with children achieving gender-related understanding at different ages, or the narrow age range of the sample did not allow this relationship to become visible. Nonetheless, the finding of a relationship between gender constancy and flexibility supports earlier studies of cognitive development.

With regards to parents, they were found to possess gender neutral views when it came to the toys that boys and girls should play with, and did not prefer their own children to play with one toy type over another. This supports previous studies (e.g. Freeman, 2007) which show that parents are egalitarian about toy play, despite children not predicting this to be the case. This finding was explored further by Study 2, and is important because it suggests that either parents have limited impact on children's toy preferences, whereby children are their own drivers of gender stereotypic behaviour and attitudes, or other environmental influences such as peers and the media may have a greater impact on this. *Alternatively,* the findings could imply that parents appear egalitarian on self-report questionnaires but this may not reflect actual behaviour: hence, the study of parents' and children's implicit gender stereotypes in Study 2.

Study 1 therefore opens up several avenues for future research and highlights the importance of continuing to understand how parents may guide children's gender-typed

behaviour and attitudes, and the precise impact of gender-typed toys on children's social, cognitive, and gender-related development.

Practical Applications. As adults are powerful role models, parents should ensure that their behaviour reflects their seemingly gender neutral attitudes towards children's toy play. Parents should be conscious of how they encourage toy play and support children to play with a variety of toys to encourage optimal social and cognitive development. Parents should also consider their position as role models and demonstrate the behaviours they would like their children to display, i.e. if they wish to minimise gender stereotypes then equality within the household should be portrayed. Parents should also encourage children to engage in activities based on their own interests, rather than simply following gender stereotypic messages about what is right and wrong for girls and boys to play with. In the home, the same applies to chores and duties; these should be based on ability and interest rather than stereotypic assignment of tasks (Leman & Tenenbaum, 2014).

The findings from Study 1 also have important applications for toy marketers and consumers, as it is clear that children use toy function and colour to divide toys along gendered lines. Marketers have a responsibility to make these gender-typed features less salient to encourage children to play with a variety of toys. This would be beneficial for children's overall skill development, as abilities can only develop if given the opportunity to do so. Playing with only masculine- or feminine-typed toys limits optimal development as only skills associated with each toy-type will be practised. Thus, removing gender indicators from toys would provide opportunities for boys and girls to select from a greater range of items, and not be limited by implicit gender labels.

Limitations and Future Directions. Future research would benefit from including samples with a wider age range (at least up to 7 years) to provide greater insight into the developmental trajectory of toy preferences related to colour and function, gender

flexibility, and the relationship of these to gender constancy. Older children would also have greater knowledge of gender norms, so it would be interesting to investigate explicit norm understanding in relation to the other variables. Halim, Ruble, and Tamis-LeMonda (2013) recently began to investigate these factors, but it is an area which is under-developed.

Children did not accurately predict parents' endorsement of the toys. As previously discussed, there could be several reasons for this, but one reason could be due to children's inability to take another person's perspective, known as theory of mind (Baron-Cohen, Leslie, & Frith, 1985). The present study did not include a measure of this, but it would be beneficial for future research to do so, especially with children of this age group (3-5 years), as it is likely that not all of them would have fully developed theory of mind abilities as this typically develops around the age of four (Baron-Cohen et al., 1985). Therefore, children may not have accurately predicted parents' views of the toys because they were unable to put themselves in their parents' shoes, but this cannot be determined without a theory of mind measure.

Children's toys, films and clothes are more gender-divided now than ever before, despite a trend towards gender-neutral toys during the 1980's (Francis, 2010). This delineation of gendered products and the apparent sexualisation of girl's toys and clothes warrants continued investigation as there is little contemporary research scrutinising the potential impact of these toys on boy's and girl's learning. Future research should therefore examine the educational qualities of gendered toys and the ways in which repeated engagement with masculine- and feminine-typed toys may influence later decisions about subject choices and career aspirations.

Study 2. This study extended Study 1 by examining the implicit as well as the explicit gender stereotypes of parents and children, overcoming possible issues of social

desirability and extending a developing area of research. It was found that children and parents possess similar implicit gender biases to one another despite explicit gender biases diverging. Parents in fact displayed stronger implicit gender biases than their children, yet explicitly appeared egalitarian about toy play. Children's implicit and explicit responses showed similar gender stereotypic trends.

Theoretical Implications. Study 2 demonstrates the robust *implicit* gender stereotypes that parents possess, which appear to be stronger than their children's. This supports gender schema theories (e.g. Bem, 1981) which suggest that gender stereotypes become entrenched over time as gender-related information in the environment is constantly evolving gender schemas. As parents implicitly display these stereotypes but explicitly reject them, they may be regularly repressing unconscious biases. However, it is probable that unconscious biases related to gender do affect behaviour at times (Nosek et al., 2002); therefore, children may be picking up on parents' gender stereotypes via parents' non-verbal or automatic behaviours, stemming from their unconscious biases.

These findings have implications for developmental theories of gender development as whilst children's implicit and explicit responses to gender-typed objects showed similar patterns, parents' implicit and explicit responses did not. Previous literature has shown that from the age of ten years onwards, children begin to display self-presentation behaviour by responding in socially desirable ways. This may account for the discrepancy in parents' implicit and explicit responses; the present study therefore builds on previous literature which shows that implicit biases prevail even when they are not consciously expressed (Fitzroy & Rutland, 2010).

Study 2, along with Study 1, reinforces findings that children possess strong gender-typed attitudes about the toys that boys and girls can play with, extending the literature to show that these attitudes exist implicitly as well as explicitly. The study of implicit gender

biases in relation to toy preferences and stereotypes is relatively new, and this study, for the first time, examined these biases using a robust and established eye-tracking method which unveils looking preferences in real-time as audio sentences unfold. Importantly, unlike IATs, which have been previously used to examine implicit biases (e.g. Cvencek, Greenwald, & Meltzoff, 2011; Dunham, Baron, & Banaji, 2016), the paradigm used in the present study is not at risk of demand characteristics because of its high level of sensitivity and accuracy in measuring eye movements. The use of this method to study unconscious gender stereotypes therefore paves the way for future research of this kind, and has the added benefit of being suitable for non-verbal populations such as infants.

Practical Applications. As with Study 1, findings from Study 2 have important applications for parents. As discussed, parents' unconscious biases may be influencing their behaviour, guiding children's understanding of what is appropriate and inappropriate for them to play with. Parents should therefore pay close attention to the verbal and non-verbal messages which they are portraying to children if they wish to minimise gender-typed toy play and preferences. Additionally, research has found that the strength of implicit stereotypes can be reduced through training; Jackson, Hillard, and Schneider (2014) found that diversity training about women in STEM led to an improvement in implicit associations for men who participated, and similar success has been found in relation to reducing implicit racial biases (see Devine, Forscher, Austin, & Cox, 2012). Programmes such as these could be adapted to re-train implicit biases in relation to gender-typed toy play and gender-based expectations, and delivered to parents, children, and educators. This could lead to a change in automatic behaviour (Nosek et al., 2002).

Limitations and Future Directions. It would be informative if future studies included behavioural measures or observations of what children actually play with throughout the day and how parents may guide children to play with one type of toy over another. It would be important to observe toy play at several time points over the course of a day

because children's behaviour is variable (Martin et al., 2012), but this would allow us to examine how actual behaviour relates to implicit and explicit gender biases.

Future research should continue to investigate the potential relationship between children's and parents' implicit biases, and its effect on children's gender development. A focus on male adult and children's implicit biases is especially necessary as this study demonstrated the increased strength of fathers' over boys' implicit stereotypes. Future research should therefore examine wider age ranges of children through to adolescents, and also examine implicit stereotypes in parents and non-parents to identify whether parenthood leads to a strengthening of gender stereotypes in relation to children's toys and activities, particularly amongst men.

Studies 3 and 4. To explore other factors which may socialise children's gender stereotypes, beyond parents and toys, studies three and four examined the role of young children's magazines. It is clear from these studies that children's magazines are riddled with gender-typed messages from the front cover and throughout entire issues. It is logical that children's gender stereotypes are being reinforced via these magazines, as they are via other forms of media (Ochman, 1996), as the characters and themes which they portray are highly gendered and vary according to the target audience in order to fit gender norms for girls and boys.

Theoretical Implications. The findings from studies three and four have implications for socialisation theories of gender development, including social learning theory (Bandura, Ross, & Ross, 1966), social role theory (Eagly, 1987), and cultivation theory (Gerbner, 1998). The finding that magazines aimed at girls contained more female characters, and the magazines aimed at boys contained more male characters demonstrates how same-gender role models are promoted via children's media. Children have been shown to attend to same-gender role models to a greater extent than other-gender role

models (Bussey & Bandura, 1984). This is important considering that the male and female characters were depicted displaying gender-typed behaviours; according to social learning and social cognitive theories, boys and girls will imitate such behaviour if repeatedly exposed and the behaviour is rewarded (Bussey & Bandura, 1999). The present studies therefore highlight for the first time how gender stereotypic messages are communicated in British magazines, and given that these magazines are targeted at children as young as two years of age, it is rational that regular exposure to this and other media formats contributes to children's understanding of gender norms (Gerbner, 1998).

Practical Applications. As with the findings from studies one and two in relation to gender-typed toys, studies three and four have important implications for the editors of children's magazines. Media editors as well as marketers have a moral responsibility to ensure that boys and girls are offered the same opportunities to learn and develop. The analysis of the magazines reveals that this is not currently the case, as not only are male and female characters depicted in gender stereotypic ways, but the themes which are covered by the magazines differ according to whether they are aimed at boys and girls, with girls' magazines more likely to discuss fashion and the home, whereas boys' magazines are more likely to discuss jobs. Crucially, boys' magazines contained more activities which were explicitly labelled as educational, whilst girls' magazines contained significantly more instructions to seek adult help with activities. These subtle gender stereotypic messages are potentially damaging to girls' expectations of what they are able to achieve and what they are valued for. Following these findings, magazine companies should therefore make a concerted effort to minimise the presentation of gender stereotypic behaviour and themes in order to broaden children's expectations of what they are able to do and not be limited by gender boundaries.

Limitations and Future Directions. Studies three and four examined the prevalence of gender-typed information in children's magazines, but did not test the effect these have on

children's gender-related cognitions. It is therefore important that future studies experimentally and longitudinally assess the impact of such magazines on children's gender stereotypes. It would be important to include a control condition where children either read no magazine at all or one which is not related to male and female characters so that the direct effect of gender can be examined, and also to include measures of cognitive development to examine how they may moderate the effect of such magazines on children's gender-related cognitions.

It would also be of importance for future studies to examine who chooses these magazines – parents or children? It may be that parents choose these magazines based on what they think is acceptable for their sons and daughters to read, or what they assume their children will like, rather than what actually appeals to children. It would therefore be interesting to examine what features children enjoy and how these align with the magazine content, to determine whether children are selectively adhering to gender norms by choosing to read gender-typed magazines.

Study 5. Study 5 demonstrated how exposure to counterstereotypic peer models in magazines can lead to more flexible attitudes not only towards gender stereotypes of toys, but also towards playmate choice and gender-based exclusion (among boys), whilst exposure to stereotypic models, which appear to be the norm according to the findings of studies three and four, led to gender stereotypic responses. To my knowledge, this study is the first to present counterstereotypic peer models to children via this format and the promising effect on gender flexibility suggests that this method could be developed into an intervention to reduce children's narrow gender-typed ideas about what toys boys and girls can play with.

Theoretical Implications. The findings from Study 5 support socialisation theories of gender development which explain how peers influence children's gender development.

Exposure to differential peer behaviour in the present study was shown to affect children's subsequent attitudes towards toy play and playmate choice, making these more flexible if children had viewed peer models engaged in gender counterstereotypic play. Bigler (1999) suggests children's gender-typed attitudes may be more malleable than their preferences and behaviour, and indeed the present study supports this idea as a change was seen in children's stereotypes but not their own preferences, which remained stereotypic. However, increasing the flexibility of children's attitudes to what other boys and girls can play with and increasing the likelihood that children will play in mixed-gender groups has important implications for potentially reducing gender-based social exclusion, and increasing the different ways in which children play and what they play with.

The present study also supports ideas that children's gender-related attitudes are separate from their knowledge and preferences (Arthur et al., 2009; Bigler, 1999), as counterstereotypic models did not affect these in the same way. Additionally, the findings potentially support the behavioural similarity model (Martin et al., 2011; see *Chapter 10*), whereby children may have perceived themselves as similar to the other-gender peer model in the counterstereotypic condition if the peer model displayed similar toy preferences to them. This may have led to increased flexibility in playmate choice, as children were equally likely to choose the peer who shared similar interests to them as to the peer of the same gender. Measures of behavioural similarity should therefore be included in future research.

Practical Applications. Study 5 shows how a relatively simple manipulation to a reader's page of a children's magazine can lead to positive outcomes of increased gender flexibility. This possibility counters beliefs that gender segregation and gendered toy preference is inevitable in young children, and adds to literature emphasizing the potential for change in children's attitudes about gender-related play and friendships. These findings could be used by magazine editors, educators, and parents because they show that even a

brief exposure to counterstereotypic models can challenge children's gender rigidity. Therefore regular exposure to these models could have a significant and lasting impact on children's gender flexibility, encouraging mixed-gender play and acceptance of children who do not conform to gender norms.

Limitations and Future Directions. It is important that future studies which test the success of interventions do so longitudinally, and include repeated exposure to counterstereotypic models in order to maximise their impact. Previous research has shown that the number of models is also important, with larger numbers having a greater effect on gender-related attitudes and behaviour (Ruble, Balaban, & Cooper, 1981; Perry & Bussey, 1979), therefore future studies should adhere to this.

A limitation of Study 5 was the inability to examine developmental age trends. It is vital that future research of this kind examines how children of different ages respond to such models so that we can develop an understanding of the optimal age to administer such interventions. It is logical that tackling the formation of gender stereotypic beliefs would be more beneficial and obtainable than challenging deeply ingrained attitudes. Indeed, Leman and Tenenbaum (2014) state that "Attitudes and stereotypes that are formed early are difficult to break and more resilient in the face of interventions to reverse them or limit their influence." (p. 17); therefore exposing children to gender atypical examples from a young age is encouraged.

Overall theoretical implications. *Chapter 2* discussed several social and cognitive theories of gender development, and findings from the studies in this thesis support these theories in several ways. Firstly, the findings show the importance of examining both social and cognitive factors. It is clear from both the literature reviewed and the results of the research in this thesis that children *are* exposed to gender stereotypic information in their environment (Studies 3 and 4) and children clearly understand which behaviours are

deemed appropriate for boys and girls (Studies 1, 2, and 5). However, the findings also highlight that children are active (rather than passive) agents in their own gender development and that cognitive development plays important role. For example, Study 1 revealed a positive correlation between gender constancy and gender flexibility, which implies that as children gain a more concrete understanding of gender, their views about crossing gender boundaries become less rigid. This supports GST (e.g. Bem, 1989) which suggest that children become *less* gender-typed once constancy has been achieved because they no longer fear that their sex will change if they engage in cross-gender activities (see also Ruble et al., 2007).

It is also clear from Studies 1 and 2 that children possess much stronger gender stereotypic views than their parents, at least in relation to gender-typed toys and who should play with them. At first, it may be inferred from these findings that parents are not the ones socialising their children into holding gender-typed toy preferences and stereotypes. However, the novel implicit measure employed in Study 2 sheds further light on this by revealing that parents in fact possess much stronger implicit gender biases than children. Therefore, it could be argued that parents do in fact contribute to the development of children's gender stereotypes, but it may be through automatic or non-verbal behaviours. The link between implicit stereotypes and actual behaviour has been evidenced in the literature (e.g. Strack & Deutsch, 2004; Wilson et al., 2000), although this link in relation to children's and parents' gender stereotypes is yet to be fully explored. The findings from Study 2 encourage the need to explore this further, and also show that the suggestion from socialisation theories of gender that agents, such as parents, contribute to children's adherence to gender norms, cannot be refuted. The fact that parents' implicit biases were stronger than children's also supports GST's proposition that gender stereotypic beliefs become more entrenched over time due to continued exposure to gender stereotypic information (Arthur et al., 2009).

In relation to the theoretical understanding of gender development, Study 5 provides some interesting insights and future directions. Firstly, the findings from this study show that the flexibility of children's gender stereotypic beliefs *can* be increased, but it appears to be easier to change these in some domains (attitudes to towards others) than others (own preferences). Importantly, this study highlights the need to further explore the behavioural similarity model of gender (Martin et al., 2011) and how hypotheses from this model can be used to encourage children to overcome preferences for same-gender peers by focusing on behavioural similarities with an other-gender peer. Study 5 provides early support for this model as children in this study used potential playmate's toy choice (rather than playmate's gender) to guide decisions of who to play with, but future studies need to further explore the reasons behind this.

Finally, as highlighted by Study 5, it is also important for future research to further develop multidimensional models of gender. Study 5 findings support the notion that gender is not simply one dimension, but is multi-faceted, as exposure to the counter-stereotypic models in the study did not affect gender flexibility in the same way across all measures. Therefore, further research needs to be done to test models such as the gender self-socialisation model (Tobin et al., 2010), and Perry and colleagues' work on the five dimensions of gender (e.g. Egan & Perry, 2001). It is also important that the dimensions described by these models are tested across childhood and early adulthood to build a clear picture of when these different dimensions (such as 'gender typicality' and 'gender membership knowledge'; Egan & Perry, 2001) begin to emerge and if and how they change, particularly across childhood (see also Dean & Tate, 2017).

Overall limitations and future directions. The measures of children's gender stereotypes and toy preferences included in the present studies were somewhat limited in terms of the number of toys viewed and the response scales (ranging from 1-3). Future studies investigating these variables would benefit from including more detailed and wide-

ranging measures to avoid ceiling effects in ratings. For example, the Child-Rearing Sex-Role Attitude Scale (Freeman, 2007, adapted from Burge, 1981) could be administered to parents to gain a more nuanced understanding of gender-differentiated parenting, and the OAT-AM and COAT-AM scales (Bigler, 1997) could be administered to adults and children to gain more detailed information about gender stereotyped attitudes. Employing behavioural measures and observation techniques is also crucial to overcome any social desirability issues associated with self-report techniques.

In addition, although power analyses indicated that samples in the present experimental studies were robust enough to detect significant large effects, bigger samples would have enabled closer examination of age trends in regards to toy preferences and gender stereotypes, and would have provided greater statistical power to detect small to medium-size effects. Ensuring that samples are balanced in terms of both child and parent gender is also important for future research, and is a limitation of the present thesis. Recruiting fathers as participants is particularly important going forwards, as this is an understudied population in regard to their impact on children's gender development.

Including wider age ranges in the present studies would also have been interesting to allow for further exploration of developmental trends. Given that there is some contradiction in previous research in regards to the relationship between gender constancy and the extent of gender-typed behaviour (see Arthur et al., 2009), it is crucial that future developmental research studies gender across childhood, employing longitudinal rather than cross-sectional designs. Very few studies of gender development have included long-term follow-ups with participants, but this would be particularly important for intervention studies in order to examine long-term changes, and also to examine the impact on areas such as subject choices, career aspirations, and self-esteem.

As with most research examining gender development, families in the present experimental studies were recruited from predominantly homogenous populations; exploring race and ethnicity in line with gender development is an important line of future research and something which has started to be investigated (e.g. Halim et al., 2013b). The inclusion of gender neutral or novel toys is also important in future research so that the direct effect of labelling and colour can be examined without being affected by pre-existing knowledge (Weisgram et al., 2014).

The present experimental studies focused on the role of parents and peers in gender socialisation, but it is also important to examine the role of other people in children's environments. For instance, Dweck, Davidson, Nelson, and Enna (1978) found that teacher's negative feedback about boys often referred to poor behaviour or motivation, whereas negative feedback directed at girls often referred to lack of ability or low intellect. Therefore, differential feedback from teachers may influence children's beliefs about boys' and girls' capabilities (Stipek & Granlinski, 1991). Furthermore, meta-analyses examining sibling influence have also found small but significant effect of older sibling's gender on gender-typed behaviour amongst girls (Farkas & Leaper, 2014). These findings suggest that a number of environmental influences affect children's gender-related beliefs and behaviour, and to different extent for boys and girls. It would be beneficial in future research to examine the effect of, or relationships between, multiple social agents within the same sample of children to further our understanding of how each impact gender development.

In the present studies, gender is treated as a binary category, meaning gender fluid and transgendered individuals are largely overlooked. Gender constancy is believed to be achieved when children understand that gender remains consistent over time (Kohlberg, 1966). However, with the increasing presence of transgender children and adults, this may be an outdated way of perceiving gender development, as for some, gender does not

remain consistent, but in current measures of gender constancy children who indicate that gender is mutable would fail such tests. This is a current and important issue in the study of gender development as a whole. Future research could reflect this recent change in attitude towards diversity by adapting measures to treat gender as a scale, rather than as two distinct categories.

As others have suggested (Arthur et al., 2009; Ruble et al., 2006), it is important to experimentally study infants' and toddlers' gender conception as well as older children. This thesis has focused on gender development in pre-school and young children, but the paradigm used in Study 2 lends itself well to studying gender-related cognitions in younger populations as implicit stereotypes can be observed even if children are unable to verbalise these. Children's implicit understanding of gender stereotypes should therefore be examined further alongside cognitive measures of gender development to advance our understanding of the relationship between implicit gender knowledge and gender-related attitudes and behaviour.

Future research should also continue to examine children's gender stereotypes and toy preferences (implicit and explicit) in relation to gender essentialist beliefs; that is, the belief that gender-related characteristics are innate and fixed (Diesendruck & Haber, 2009). Meyer and Gelman (2016) found that children's gender essentialist beliefs predicted the strength of their gender-typed toy preferences but not their gender stereotypes, with the opposite being true for parents, thus suggesting that they are independent constructs, as implied by Study 5 in the present thesis. The examination of these constructs together with gender essentialism is a relatively new area of research and therefore requires further attention; however future studies should employ measures which test causal influence, as Meyer and Gelman's (2016) study provided only correlational data. Extending the age range of the participant sample in future studies would also be beneficial to further understanding of how these constructs are related across childhood. Examination of the

relationship between children's gender salience filter and toy preferences and stereotypes is also important for future research (see Coyle & Liben, 2016). Filters are likely to reflect individual socialisation experiences and provide a more nuanced explanation of why some children display stronger gender-typed preferences and behaviours than others (Banerjee, 2005).

Research has consistently found differences in boys and girls gender flexibility and behaviour expectations; girls judge themselves as having more flexibility than boys and experience less pressure to conform to gender stereotypes (Leaper, 2013). Further examination of this differentiation linked to male/female status is important – when do children become aware of the different social status of men and women and is this linked to their gender-typed behaviour, preferences, and cognitive development? Is status why girls experience more flexibility than boys? It is essential for future studies exploring these research questions to include implicit measures, as young children may not explicitly show understanding of social hierarchies, but may still unconsciously be aware of this and it could be influencing gender-related cognitions.

Finally, as uncovered by Study 5, it is important to examine gender stereotype knowledge and attitudes as separate constructs. Signorella et al. (1993) distinguishes between the two because research has shown that what children deem appropriate for others may not be the same as what they deem appropriate for themselves, i.e. a girl may believe that other girls can become a pilot (a masculine-typed occupation), but not believe that she herself could occupy this role. It is vital to understand the independent development of these variables so that interventions to increase gender flexibility can be specifically targeted at challenging children's beliefs about themselves or beliefs about others. Both are of equal importance, but it is logical that an intervention may be more successful if it targets one aspect of gender rigidity rather than both at the same time. However, further research is required to establish the developmental trajectories of gender-

related knowledge and attitudes in order to develop effective intervention strategies and understand when and how best to apply them.

Conclusions

The five empirical studies in the present thesis explore some of the ways in which children are socialised to understand gender, and how children's gender stereotyped attitudes and preferences form as a result of continued exposure to gender stereotypic information in their environment. By utilising a variety of research methods, the present thesis makes a unique and important contribution to the literature on children's gender development. Studies were based on both socialisation and cognitive theories of gender development, speaking to the important role intrinsic and extrinsic factors play in influencing children's gender-related cognitions. Importantly, support is found for the significant role of parents, toys, peers, and the media in contributing to children's gendered worlds, and the present studies have uniquely contributed to the literature by developing a novel way of examining implicit gender stereotypes, by uncovering the sheer prevalence of gender stereotypic content in young children's magazines, and by sparking future interventions to increase gender flexibility via peer models and magazines.

References

Abad, C., & Pruden, S. M. (2013). Do storybooks really break children's gender stereotypes? *Frontiers in Psychology, 4*. doi:10.3389/fpsyg.2013.00986

Alexander, G. M. (2003). An evolutionary perspective of sex-typed toy preferences: Pink, blue, and the brain. *Archives of Sexual Behavior, 32*(1), 7-14. doi:10.1023/A:1021833110722

Alexander, G. M., & Hines, M. (2002). Sex differences in response to children's toys in nonhuman primates. *Evolution and Human Behavior, 23*(6), 467-479. doi:10.1016/S1090-5138(02)00107-1

Alexander, G. M., Wilcox, T., & Woods, R. (2010). 'Sex differences in infants' visual interest in toys': Erratum. *Archives of Sexual Behavior*, *39*(3), 816. doi:10.1007/s10508-009-9581-8

Almqvist, B. (1989). Age and gender differences in children's Christmas requests. *Play & Culture*, *2*(1), 2-19.

Altmann, G. T., & Kamide, Y. (2007). The real-time mediation of visual attention by language and world knowledge: Linking anticipatory (and other) eye movements to linguistic processing. *Journal of Memory and Language, 57*(4), 502-518. doi:10.1016/j.jml.2006.12.004

Altmann, G. T., & Kamide, Y. (2009). Discourse-mediation of the mapping between language and the visual world: Eye movements and mental representation. *Cognition, 111*(1), 55-71. doi:10.1016/j.cognition.2008.12.005

Andre, T., Whigham, M., Hendrickson, A., & Chambers, S. (1999). Competency beliefs, positive affect, and gender stereotypes of elementary students and their parents about science versus other school subjects. *Journal of Research in Science Teaching*, *36*(6), 719-747. doi:10.1002/(SICI)1098-2736(199908)36:6<719::AID-TEA8>3.0.CO;2-R

Arthur, A. E., Bigler, R. S., Liben, L. S., Gelman, S. A., & Ruble, D. N. (2008). Gender

    stereotyping and prejudice in young children: A developmental intergroup

    perspective. In S. R. Levy, M. Killen, S. R. Levy, M. Killen (Eds.), *Intergroup*

    attitudes and relations in childhood through adulthood (pp. 66-86). New York,

    NY, US: Oxford University Press.

Arthur, A. E., Bigler, R. S., & Ruble, D. N. (2009). An experimental test of the effects of

    gender constancy on sex typing. *Journal of Experimental Child Psychology,*

    104(4), 427-446. doi:10.1016/j.jecp.2009.08.002

Ashton, E. (1983). Measures of play behavior: The influence of sex-role stereotyped

    children's books. *Sex Roles, 9*(1), 43-47. doi:10.1007/BF00303108

Aubrey, J. S., & Harrison, K. (2004). The Gender-Role Content of Children's Favorite

    Television Programs and Its Links to Their Gender-Related Perceptions. *Media*

    Psychology, *6*(2), 111-146. doi:10.1207/s1532785xmep0602_1

Audit Bureau of Circulations. (2015). *ABC Market Summary Report January – July 2015.*

    Retrieved from: https://www.abc.org.uk/data/reports-and-analysis

Auster, C. J., & Mansbach, C. S. (2012). The gender marketing of toys: An analysis of

    color and type of toy on the Disney store website. *Sex Roles, 67*(7-8), 375-388.

    doi:10.1007/s11199-012-0177-8

Baird, C. L. (2012). Going against the flow: A longitudinal study of the effects of cognitive

    skills and gender beliefs on occupational aspirations and outcomes. *Sociological*

    Forum, *27*(4), 986-1009. doi:10.1111/j.1573-7861.2012.01365.x

Bakir, A. (2013). Character portrayal: Examining gender roles in television commercials

    targeted at children in India and the United States. *Journal of Global*

    Marketing, 26(2), 57-67. doi:10.1080/08911762.2013.804612

Bakir, A., & Palan, K. M. (2013). Agentic and communal: Multinational analysis of gender portrayal in children's television commercials. *Journal of Current Issues & Research in Advertising, 34*(1), 39-56. doi:10.1080/10641734.2013.754708

Bandura, A. (1977). *Social learning theory*. Oxford, England: Prentice-Hall. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1979-05015- 000&site=ehost-live

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, NJ: Prentice-Hall

Bandura, A. (1992). Social cognitive theory. In R. Vasta (Ed.), *Six theories of child development: Revised formulations and current issues* (pp. 1-60). Bristol, PA: Jessica Kingsley.

Bandura, A. (1999). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology*, *2*(1), 21-41. doi:10.1111/1467-839X.00024

Bandura, A. (2002). Social cognitive theory in cultural context. *Applied Psychology: An International Review*, *51*(2), 269-290. doi:10.1111/1464-0597.00092

Bandura, A. Ross, D., & Ross, S. A. (1961). Transmission of aggression through the imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63,* 575-582. doi: 10.1037/h0045925

Bandura, A., & Bussey, K. (2004). On broadening the cognitive, motivational, and sociostructural scope of theorizing about gender development and functioning: Comment on Martin, Ruble, and Szkrybalo (2002). *Psychological Bulletin, 130*(5), 691-701. doi:10.1037/0033-2909.130.5.691

Bandura, A., & Walters, R. H. (1963). Aggression. In H. W. Stevenson, N. B. Henry, H. G. Richey, H. W. Stevenson, N. B. Henry, H. G. Richey (Eds.) , *Child psychology: The sixty-second yearbook of the National Society for the Study of Education, Part 1* (pp. 364-415). Chicago, IL, US; Chicago, IL, US: National Society for the Study of Education. doi:10.1037/13101-010

Banerjee, R. (2005). Gender identity and the development of gender roles. In S. Ding, K. Littleton, S. Ding, K. Littleton (Eds.), *Children's personal and social development* (pp. 142-179). Malden: Blackwell Publishing.

Banerjee, R., & Lintern, V. (2000). Boys will be boys: The effect of social evaluation concerns on gender-typing. *Social Development, 9*(3), 397-408. doi:10.1111/1467-9507.00133

Banse, R., Gawronski, B., Rebetez, C., Gutt, H., & Morton, J. B. (2010). The development of spontaneous gender stereotyping in childhood: Relations to stereotype knowledge and stereotype flexibility. *Developmental Science, 13*(2), 298-306. doi:10.1111/j.1467-7687.2009.00880.x

Baron, A. S., & Banaji, M. R. (2006). The development of implicit attitudes: Evidence of race evaluations from ages 6 and 10 and adulthood. *Psychological Science, 17*(1), 53-58. doi:10.1111/j.1467-9280.2005.01664.x

Baron, A. S., Schmader, T., Cvencek, D., & Meltzoff, A. N. (2014). The gendered self-concept: How implicit gender stereotypes and attitudes shape self-definition. In P. J. Leman, H. R. & Tenenbaum (Eds.), *Gender and development* (pp. 109-132). New York, NY, US: Psychology Press.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (2007). Does the autistic child have a 'theory of mind'?. In B. Gertler, L. Shapiro, B. Gertler, L. Shapiro (Eds.), *Arguing about the mind* (pp. 310-318). New York, NY, US: Routledge/Taylor & Francis Group.

Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language, 68*(3), 255-278. doi:10.1016/j.jml.2012.11.001

Barry. R. (1980). Stereotyping of sex role in preschoolers in relation to age, family structure' and parent sexism. *Sex Roles, 6,* 795- 816.

Bartini, M. (2006). Gender role flexibility in early adolescence: Developmental change in attitudes, self-perceptions, and behaviors. *Sex Roles, 55*(3-4), 233-245. doi:10.1007/s11199-006-9076-1

Barton, A. C., & Brickhouse, N. (2006). Engaging girls in science. In C. Skelton, B. Francis, L. Smulyan, C. Skelton, B. Francis, L. Smulyan (Eds.), *The Sage handbook of gender and education* (pp. 221-235). Thousand Oaks, CA, US: Sage Publications, Inc. doi:10.4135/9781848607996.n17

Bartsch, R. A., Burnett, T., Diller, T. R., & Rankin-Williams, E. (2000). Gender representation in television commercials: Updating an update. *Sex Roles*, *43*(9-10), 735-743. doi:10.1023/A:1007112826569

Basow, S. A. (1992). *Gender: Stereotypes and roles., 3rd ed*. Belmont, CA, US: Thomson Brooks/Cole Publishing Co.

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2014). lme4: Linear mixed-effects models using Eigen and S4. *R Package Version, 1*(7), 1-23.

Bauer, P. J. (1993). Memory for gender-consistent and gender-inconsistent event sequences by twenty-five-month-old children. *Child Development*, *64*(1), 285-297. doi:10.2307/1131452

Beasley, B., & Standley, T. C. (2002). Shirts vs. skins: Clothing as an indicator of gender role stereotyping in video games. *Mass Communication & Society*, *5*(3), 279-293. doi:10.1207/S15327825MCS0503_3

Beasley, T. M., & Schumacker, R. E. (1995). Multiple regression approach to analyzing contingency tables: Post hoc and planned comparison procedures. *Journal of Experimental Education*, *64*(1), 79-93. doi:10.1080/00220973.1995.9943797

Belle, D. (1989). Gender differences in children's social networks and supports. In D.

Belle, D. Belle (Eds.), *Children's social networks and social supports* (pp. 173-188). Oxford, England: John Wiley & Sons.

Bem, S. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88,* 325-364. doi:10.1037/0033-295X.88.4.354

Bem, S. L. (1983). Gender schema theory and its implications for child development: Raising gender-aschematic children in a gender-schematic society. *Signs: Journal of women in culture and society*, *8*(4), 598-616. doi:10.1086/493998

Bem, S. L. (1989). Genital knowledge and gender constancy in preschool children. *Child development*, 649-662. doi:10.2307/1130730

Benenson, J. F., Apostoleris, N. H., & Parnass, J. (1997). Age and sex differences in dyadic and group interaction. *Developmental Psychology*, *33*(3), 538-543. doi:10.1037/0012-1649.33.3.538

Benenson, J. F., Nicholson, C., Waite, A., Roy, R., & Simpson, A. (2001). The influence of group size on children's competitive behavior. *Child Development*, *72*(3), 921-928. doi:10.1111/1467-8624.00324

Bereaud, S. R. (1975). Sex role images in French children's books. *Journal of Marriage and the Family, 37*(1), 194-207. doi:10.2307/351043

Berends, S. M., Brouwer, S. M., & Sprenger, S. A. (2016). Eye-tracking and the visual world paradigm. In M. S. Schmid, S. M. Berends, C. Bergmann, S. M. Brouwer, N. Meulman, B. J. Seton, S. A. Sprenger, & L. A. Stowe, *Designing research on bilingual development* (pp. 55-80). USA: Springer.

Best, D. L., & Williams, J. E. (2001). Gender and Culture. In D. Matsumoto, D. Matsumoto (Eds.), *The handbook of culture and psychology* (pp. 195-219). New York, NY, US: Oxford University Press.

Biernat, M., & Kobrynowicz, D. (1999). A shifting standards perspective on the complexity of gender stereotypes and gender stereotyping. In W. J. Swann, J. H. Langlois, L. A. Gilbert, W. J. Swann, J. H. Langlois, L. A. Gilbert (Eds.) , *Sexism and stereotypes in modern society: The gender science of Janet Taylor Spence* (pp.

75-106). Washington, DC, US: American Psychological Association.

doi:10.1037/10277-004

Bigler, R. S. (1995). The role of classification skill in moderating environmental influences

on children's gender stereotyping: A study of the functional use of gender in the

classroom. *Child Development*, *66*(4), 1072-1087. doi:10.2307/1131799

Bigler, R. S. (1997). Conceptual and methodological issues in the measurement of

children's sex typing. *Psychology of Women Quarterly*, *21*(1), 53-69.

doi:10.1111/j.1471-6402.1997.tb00100.x

Bigler, R. S. (1999). Psychological interventions designed to counter sexism in children:

Empirical limitations and theoretical foundations. In W. J. Swann, J. H. Langlois,

L.   A. Gilbert, W. J. Swann, J. H. Langlois, L. A. Gilbert (Eds.), *Sexism and*

stereotypes in modern society: The gender science of Janet Taylor Spence (pp.

129-151). Washington, DC, US: American Psychological Association.

Bigler R. Psychological interventions designed to counter sexism in children: Empirical

limitations and theoretical foundations. *Sexism and stereotypes in modern society:*

The gender science of Janet Taylor Spence [e-book]. Washington, DC, US:

American Psychological Association; 1999:129-151.

Bigler, R. S., & Liben, L. S. (1990). The role of attitudes and interventions in gender-

schematic processing. *Child Development*, *61*(5), 1440-1452. doi:10.2307/1130754

Bigler, R. S., & Liben, L. S. (2006). A developmental intergroup theory of social

stereotypes and prejudice. *Advances in Child Development and Behavior, 34*, 39-89.

San Diego, CA, US: Elsevier Academic Press.

Bigler, R. S., & Liben, L. S. (2007). Developmental intergroup theory: Explaining and

reducing children's social stereotyping and prejudice. *Current Directions in*

Psychological Science, 16(3), 162–166. doi: 10.1111/j.1467-

8721.2007.00496.x.

Blakemore, J. E. O., & Centers, R. E. (2005). Characteristics of boys' and girls' toys. *Sex Roles, 53*(9–10), 619–633. doi: 10.1007/s11199-005-7729-0.

Blakemore, J. E. O., & Hill, C. A. (2008). The child gender socialization scale: A measure to compare traditional and feminist parents. *Sex Roles, 58*(3-4), 192-207. doi:10.1007/s11199-007-9333-y

Blakemore, J. O. (2003). Children's beliefs about violating gender norms: Boys shouldn't look like girls, and girls shouldn't act like boys. *Sex Roles, 48*(9-10), 411-419. doi:10.1023/A:1023574427720

Blakemore, J. O., & Centers, R. E. (2005). Characteristics of boys' and girls' toys. *Sex Roles, 53*(9-10), 619-633. doi:10.1007/s11199-005-7729-0

Blakemore, J. O., Berenbaum, S. A., & Liben, L. S. (2008). *Gender Development*. New York: Psychology Press.

Boyd, H., & Murnen, S. K. (2017). Thin and sexy vs. muscular and dominant: Prevalence of gendered body ideals in popular dolls and action figures. *Body Image*, *21,* 90-96. doi:10.1016/j.bodyim.2017.03.003

Bradbard, M. R. (1985). Sex differences in adults' gifts and children's toy requests at Christmas. *Psychological Reports*, *56*(3), 969-970. doi:10.2466/pr0.1985.56.3.969

Bradbard, M. R., & Endsley, R. C. (1983). The effects of sex-typed labeling on preschool children's information-seeking and retention. *Sex Roles, 9*(2), 247-260. doi:10.1007/BF00289627

Bradbard, M. R., Martin, C. L., Endsley, R. C., & Halverson, C. F. (1986). Influence of sex stereotypes on children's exploration and memory: A competence versus performance distinction. *Developmental Psychology*, *22*(4), 481-486. doi:10.1037/0012-1649.22.4.481

Bradley, B. S., & Gobbart, S. K. (2001). Determinants of gender-typed play in toddlers. *Journal of Genetic Psychology, 150,* 453-55. doi: 10.1080/00221325.1989.9914612

Bresnahan, M. J., Inoue, Y., Liu, W. Y., & Nishida, T. (2001). Changing gender roles in prime-time commercials in Malaysia, Japan, Taiwan, and the United States. *Sex Roles*, *45*(1-2), 117-131. doi:10.1023/A:1013068519583

Browne, B. A. (1998). Gender stereotypes in advertising on children's television in the 1990s: A cross-national analysis. *Journal of Advertising*, *27*(1), 83-96. doi:10.1080/00913367.1998.10673544

Bub, D. N., Masson, M. E. J., & Lalonde, C. E. Cognitive control in children: Stroop interference and suppression of word reading. *Psychological Science, 17*(4), 351-357.

Buhs, E. S., Ladd, G. W., & Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement?. *Journal of Educational Psychology, 98*(1), 1-13. doi:10.1037/0022-0663.98.1.1

Burge, P. (1981). Parental Child-Rearing Sex-Role attitudes related to social issue Sex-Role attitudes and selected demographic variables. *Family and Consumer Sciences Research Journal, 9*(3), 193-199.

Buss, D. M. (2000). Desires in human mating. In D. LeCroy, P. Moller, D. LeCroy, P. Moller (Eds.), Evolutionary perspectives on human reproductive behavior (pp. 39-49). New York, NY, US: New York Academy of Sciences.

Bussey, K., & Bandura, A. (1984). Influence of gender constancy and social power on sex-linked modeling. *Journal of Personality and Social Psychology*, *47*(6), 1292-1302. doi:10.1037/0022-3514.47.6.1292

Bussey, K., & Bandura, A. (1992). Self-regulatory mechanisms governing gender development. *Child development*, *63*(5), 1236-1250. doi:10.2307/1131530

Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and

differentiation. *Psychological Review, 106*(4), 676-713. doi:10.1037/0033-

295X.106.4.676

Bussey, K., & Bandura, A. (2004). Social Cognitive Theory of Gender Development and

Functioning. In A. H. Eagly, A. E. Beall, R. J. Sternberg, A. H. Eagly, A. E. Beall,

R. J. Sternberg (Eds.) , *The psychology of gender* (pp. 92-119). New York, NY, US:

Guilford Press.

Bussey, K., & Perry, D. G. (1982). Same-sex imitation: The avoidance of cross-sex models

or the acceptance of same-sex models? *Sex Roles, 8*(7), 773-784.

doi:10.1007/BF00287572

Cahill, B., & Adams, E. (1997). An exploratory study of early childhood teachers' attitudes

toward gender roles. *Sex Roles*, *36*(7-8), 517-529. doi:10.1007/BF02766688

Caldera, Y. M., Huston, A. C., & O'Brien, M. (1989). Social interactions and play patterns

of parents and toddlers with feminine, masculine, and neutral toys. *Child

Development, 60*(1), 70–76. doi: 10.2307/1131072

Callan, M. J., Ferguson, H. J., & Bindemann, M. (2013). Eye movements to audiovisual

scenes reveal expectations of a just world. *Journal of Experimental Psychology:

General, 142*(1), 34. doi:10.1037/a0028261

Campbell, A., Shirley, L., & Caygill, L. (2002). Sex-typed preferences in three domains:

Do two-year-olds need cognitive variables? *British Journal of Psychology*, *93*(2),

203-217. doi:10.1348/000712602162544

Campbell, A., Shirley, L., Heywood, C. and Crook, C. (2000). Infants' visual preference

for sex-congruent babies, children, toys and activities: A longitudinal study. *British

Journal of Developmental Psychology, 18*, 479–498.

doi: 10.1348/026151000165814

Campenni, C. E. (1999). Gender stereotyping of children's toys: A comparison of parents

and nonparents. *Sex Roles, 40*(1-2), 121-138. doi:10.1023/A:1018886518834

Carter, D. B., & Levy, G. D. (1988). Cognitive aspects of early sex-role development: The influence of gender schemas on preschoolers' memories and preferences for sex-typed toys and activities. *Child Development*, 782-792. doi:10.2307/1130576

Chamberlain, A. (2016). *Demystifying the Gender Pay Gap.* Mill Valley, CA: Glassdoor. Retrieved from: https://research-content.glassdoor.com/app/uploads/ sites/2/2016/03/Glassdoor-Gender-Pay-Gap-Study.pdf

Cherney, I. D., & Dempsey, J. (2010). Young children's classification, stereotyping and play behaviour for gender neutral and ambiguous toys. *Educational Psychology, 30*(6), 651–669. doi: 10.1080/01443410.2010.498416.

Cherney, I. D., & London, K. (2006). Gender-linked differences in the toys, television shows, computer games, and outdoor activities of 5- to 13-year-old children. *Sex Roles, 54*(9–10), 717–726. doi: 10.1007/s11199-006-9037-8.

Cherney, I. D., Harper, H. J., & Winter, J. A. (2006). Nouveaux jouets: Ce que les enfants identifient comme 'jouets de garçons' et 'jouets de filles.' = New toys for tots: What preschoolers identify as 'boy and girl toys.'. *Enfance*, *58*(3), 266-282. doi:10.3917/enf.583.0266

Cherney, I. D., Kelly-Vance, L., Glover, K. G., Ruane, A., & Ryalls, B. O. (2003). The effects of stereotyped toys and gender on play assessment in children aged 18–47 months. *Educational Psychology, 23*(1), 95–105. doi: 10.1080/01443410303222.

Cherney, I. D., Kelly-Vance, L., Glover, K. G., Ruane, A., & Ryalls, B. O. (2003). The effects of stereotyped toys and gender on play assessment in children aged 18-47 months. *Educational Psychology, 23*(1), 95-105. doi:10.1080/01443410303222

Chiu, S. W., Gervan, S., Fairbrother, C., Johnson, L. L., Owen-Anderson, A. H., Bradley, S.J., & Zucker, K. J. (2006). Sex-dimorphic color preference in children with gender identity disorder: A comparison to clinical and community controls. *Sex Roles*, *55*(5-6), 385-395. doi:10.1007/s11199-006-9089-9

Cimpian, A., Mu, Y., & Erickson, L. C. (2012). Who is good at this game? Linking an activity to a social category undermines children's achievement. *Psychological Science, 23*(5), 533-541. doi:10.1177/0956797611429803

Clark, E. (2007). *The real toy story: Inside the ruthless battle for America's youngest consumers*. UK: Simon and Schuster.

Clark, R., Guilmain, J., Saucier, P. K., & Tavarez, J. (2003). Two steps forward, one step back: The presence of female characters and gender stereotyping in award-winning picture books between the 1930s and the 1960s. *Sex Roles, 49,* 439–449. doi:10.1023/A:1025820404277

Cohen, L. B. (2004). Uses and Misuses of Habituation and Related Preference Paradigms. *Infant and Child Development*, *13*(4), 349-352. doi:10.1002/icd.355

Cole, D. A., Martin, J. M., Peeke, L. A., Seroczynski, A. D., & Fier, J. (1999). Children's over- and underestimation of academic competence: A longitudinal study of gender differences, depression, and anxiety. *Child Development*, *70*(2), 459-473. doi:10.1111/1467-8624.00033

Colley, A., & Comber, C. (2003). School Subject Preferences: Age and gender differences revisited. *Educational Studies*, *29*(1), 59-67. doi:10.1080/03055690303269

Collins, R. L. (2011). Content analysis of gender roles in media: Where are we now and where should we go?. *Sex Roles, 64*(3-4), 290-298. doi:10.1007/s11199-010-9929-5

Cooper, R. M. (1974). The control of eye fixation by the meaning of spoken language: A new methodology for the real-time investigation of speech perception, memory, and language processing. *Cognitive Psychology, 6*(1), 84-107. doi:10.1016/0010-0285(74)90005-X

Cornell, E. H. (1974). Infants' discrimination of photographs of faces following redundant presentations. *Journal of Experimental Child Psychology*, *18*(1), 98-106. doi:10.1016/0022-0965(74)90092-7

Coyle, E. F. (2010). *Barbie as a model of gender nontraditional career possible self*

    contentfor preschool and kindergarten girls (thesis). Washington and Lee

    University, Virginia, USA.

Coyle, E. F., & Liben, L. S. (2016). Affecting girls' activity and job interests through play:

    The moderating roles of personal gender salience and game characteristics. *Child*

    Development, *87*(2), 414-428. doi:10.1111/cdev.12463

Coyne, S. M., Linder, J. R., Rasmussen, E. E., Nelson, D. A., & Birkbeck, V. (2016).

    Pretty as a princess: Longitudinal effects of engagement with disney princesses on

    gender stereotypes, body esteem, and prosocial behavior in children. *Child*

    Development, 87(6), 1909-1925. doi:10.1111/cdev.12569

Coyne, S. M., Linder, J. R., Rasmussen, E. E., Nelson, D. A., & Birkbeck, V. (2016).

    Prettyas a princess: Longitudinal effects of engagement with Disney princesses on

    gender stereotypes, body esteem, and prosocial behavior in children. *Child*

    Development, 87(6), 1909-1925. doi:10.1111/cdev.12569

Coyne, S. M., Linder, J. R., Rasmussen, E. E., Nelson, D. A., & Collier, K. M. (2014). It's

    a bird! It's a plane! It's a gender stereotype!: Longitudinal associations between

    superhero viewing and gender stereotyped play. *Sex Roles*, *70*(9-10), 416-430. doi:

    10.1007/s11199-014-0374-8

Crisp, R. J., & Turner, R. N. (2014). *Essential social psychology*. London: Sage.

Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological*

    Review, *108*(3), 593-623. doi:10.1037/0033-295X.108.3.593

Crosby, J. R., Monin, B., & Richardson, D. (2008). Where do we look during potentially

    offensive behavior? *Psychological Science, 19*(3), 226-228. doi:10.1111/j.1467-

    9280.2008.02072.x

Crowley, K., Callanan, M. A., Tenenbaum, H. R., & Allen, E. (2001). Parents explain

    more often to boys than to girls during shared scientific thinking. *Psychological*

    Science, *12*(3), 258-261. doi:10.1111/1467-9280.00347

Culp, R. E., Cook, A. S., & Housley, P. C. (1983). A comparison of observed and reported

adult-infant interactions: Effects of perceived sex. *Sex Roles, 9*(4), 475-479.

doi:10.1007/BF00289787

Cunningham, S. J., & Macrae, C. N. (2011). The colour of gender stereotyping. *British

Journal of Psychology, 102*(3), 598–614. http://dx.doi.org/10.1111/j.2044-

8295.2011. 02023.x.

Cvencek, D., Greenwald, A. G., & Meltzoff, A. N. (2011). Measuring implicit attitudes of

4-year-olds: The preschool implicit association test. *Journal of Experimental Child

Psychology, 109*(2), 187-200. doi:10.1016/j.jecp.2010.11.002

Cvencek, D., Kapur, M., & Meltzoff, A. N. (2015). Math achievement, stereotypes, and

math self-concepts among elementary-school students in Singapore. *Learning and

Instruction*, *39,* 1-10. doi:10.1016/j.learninstruc.2015.04.002

Davidson, E. S., Yasuna, A., & Tower, A. (1979). The effects of television cartoons on

sex-role stereotyping in young girls. *Child Development*, 597-600.

Dawson, A., Pike, A., & Bird, L. (2016). Associations between parental gendered attitudes

and behaviours and children's gender development across middle

childhood. *European Journal of Developmental Psychology*, *13*(4), 452-471.

doi:10.1080/17405629.2015.1109507

Dean, M. L., & Tate, C. C. (2017). Extending the legacy of Sandra Bem: Psychological

androgyny as a touchstone conceptual advance for the study of gender in

psychological science. *Sex Roles*, *76*(11-12), 643-654. doi:10.1007/s11199-016-

0713-z

De Caroli, M. E., & Sagone, E. (2007). Toys, sociocognitive traits, and occupations: Italian

children's endorsement of gender stereotypes. *Psychological Reports*, *100*(3,Pt2),

1298-1311. doi:10.2466/PR0.100.3.1298-1311

De Lisi, R., & Wolford, J. L. (2002). Improving children's mental rotation accuracy with

computer game playing. *The Journal of Genetic Psychology: Research and Theory

on Human Development, 163*(3), 272-282. doi:10.1080/00221320209598683

De Lisi, R., & Wolford, J. L. (2002). Improving children's mental rotation accuracy with

computer game playing. *The Journal of Genetic Psychology, 163*(3), 272-282.

doi:10.1080/00221320209598683

Deaux, K., & Kite, M. (1993). Gender stereotypes. In F. L. Denmark, M. A. Paludi, F. L.

Denmark, M. A. Paludi (Eds.), *Psychology of women: A handbook of issues and

theories* (pp. 107-139). Westport, CT, US: Greenwood Press/Greenwood

Publishing Group.

Deutsch, F. M., Servis, L. J., & Payne, J. D. (2001). Paternal participation in child care and

its effects on children's self-esteem and attitudes toward gendered roles. *Journal of

Family Issues*, *22*(8), 1000-1024. doi:10.1177/019251301022008003

Devine, P. (1989). Stereotypes and Prejudice: Their Automatic and Controlled

Components. *Journal of Personality and Social Psychology, 58,* 5–18.

doi:10.1037/0022-3514.56.1.5.

Devine, P. G., Forscher, P. S., Austin, A. J., & Cox, W. L. (2012). Long-term reduction in

implicit race bias: A prejudice habit-breaking intervention. *Journal of Experimental

Social Psychology*, *48*(6), 1267-1278. doi:10.1016/j.jesp.2012.06.003

DiDonato, M. D., Martin, C. L., & England, D. (2014). Gendered interactions and their

consequences: A dynamical perspective (pp. 20-42). In P. Leman & H. Tennebaum

(Eds.), *Current issues in Developmental Psychology*. Psychology Press.

Diekman, A. B., & Eagly, A. H. (2000). Stereotypes as dynamic constructs: Women and

men of the past, present, and future. *Personality and Social Psychology

Bulletin*, *26*(10), 1171-1188. doi:10.1177/0146167200262001

Diekman, A. B., & Murnen, S. K. (2004). Learning to be little women and little men: The

    inequitable gender equality of nonsexist children's literature. *Sex Roles*, *50*(5-6),

    373-385. doi:10.1023/B:SERS.0000018892.26527.ea

Diesendruck, G., & Haber, L. (2009). God's categories: The effect of religiosity on

    children's teleological and essentialist beliefs about categories. *Cognition*, *110*(1),

    100-114. doi:10.1016/j.cognition.2008.11.001

Dietz, T. L. (1998). An examination of violence and gender role portrayals in video games:

    Implications for gender socialization and aggressive behavior. *Sex Roles*, *38*(5-6),

    425-442. doi:10.1023/A:1018709905920

Dill, K. E., Gentile, D. A., Richter, W. A., & Dill, J. C. (2005). Violence, Sex, Race, and

    Age in Popular Video Games: A Content Analysis. In E. Cole, J. H. Daniel, E.

    Cole, J. H. Daniel (Eds.), *Featuring females: Feminist analyses of media* (pp. 115-

    130). Washington, DC, US: American Psychological Association.

    doi:10.1037/11213-008

Dittmar, H., Halliwell, E., & Ive, S. (2006). Does barbie make girls want to be thin? the

    effect of experimental exposure to images of dolls on the body image of 5- to 8-year-

    old girls. *Developmental Psychology, 42*(2), 283-292. doi:10.1037/0012-

    1649.42.2.283

Dunham, Y., Baron, A. S., & Banaji, M. R. (2016). The development of implicit gender

    attitudes. *Developmental Science, 19*(5), 781-789. doi:10.1111/desc.12321

Dweck, C. S., Davidson, W., Nelson, S., & Enna, B. (1978). Sex differences in learned

    helplessness: II. The contingencies of evaluative feedback in the classroom and III.

    An experimental analysis. *Developmental psychology*, *14*(3), 268.

Eagly, A. (1987). *Sex Differences in Social Behaviour: A Social-Role Interpretation.*

    Hillsdale, NJ: Lawrence Erlbaum Associates.

Eagly, A. H., Wood, W., & Diekman, A. B. (2000). Social role theory of sex differences

    and similarities: A current appraisal. In T. Eckes, & H. M. Trautner (Eds.), *The*

developmental social psychology of gender (pp. 123-174).   Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Eccles, J. S., Jacobs, J. E., & Harold, R. D. (1990). Gender role stereotypes, expectancy effects, and parents' socialization of gender differences. *Journal of Social Issues*, *46*(2), 183-201. doi:10.1111/j.1540-4560.1990.tb01929.x

Eckes, T., & Trautner, H. M. (2000). Developmental social psychology of gender: An integrative framework. In T. Eckes, H. M. Trautner, T. Eckes, H. M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 3-32). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Edelbrock, C. S., & Sugawara, A. I. (1978). Acquisition of sex-typed preferences in preschool-aged children. *Developmental Psychology*, *14*(6), 614.

Eisenberg, N., Wolchik, S. A., Hernandez, R., & Pasternack, J. F. (1985). Parental socialization of young children's play: A short-term longitudinal study. *Child Development, 56*(6), 1506-1513. doi:10.2307/1130469

Emmott, S. (1985). Sex differences in children's play: Implications for cognition. *International Journal of Women's Studies*, *8*(5), 449-456.

Endendijk, J. J., Groeneveld, M. G., Bakermans-Kranenburg, M. J., & Mesman, J. (2016). Gender-differentiated parenting revisited: Meta-analysis reveals very few differences in parental control of boys and girls. *PloS One, 11*(7), e0159193.

Endendijk, J. J., Groeneveld, M. G., van Berkel, S. R., Hallers-Haalboom, E. T., Mesman, J., & Bakermans-Kranenburg, M. J. (2013). Gender stereotypes in the family context: Mothers, fathers, and siblings. *Sex Roles, 68*(9-10), 577-590. doi:10.1007/s11199-013-0265-4

Etaugh, C., Grinnell, K., & Etaugh, A. (1989). Development of gender labeling: Effect of

age of pictured children. *Sex Roles, 21*(11-12), 769-773.

doi:10.1007/BF00289807

Evans, L., & Davies, K. (2000). No sissy boys here: A content analysis of the

representation of masculinity in elementary school reading textbooks. *Sex

Roles*, *42*(3-4), 255-270. doi:10.1023/A:1007043323906

Fabes, R. A., Martin, C. L., & Hanish, L. D. (2003). Young children's play qualities in

same-, other-, and mixed-sex peer groups. *Child Development, 74*(3), 921-932.

doi:10.1111/1467-8624.00576

Fagot, B. I. (1977). Consequences of moderate cross-gender behavior in preschool

children. Child Development, 48(3), 902-907. doi:10.2307/1128339

Fagot, B. I. (1978). The influence of sex of child on parental reactions to toddler

children. *Child Development, 49*(2), 459-465. doi:10.2307/1128711

Fagot, B. I. (1985). Beyond the reinforcement principle: Another step toward

understanding sex role development. *Developmental Psychology*, *21*(6), 1097-

1104. doi:10.1037/0012-1649.21.6.1097

Fagot, B. I. (1995). Psychosocial and cognitive determinants of early gender-role

development. *Annual Review of Sex Research, I*, 1-31. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1996-04654-

001&site=ehost-live

Fagot, B. I., & Hagan, R. (1991). Observations of parent reactions to sex- stereotyped

behaviors: Age and sex effects. *Child Development, 62*(3), 617-628.

doi:10.2307/1131135

Fagot, B. I., & Leinbach, M. D. (1989). The young child's gender schema: Environmental

input, internal organization. *Child Development, 60*(3), 663-672.

doi:10.2307/1130731

Fagot, B. I., & Littman, I. (1975). Stability of sex role and play interests from preschool to

elementary school. *The Journal of Psychology*, *89*(2), 285-292.

Fagot, B. I., Leinbach, M. D., & Hagan, R. (1986). Gender labeling and the adoption of

    sex-typed behaviors. *Developmental Psychology*, *22*(4), 440-443.

    doi:10.1037/0012-1649.22.4.440

Farkas, T., & Leaper, C. (2014). Is having an older sister or older brother related to

    younger siblings' gender typing? A meta-analysis. In P. J. Leman & H. R.

    Tenenbaum (Eds.), *Gender and development* (pp. 63-77). New York, NY, US:

    Psychology Press.

Farr, R. H., Bruun, S. T., Doss, K. M., & Patterson, C. J. (2017). Children's gender-typed

    behavior from early to middle childhood in adoptive families with lesbian, gay, and

    heterosexual parents. *Sex Roles*, doi:10.1007/s11199-017-0812-5

Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in

    automatic activation as an unobtrusive measure of racial attitudes: A bona fide

    pipeline? *Journal of Personality and Social Psychology, 69*(6), 1013 -1027.

    doi:10.1037/0022-3514.69.6.1013

Ferguson, H. J., & Breheny, R. (2011). Eye movements reveal the time-course of

    anticipating behaviour based on complex, conflicting desires. *Cognition, 119*(2),

    179-196. doi:10.1016/j.cognition.2011.01.005

Ferguson, H. J., & Breheny, R. (2012). Listeners' eyes reveal spontaneous sensitivity to

    others' perspectives. *Journal of Experimental Social Psychology, 48*(1), 257-263.

    doi:10.1016/j.jesp.2011.08.007

Ferguson, H. J., Scheepers, C., & Sanford, A. J. (2010). Expectations in counterfactual and

    theory of mind reasoning. *Language and Cognitive Processes, 25*(3), 297-346.

    doi:10.1080/01690960903573887

FitzRoy, S., & Rutland, A. (2010). Learning to control ethnic intergroup bias in

    childhood. *European Journal of Social Psychology, 40*(4), 679-693.

    doi:10.1002/ejsp.746

Forbes, C. E., & Schmader, T. (2010). Retraining attitudes and stereotypes to affect

motivation and cognitive capacity under stereotype threat. *Journal of Personality and*

Social Psychology, 99(5), 740-754. doi:10.1037/a0020971

Foster, M. C. (2016). Representations of gender and embodiment in children's picture

books. *Dissertation Abstracts International*, *76*

Francis, B. (2010). Gender, toys and learning. *Oxford Review of Education*, *36*(3), 325-

344.

Del Río, F., & Strasser, K. (2013). Preschool Children's Beliefs about Gender Differences

in Academic Skills. *Sex Roles, 68,* 231-238. doi:10.1007/s11199-012-0195-6

Frawley, T. (2005). Gender bias in the classroom: Current controversies and implications

for teachers. *Childhood Education, 81*(4), 221-227.

doi:10.1080/00094056.2005.10522277

Fredrickson, B. L., Roberts, T. A., Noll, S. M., Quinn, D. M., & Twenge, J. M. (1998).

That swimsuit becomes you: sex differences in self-objectification, restrained

eating, and math performance. *Journal of personality and social psychology*, *75*(1),

269-284. doi:10.1037/0022-3514.75.1.269

Freeman, N. K. (2007). Preschoolers' perceptions of gender appropriate toys and their

parents' beliefs about genderized behaviors: Miscommunication, mixed messages,

or hidden truths? *Early Childhood Education Journal, 34*(5), 357-366.

doi:10.1007/s10643-006-0123-x

Frey, K. S., & Ruble, D. N. (1992). Gender constancy and the 'cost' of sex-typed behavior:

A test of the conflict hypothesis. *Developmental Psychology*, *28*(4), 714-721.

doi:10.1037/0012-1649.28.4.714

Furnham, A., & Mak, T. (1999). Sex-role stereotyping in television commercials: A review

and comparison of fourteen studies done on five continents over 25 years. *Sex*

Roles, *41*(5-6), 413-437. doi:10.1023/A:1018826900972

Geary, D. C., & Bjorklund, D. F. (2000). Evolutionary developmental psychology. *Child Development, 71*(1), 57-65. doi:10.1111/1467-8624.00118

Gelman, S. A., Taylor, M. G., Nguyen, S. P., Leaper, C., & Bigler, R. S. (2004). Mother-child conversations about gender: Understanding the acquisition of essentialist beliefs. *Monographs of the Society for Research in Child Development*, 69(1), 93-118. doi:10.1111/j.1540-5834.2004.06901007.x.

Gerbner, G. (1998). Cultivation analysis: An overview. *Mass Communication and Society*, *1*(3-4), 175-194.

Gerbner, G., Gross, L., Morgan, M., Signorielli, N., & Shanahan, J. (2002). Growing up with television: Cultivation processes. In J. Bryant, D. Zillmann, J. Bryant, D. Zillmann (Eds.), *Media effects: Advances in theory and research, 2nd ed* (pp. 43-67). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Giddens, A. (1993). *Sociology*. Cambridge, UK: Polity Press.

Glascock, J. (2001). Gender roles on prime-time network television: Demographics and behaviors. *Journal of Broadcasting & Electronic Media*, *45*(4), 656-669. doi:10.1207/s15506878jobem4504_7

Goldberg, A. E., & Garcia, R. L. (2016). Gender-typed behavior over time in children with lesbian, gay, and heterosexual parents. *Journal of Family Psychology*, *30*(7), 854-865. doi:10.1037/fam0000226

Golombok, S., & Rust, J. (1993). The pre-school activities inventory: A standardized assessment of gender role in children. *Psychological Assessment, 5*(2), 131-136. doi:10.1037/1040-3590.5.2.131

Golombok, S., Rust, J., Zervoulis, K., Croudace, T., Golding, J., & Hines, M. (2008). Developmental trajectories of sex-typed behavior in boys and girls: A longitudinal general population study of children aged 2.5-8 years. *Child Development, 79*(5), 1583-1593. doi:10.1111/j.1467-8624.2008.01207.x

Gould, E. D. (2008). Marriage and career: The dynamic decisions of young men. *Journal of Human Capital*, *2*(4), 337-378. doi: 10.1086/597668

Government Equalities Office, UK. (2016). *UK gender pay gap.* Retrieved from: https://www.gov.uk/government/news/uk-gender-pay-gap

Green, C. S., & Bavelier, D. (2003). Action video game modifies visual selective attention. *Nature*, *423*(6939), 534-537. doi:10.1038/nature01647

Green, V. A., Bigler, R., & Catherwood, D. (2004). The Variability and Flexibility of Gender-Typed Toy Play: A Close Look at Children's Behavioral Responses to Counter-stereotypic Models. *Sex Roles*, *51*(7-8), 371-386. doi:10.1023/B:SERS.0000049227.05170.aa

Greenberg, B. S. (1980). Life on television. *Norwood, NJ: Ablex.*

Greenfield, S., Peters, J., Lane, N., Rees, T. & Samuels, G. (2002) *A report on women in science, engineering and technology for the Secretary of State for Trade and Industry*. Available online at: http://extra.shu.ac.uk/nrc/section_2/publications/reports/R1182_SET_Fair_Report.pdf

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review, 102*(1), 4. doi:10.1037/0033-295X.102.1.4

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74*(6), 1464.

Greenwald, A. G., Poehlman, T. A., Uhlmann, E. L., & Banaji, M. R. (2009). Understanding and using the Implicit Association Test: III.Meta-Analysis of Predictive Validity. *Journal of Personality and Social Psychology, 97*(1), 17-41. doi: 10.1037/a0015575

Halim, M. L., Ruble, D. N., & Tamis-LeMonda, C. S. (2013a). Four-year-olds' beliefs

about   how others regard males and females. *British Journal of Developmental*

Psychology, *31*(1), 128-135. doi:10.1111/j.2044-835X.2012.02084.x

Halim, M. L., Ruble, D., Tamis-LeMonda, C., & Shrout, P. E. (2013b). Rigidity in

gender-typed behaviors in early childhood: A longitudinal study of ethnic minority

children. *Child Development*, *84*(4), 1269-1284. doi:10.1111/cdev.12057

Halim, M. L., Ruble, D. N., Tamis-LeMonda, C. S., Zosuls, K. M., Lurye, L. E., &

Greulich, F. K. (2014). Pink frilly dresses and the avoidance of all things "girly":

Children's appearance rigidity and cognitive theories of gender

development. *Developmental psychology*, *50*(4), 1091 -1101. doi:10.1037/a0034906

Hamilton, M. C., Anderson, D., Broaddus, M., & Young, K. (2006). Gender Stereotyping

and   Under-representation of Female Characters in 200 Popular Children's

Picture Books: A Twenty-first Century Update. *Sex Roles*, *55*(11-12), 757-765.

doi:10.1007/s11199-006-9128-6

Harskamp, E., Ding, N., & Suhre, C. (2008). Group composition and its effect on female

and male problem-solving in science education. *Educational Research*, *50*(4), 307-

318. doi:10.1080/00131880802499688

Hata, M. (2014). Preschool girls and the media: How magazines describe and depict

gender norms. *International Journal of Early Childhood*, *46*(3), 373-389.

doi:10.1007/s13158-014-0123-8

Hata, M., Azuma, S., Masuda, N., Mizuno, R. (2012). *An analysis of gender norms in*

magazines for preschool girls in Japan in recent years). Retrieved from

www.mlpj.org/kk/img/2011_02.pdf (www.mlpj.org/kk/img/2011_02.pdf)

Hei Li, R., & Wong, W. I. (2016). Gender-typed play and social abilities in boys and girls:

Are they related? *Sex Roles*, doi:10.1007/s11199-016-0580-7

Hellendoorn, J., & Harinck, F. H. (1997). War toy play and aggression in Dutch kindergarten children. *Social Development*, *6*(3), 340-354. doi:10.1111/j.1467-9507.1997.tb00110.x

Henshaw, A., Kelly, J., & Gratton, C. (1992). Skipping's for girls: Children's perceptions of gender roles and gender preferences. *Educational Research, 34*(3), 229–235. doi: 10.1080/0013188920340307.

Hentges, B. & Case, K. (2013). Gender representations on Disney channel, cartoon network, and nickelodeon broadcasts in the United States. *Journal of Children and Media*, *7*(3), 319-333, doi: 10.1080/17482798.2012.729150

Hetherington, E. M., Parke, R. D., & Locke, V. O. (1999). *Child psychology: A contemporary viewpoint (5th ed.)*. New York, NY, US: McGraw-Hill. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1999-02824-000&site=ehost-live

Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology, 53*(1), 575-604. doi:10.1146/annurev.psych.53.100901.135109

Hilliard, L. J., & Liben, L. S. (2010). Differing levels of gender salience in preschool classrooms: Effects on children's gender attitudes and intergroup bias. *Child Development, 81*(6), 1787–1798. doi: 10.1111/j.1467-8624.2010.01510.x.

Hofmann, W., Gawronski, B., Gschwendner, T., Le, H., & Schmitt, M. (2005). A Meta-Analysis on the Correlation Between the Implicit Association Test and Explicit Self-Report Measures. Personality And Social Psychology Bulletin, 31(10), 1369-1385. doi:10.1177/0146167205275613

Hofstede, G.H. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations.* Sage: Thousand Oaks, CA.

Horn, S. S. (2008). The multifaceted nature of sexual prejudice: How adolescents reason about sexual orientation and sexual prejudice. In S. R. Levy, M. Killen, S. R. Levy,

M. Killen (Eds.), *Intergroup attitudes and relations in childhood through adulthood* (pp. 173-188). New York, NY, US: Oxford University Press.

Howell, D. C. (1992). *Statistical methods for psychology* (3rd ed.), Duxbury Press, Boston, MA

Hull, J. H., Hull, D. B., & Knopp, C. (2011). The impact of color on ratings of 'girl' and 'boy' toys. *North American Journal of Psychology*, *13*(3), 549-562.

Hunt, B. (2004). Surge in number of female-led enterprises. *Financial Times (UK edition)*. Retrieved from http://www.ft.com/cms/s/0/64efe4f4-287e-11d9-9308-00000e2511c8.html?ft_site=falcon&desktop=true#axzz4fZABtGoz

Hurlbert, A. C., & Ling, Y. (2007). Biological components of sex differences in color preference. *Current Biology, 17*(16), R623-R625.

Huston, A. C. (1983). Sex-typing. In E. M. Hetherington (Ed.), *Handbook of Child Psychology: Socialization, Personality, and Social Development*, *Vol. 4.* (pp. 388-467). New York: Wiley.

Idle, T., Wood, E., & Desmarais, S. (1993). Gender role socialization in toy play situations: Mothers and fathers with their sons and daughters. *Sex Roles, 28*(11-12), 679-691. doi:10.1007/BF00289987

Inglehart, R., & Norris, P. (2003). *Rising tide: Gender equality and cultural change around the world*. Cambridge: Cambridge University Press.

Inter-Parliamentary Union. (2012). *Women in National Parliaments.* Retrieved from: http://www.ipu.org/wmn-e/world.htm

Jackson, S. M., Hillard, A. L., & Schneider, T. R. (2014). Using implicit bias training to improve attitudes toward women in STEM. *Social Psychology of Education*, *17*(3), 419-438. doi:10.1007/s11218-014-9259-5

Jadva, V., Hines, M., & Golombok, S. (2010). Infants' preferences for toys, colors, and shapes: Sex differences and similarities. *Archives of Sexual Behavior, 39*(6), 1261-1273. doi:10.1007/s10508-010-9618-z

Jewell, J. A., & Brown, C. S. (2014). Relations among gender typicality, peer relations, and mental health during early adolescence. *Social Development, 23*(1), 137-156. doi:10.1111/sode.12042

Jirout, J. J., & Newcombe, N. S. (2015). Building blocks for developing spatial skills: Evidence from a large, representative U.S. sample. *Psychological Science, 26*(3), 302-310. doi:10.1177/0956797614563338

Johnston, J., & Ettema, J. S. (1982). *Positive images: Breaking stereotypes with children's television*. London: Sage Publications.

Kahle, J. B. (1988). Gender and science education II. In P. Fenshem (Ed.), *Development and dilemmas in science education* (pp. 249–266). London: Falmer Press.

Kahlenberg, S. G., & Hein, M. M. (2010). Progression on nickelodeon? gender-role stereotypes in toy commercials. *Sex Roles, 62*(11-12), 830-847. doi:10.1007/s11199-009-9653-1

Kamide, Y., Altmann, G. M., & Haywood, S. L. (2003). The time-course of prediction in incremental sentence processing: Evidence from anticipatory eye movements. *Journal Of Memory And Language*, *49*(1), 133-156. doi:10.1016/S0749-596X(03)00023-8

Kamide, Y., Lindsay, S., Scheepers, C., & Kukona, A. (2016). Event processing in the visual world: Projected motion paths during spoken sentence comprehension. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 42*(5), 804. doi:10.1037/xlm0000199

Kane, E. W. (2006). 'No way my boys are going to be like that!': Parents' responses to children's gender nonconformity. *Gender & Society, 20*(2), 149-176. doi:10.1177/0891243205284276

Karniol, R. (2011). The color of children's gender stereotypes. *Sex Roles*, *65*(1-2), 119-132. doi:10.1007/s11199-011-9989-1

Karniol, R., & Gal-Disegni, M. (2009). The impact of gender-fair versus gender-stereotyped basal readers on 1st-grade children's gender stereotypes: A natural experiment. Journal *of Research In Childhood Education, 23*(4), 411-420. doi:10.1080/ 02568540909594670

Katz, P. A., & Ksansnak, K. R. (1994). Developmental aspects of gender role flexibility and traditionality in middle childhood and adolescence. *Developmental psychology*, *30*(2), 272. doi:10.1037/0012-1649.30.2.272

Katz, P. A., & Walsh, P. V. (1991). Modification of children's gender-stereotyped behavior. *Child Development*, *62*(2), 338-351. doi:10.2307/1131007

Kaufman, G. (1999). The portrayal of men's family roles in television commercials. *Sex Roles*, *41*(5-6), 439-458. doi:10.1023/A:1018878917810

Kenway, J., & Bullen, E. (2001). Consuming children. *Education–Entertainment– Advertising. Buckingham: Open University Press*.

Killen, M., & Rutland, A. (2011). *Children and social exclusion: Morality, prejudice, and group identity*. Chichester: John Wiley & Sons.

Killen, M., & Stangor, C. (2001). Children's social reasoning about inclusion and exclusion in gender and race peer group contexts. *Child Development, 72*(1), 174-186. doi:10.1111/1467-8624.00272

Kite, M. E. (2001). Changing times, changing gender roles: Who do we want women and men to be?. In R. K. Unger, R. K. Unger (Eds.), *Handbook of the psychology of women and gender* (pp. 215-227). Hoboken, NJ, US: John Wiley & Sons Inc.

Kline, Stephen (1993). *Out of the garden: toys, TV and children's culture in the age of marketing*. London: Verso.

Koenig, A. M., & Eagly, A. H. (2014). Evidence for the social role theory of stereotype content: Observations of groups' roles shape stereotypes. *Journal of Personality AndSocial Psychology*, *107*(3), 371-392. doi:10.1037/a0037215

Kohlberg, L. (1966). A cognitive-developmental analysis of children's sex- role concepts

    and attitudes. In E. E. Maccody (Ed.), *The development of sex differences* (pp.82-

    172). Stanford, CA: Stanford University Press.

Kolbe, R. H., & Albanese, P. J. (1996). Man to Man: A Content Analysis of Sole-Male

    Images in Male-Audience Magazines. *Journal of Advertising*, *25*(4), 1-20.

    doi:10.1080/00913367.1996.10673509

Kolbe, R. H., & Muehling, D. (1995). Gender roles and children's television

    advertising. *Journal of Current Issues & Research in Advertising*, *17*(1), 49-64.

Kornienko, O., Santos, C. E., Martin, C. L., & Granger, K. L. (2016). Peer influence on

    gender identity development in adolescence. *Developmental Psychology, 52*(10),

    1578-1592. doi:10.1037/dev0000200

Kourilsky, M., & Campbell, M. (1984). Sex differences in a simulated classroom

    economy: Children's beliefs about entrepreneurship. *Sex Roles*, *10*(1-2), 53-66.

    doi:10.1007/BF00287746

Krippendorff, K. (1980). Validity in content analysis. In E. Mochmann (Ed.),

    Computerstrategien für die Kommunikationsanalyse (pp. 69-112). Frankfurt,

    Germany: Campus. Retrieved from http://repository.upenn.edu/asc_papers/291

Kunda, Z., & Spencer, S. J. (2003). When do stereotypes come to mind and when do they

    color judgment? A goal-based theoretical framework for stereotype activation and

    application. *Psychological Bulletin, 129*(4), 522 -544. doi:10.1037/0033-

    2909.129.4.522

Kyratzis, A. (2001). Emotion talk in preschool same-sex friendship groups: Fluidity over

    time and context. *Early Education and Development, 12*(3), 359-392.

    doi:10.1207/s15566935eed1203_5

Lam, V. L., & Leman, P. J. (2003). The Influence of Gender and Ethnicity on Children's

    Inferences about Toy Choice. *Social Development, 12*(2), 269-287.

    doi:10.1111/1467-9507.00233

Lamb, M. E., & Roopnarine, J. L. (1979). Peer influences on sex-role development in preschoolers. *Child Development*, 1219-1222.

Langlois, J. H., & Downs, A. C. (1980). Mothers, fathers, and peers as socialization agents of sex-typed play behaviors in young children. *Child Development, 51*(4), 1237-1247. doi:10.2307/1129566

Lansford, J. E., & Parker, J. G. (1999). Children's interactions in triads: Behavioral profiles and effects of gender and patterns of friendships among members. *Developmental Psychology*, *35*(1), 80-93. doi:10.1037/0012-1649.35.1.80

Lauzen, M. M., & Dozier, D. M. (2002). You look mahvelous: An examination of gender and appearance comments in the 1999-2000 prime-time season. *Sex Roles*, *46*(11-12), 429-437. doi:10.1023/A:1020417731462

Lauzen, M. M., Dozier, D. M., & Horan, N. (2008). Constructing gender stereotypes through social roles in prime-time television. *Journal Of Broadcasting & Electronic Media*, *52*(2), 200-214. doi:10.1080/08838150801991971

Leaper, C. (1994). Exploring the consequences of gender segregation on social relationships. In C. Leaper, C. Leaper (Eds.)*, Childhood gender segregation: Causes and consequences* (pp. 67-86). San Francisco, CA, US: Jossey-Bass.

Leaper, C. (2013). Gender development during childhood. In P. D. Zelazo, P. D. Zelazo (Eds.), *The Oxford handbook of developmental psychology, Vol. 2: Self and other* (pp. 326-377). New York, NY, US: Oxford University Press.

Leaper, C., Anderson, K. J., & Sanders, P. (1998). Moderators of gender effects on parents' talk to their children: A meta-analysis. *Developmental Psychology*, *34*(1), 3-27. doi:10.1037/0012-1649.34.1.3

Leaper, C., Breed, L., Hoffman, L., & Perlman, C. A. (2002). Variations in the Gender-Stereotyped content of children's television cartoons across genres. *Journal of*

Applied Social Psychology, 32(8), 1653-1662. doi:10.1111/j.1559-1816.2002.tb02767.x

Leinbach, M. D., & Fagot, B. I. (1993). Categorical habituation to male and female faces: Gender schematic processing in infancy. *Infant Behavior & Development, 16*(3), 317-332. doi:10.1016/0163-6383(93)80038-A

Leman, P. J., & Tenenbaum, H. R. (2011). Practising gender: Children's relationships and the development of gendered behaviour and beliefs. *British Journal of Developmental Psychology*, *29*(2), 153-157.

Leman, P. J., & Tenenbaum, H. R. (2014). *Gender and development.* New York, NY, US: Psychology Press.

Leman, P. J., Ahmed, S., & Ozarow, L. (2005). Gender, Gender Relations, and the Social Dynamics of Children's Conversations. *Developmental Psychology*, *41*(1), 64-74. doi:10.1037/0012-1649.41.1.64

Let Toys Be Toys. (2015). Retrieved from http://www.lettoysbetoys.org.uk/.

Levinson, R. M. (1975). From Olive Oyl to Sweet Polly Purebread: sex role stereotypes and televised cartoons. *The Journal of Popular Culture*, *9*(3), 561-572.

Levy, G. D. (1999). Gender-typed and non-gender-typed category awareness in toddlers. *Sex Roles*, *41*(11-12), 851-873. doi:10.1023/A:1018832529622

Li, R. Y. H., & Wong, W. I. (2016). Gender-typed play and social abilities in boys and girls: Are they related? *Sex Roles, 74*(9-10), 399-410. doi:10.1007/s11199-016-0580-7

Liben, L. S., & Bigler, R. S. (2002). The developmental course of gender differentiation: Conceptualizing, measuring, and evaluating constructs and pathways. *Monographs of the Society for Research in Child Development, 67*(2). doi: 10.1111/1540-5834.t01-1-00187 (vii-147).

Liben, L. S., & Signorella, M. L. (1980). Gender-related schemata and constructive memory in children. *Child Development*, *51*(1), 11-18. doi:10.2307/1129584

Lindsay, E. W., Mize, J., & Pettit, G. S. (1997). Differential pay patterns of mothers and

fathers of sons and daughters: Implications for children's gender role

development. *Sex Roles*, *37*(9-10), 643-661. doi:10.1007/BF02936333

Lipkin, E. (2009). *Girls' studies*. Berkeley: Seal Press.

Lobel, T. E., & Menashri, J. (1993). Relations of conceptions of gender-role transgressions

and gender constancy to gender-typed toy preferences. *Developmental Psychology,*

29(1), 150–155. doi:10.1037/0012-1649.29.1.150.

LoBue, V., & DeLoache, J. S. (2011). Pretty in pink: The early development of

genderstereotyped colour preferences. *The British Journal of Developmental*

Psychology, 29(3), 656–667. doi: 10.1111/j.2044-835x.2011.02027.x

Lummis, M., & Stevenson, H. W. (1990). Gender differences in beliefs and achievement:

A cross-cultural study. *Developmental Psychology*, *26*(2), 254-263.

doi:10.1037/0012-1649.26.2.254

Lytton, H., & Romney, D. M. (1991). Parents' differential socialization of boys and girls:

A meta-analysis. *Psychological Bulletin*, *109*(2), 267-296. doi:10.1037/0033-

2909.109.2.267

Maccoby, E. E. (1990). Gender and relationships: A developmental account. *American*

Psychologist, *45*(4), 513-520. doi:10.1037/0003-066X.45.4.513

Maccoby, E. E. (1998). *The two sexes: Growing up apart, coming together.* Cambridge,

MA, US: Belknap Press/Harvard University Press.

Maccoby, E. E. (2002). Gender and group process: A developmental perspective. *Current*

Directions in Psychological Science, 11(2), 54-58. doi:10.1111/1467-8721.00167

Maccoby, E. E., & Jacklin, C. N. (1987). Gender segregation in childhood. In H. W. Reese

(Ed.), *Advances in Child Development and Behavior, 20*, 239-287. San Diego, CA:

Academic Press

Maglaty, J. (2011). *When did girls start wearing pink?* Retrieved from

http://www.smithsonianmag.com/arts-culture/when-did-girls-start-wearing-pink-

1370097/

Marcon, R. A., & Freeman, G. (1996). Linking gender-related toy preferences to social

structure: Changes in children's letters to Santa since 1978. *Journal of*

Psychological Practice, *2*(1), 1-10. doi:10.1080/14753639608411259

Marcus, D. E., & Overton, W. F. (1978). The development of cognitive gender constancy

and sex role preferences. *Child Development*, *49*(2), 434-444. doi:10.2307/1128708

Martin, B. (2011). *Children at Play: Learning Gender in the Early Years*. Staffordshire,

UK: Trentham Books Ltd.

Martin, C. (2000). Cognitive theories of gender development. In T. Eckes & H. M.

Trautner (Eds.), *The developmental social psychology of gender* (pp. 123-174).

Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Martin, C. L. & Dinella, L. (2002). Gender-related development. In N. Smelser & P.

Baltes (Eds.), *International encyclopedia of the social and behavioral*

sciences. (pp.6020-6026). Oxford, UK: Pergamon.

Martin, C. L., & Dinella, L. M. (2012). Congruence between gender stereotypes and

activity preference in self-identified tomboys and non-tomboys. *Archives of Sexual*

Behavior, 41(3), 599-610. doi:10.1007/s10508-011-9786-5

Martin, C. L., & Fabes, R. A. (2001). The stability and consequences of young children's

same-sex peer interactions. *Developmental Psychology, 37*(3), 431-446.

doi:10.1037/0012-1649.37.3.431

Martin, C. L., & Halverson, C. F. (1981). A schematic processing model of sex typing and

stereotyping in children. *Child Development, 52*(4), 1119–1134. doi: 10.

2307/1129498.

Martin, C. L., & Halverson, C. F. (1983). The effects of sex-typing schemas on young

children's memory. *Child Development*, *54*(3), 563-574. doi:10.2307/1130043

Martin, C. L., & Ruble, D. (2004). Children's search for gender cues: Cognitive

perspectives on gender development. *Current Directions in Psychological Science,*

13(2), 67–70. doi: 10.1111/j.0963-7214.2004.00276.x.

Martin, C. L., & Ruble, D. (2004). Children's search for gender cues: Cognitive

perspectives on gender development. *Current Directions in Psychological*

Science, 13(2), 67-70. doi:10.1111/j.0963-7214.2004.00276.x

Martin, C. L., & Ruble, D. (2004). Children's search for gender cues: Cognitive

perspectives on gender development. *Current Directions In Psychological Science,*

13(2), 67-70. doi:10.1111/j.0963-7214.2004.00276.x

Martin, C. L., DiDonato, M. D., Clary, L., Fabes, R. A., Kreiger, T., Palermo, F., &

Hanish, L. (2012). Preschool children with gender normative and gender non-

normative peer preferences: Psychosocial and environmental correlates. *Archives of*

Sexual Behavior, *41*(4), 831-847. doi:10.1007/s10508-012-9950-6

Martin, C. L., Eisenbud, L., & Rose, H. (1995). Children's gender-based reasoning about

toys. *Child Development, 66*(5), 1453–1471. doi: 10.2307/1131657.

Martin, C. L., Fabes, R. A., Hanish, L., Leonard, S., & Dinella, L. M. (2011). Experienced

and expected similarity to same-gender peers: Moving toward a comprehensive

model of gender segregation. *Sex Roles, 65*(5-6), 421-434. doi:10.1007/s11199-011-

0029-y

Martin, C. L., Fabes, R. A., Hanish, L., Leonard, S., & Dinella, L. M. (2011). Experienced

and expected similarity to same-gender peers: Moving toward a comprehensive

model of gender segregation. *Sex Roles, 65*(5-6), 421-434. doi:10.1007/s11199-011-

0029-y

Martin, C. L., Kornienko, O., Schaefer, D. R., Hanish, L. D., Fabes, R. A., & Goble, P.

(2013). The role of sex of peers and gender-typed activities in young children's peer

affiliative networks: A longitudinal analysis of selection and influence. *Child*

Development, 84(3), 921-937. doi:10.1111/cdev.12032

Martin, C. L., Ruble, D. N., & Szkrybalo, J. (2002). Cognitive theories of early gender

    development. *Psychological Bulletin, 128*(6), 903–933. doi: 10.1037/0033-

    2909.128.6.903.

Martin, D., & Macrae, C. N. (2007). A face with a cue: Exploring the inevitability of

    person categorization. *European Journal Of Social Psychology*, *37*(5), 806-816.

    doi:10.1002/ejsp.445

McArthur, L. Z., & Eisen, S. V. (1976a). Achievements of male and female storybook

    characters as determinants of achievement behavior by boys and girls. *Journal of

    Personality and Social Psychology*, *33*(4), 467.

McArthur, L. Z., & Eisen, S. V. (1976b). Television and Sex-Role Stereotyping. *Journal of

    Applied Social Psychology*, *6*(4), 329-351.

McConnell, A. R., & Leibold, J. M. (2001). Relations among the implicit association test,

    discriminatory behavior, and explicit measures of racial attitudes. *Journal of

    Experimental Social Psychology, 37*(5), 435-442. doi:10.1006/jesp.2000.1470

McHale, S. M., Crouter, A. C., & Tucker, C. J. (1999). Family context and gender role

    socialization in middle childhood: Comparing girls to boys and sisters to

    brothers. *Child Development, 70*(4), 990-1004. doi:10.1111/1467-8624.00072

McHale, S. M., Crouter, A. C., & Whiteman, S. D. (2003). The family contexts of gender

    development in childhood and adolescence. *Social Development, 12*(1), 125-148.

    doi:10.1111/1467-9507.00225

McHale, S. M., Kim, J., Whiteman, S., & Crouter, A. C. (2004). Links Between Sex-Typed

    Time Use in Middle Childhood and Gender Development in Early

    Adolescence. *Developmental Psychology*, *40*(5), 868-881. doi:10.1037/0012-

    1649.40.5.868

McNeil, J. (1975). Feminism, femininity and the television series: A content

    analysis. *Journal of Broadcasting, 19,* 259–269.

Mead, B. J., & Ignico, A. A. (1992). Children's gender-typed perceptions of physical activity: Consequences and implications. *Perceptual And Motor Skills*, *75*(3, Pt 2), 1035-1042. doi:10.2466/PMS.75.8.1035-1042

Mehta, C. M., & Strough, J. (2009). Sex segregation in friendships and normative contexts across the life span. *Developmental Review, 29*(3), 201-220. doi:10.1016/j.dr.2009.06.001

Mehta, C. M., & Strough, J. (2010). Gender segregation and gender-typing in adolescence. *Sex Roles*, *63*(3-4), 251-263. doi:10.1007/s11199-010-9780-8

Merskin, D. (2002). Boys will be boys: A content analysis of gender and race in children's advertisements on the turner cartoon network. *Journal of Current Issues & Research in Advertising, 24*(1), 51-59. doi:10.1080/10641734.2002.10505127

Meyer, M., & Gelman, S. A. (2016). Gender essentialism in children and parents: Implications for the development of gender stereotyping and gender-typed preferences. *Sex Roles, 75*(9-10), 409-421. doi:10.1007/s11199-016-0646-6

Miller, C. F., Lurye, L. E., Zosuls, K. M., & Ruble, D. N. (2009). Accessibility of gender stereotype domains: Developmental and gender differences in children. *Sex Roles*, *60*(11-12), 870-881. doi:10.1007/s11199-009-9584-x

Miller, C. F., Trautner, H. M., & Ruble, D. N. (2006). The Role of Gender Stereotypes in Children's Preferences and Behavior. In L. Balter, C. S. Tamis-LeMonda, L. Balter, C. S. Tamis-LeMonda (Eds.), *Child psychology: A handbook of contemporary issues* (pp. 293-323). New York, NY, US: Psychology Press.

Miller, C.L. (1987). Qualitative differences among gender-stereotyped toys: Implications for cognitive and social development in girls and boys. *Sex Roles, 16*, 473-487. doi:10.1007/bf00292482

Miller, M. K., & Summers, A. (2007). Gender differences in video game characters' roles, appearances, and attire as portrayed in video game magazines. *Sex roles*, *57*(9-10), 733-742. doi: 10.1007/s11199-007-9307-0

Mischel, W. (1966). A social learning view of sex differences in behavior. In V. Burr (Ed.), *Social Constructionism* (pp. 108-129). New York, US: Routledge/Taylor & Francis Group. Retrieved from http://search.ebscohost.com/login.aspx?direct= true&db =psyh&AN=2015-16208-007&site=ehost-live

Morgan, M., & Shanahan, J. (2010). The state of cultivation. *Journal of Broadcasting & Electronic Media*, *54*(2), 337-355. doi:10.1080/08838151003735018

Mrazek, M. D., Chin, J. M., Schmader, T., Hartson, K. A., Smallwood, J., & Schooler, J. W. (2011). Threatened to distraction: Mind-wandering as a consequence of stereotype threat. *Journal of Experimental Social Psychology*, *47*(6), 1243-1248. doi:10.1016/j.jesp.2011.05.011

Mulvey, K. L., & Killen, M. (2015). Challenging gender stereotypes: Resistance and exclusion. *Child Development, 86*(3), 681-694. doi:10.1111/cdev.12317

Murnen, S. K., Greenfield, C., Younger, A., & Boyd, H. (2016). Boys Act and Girls Appear: A Content Analysis of Gender Stereotypes Associated with Characters in Children's Popular Culture. *Sex Roles*, *74*(1-2), 78-91. doi:10.1007/s11199-015-0558-x

Napoli, J., Murgolo-Poore, M., & Boudville, I. (2003). Female gender images in adolescent magazine advertising. *Australasian Marketing Journal (AMJ)*, *11*(1), 60-69.

National Science Foundation. (2004). *New formulas for America's workforce 2: Girls in science and engineering.* Retrieved from: https://www.nsf.gov/pubs/2006/nsf0660 nsf0660.pdf

Nelson, A. (2000). The pink dragon is female: Halloween costumes and gender markers. *Psychology of Women Quarterly*, *24*(2), 137-144. doi:10.1111/j.1471-6402.2000.tb00194.x

Nelson, A. (2005). Children's toy collections in Sweden—A less gender-typed country? *Sex Roles, 52*(1-2), 93-102. doi: 10.1007/s11199-005-1196-5

Nhundu, T. J. (2007). Mitigating gender-typed occupational preferences of Zimbabwean primary school children: The use of biographical sketches and portrayals of female role models. *Sex Roles, 56*(9-10), 639-649. doi:10.1007/s11199-007-9204-6

Nock, M. K., & Banaji, M. R. (2007). Prediction of suicide ideation and attempts among adolescents using a brief performance-based test. *Journal of Consulting And Clinical Psychology*, *75*(5), 707-715. doi:10.1037/0022-006X.75.5.707

Nosek, B. A. (2005). Moderators of the relationship between implicit and explicit evaluation. *Journal of Experimental Psychology: General*, *134*(4), 565-584. doi:10.1037/0096-3445.134.4.565

Nosek, B. A., Banaji, M. R., & Greenwald, A. G. (2002). Math= male, me= female, therefore math≠ me. *Journal of Personality and Social Psychology, 83*(1), 44. doi:10.1037/0022-3514.83.1.44

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2005). Understanding and using the implicit association test: II. method variables and construct validity. *Personality and Social Psychology Bulletin, 31*(2), 166-180. doi:10.1177/0146167204271418

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2007). The Implicit Association Test at Age 7: A Methodological and Conceptual Review. In J. A. Bargh, J. A. Bargh (Eds.), *Social psychology and the unconscious: The automaticity of higher mental processes* (pp. 265-292). New York, NY, US: Psychology Press

Nosek, B. A., Smyth, F. L., Sriram, N., Lindner, N. M., Devos, T., Ayala, A., & Greenwald, A. G. (2009). National differences in gender-science stereotypes predict national sex differences in science and math achievement. *Proceedings of the National Academy of Sciences of the United States of America, 106*(26), 10593-10597. doi:10.1073/pnas.0809921106

O'Brien, K. M., & Fassinger, R. E. (1993). A causal model of the career orientation and career choice of adolescent women. *Journal of Counseling Psychology*, *40*(4), 456-469. doi:10.1037/0022-0167.40.4.456

O'Brien, M., & Huston, A. C. (1985). Development of sex-typed play behavior in

toddlers. *Developmental Psychology*, *21*(5), 866-871. doi:10.1037/0012-

1649.21.5.866

O'Brien, M., Huston, A. C., & Risley, T. R. (1983). Sex-typed play of toddlers in a day

care center. *Journal of Applied Developmental Psychology*, *4*(1), 1-9.

doi:10.1016/0193-3973(83)90054-0

Ochman, J. M. (1996). The effects of nongender-role stereotyped, same-sex role models in

storybooks on the self-esteem of children in Grade Three. *Sex Roles*, *35*(11-12),

711-736. doi:10.1007/BF01544088

OECD. (2012). *Education at a Glance 2012: OECD Indicators.* OECD Publishing.

Retrieved from: http://dx.doi.org/10.1787/eag-2012-en

Office for National Statistics. (2016). *Annual Survey of Hours and Earnings: 2016

Provisional Results.* Retrieved from: https://www.ons.gov.uk/

employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/

annualsurveyofhoursandearnings/2016provisionalresults

Office for National Statistics. (2016). *Mid-2014 local authority population estimates by

single year of age and sex*. Retrieved from https://www.ons.gov.uk/aboutus/

Olson, K. R., & Dunham, Y. (2010). The development of implicit social cognition. In B.

Gawronski, B. K. Payne, B. Gawronski, B. K. Payne (Eds.), *Handbook of implicit

social cognition: Measurement, theory, and applications* (pp. 241-254). New York,

NY, US: Guilford Press.

Orenstein, P. (2011). *Cinderella ate my daughter: Dispatches from the front lines of the

new girly-girl culture.* New York, NY: HarperCollins.

Overton, W. F. (1984). World views and their influence on psychological theory and

research: Kuhn-Lakatos-Laudan. *Advances in child development and behavior*, *18*,

191-226.

Paik, H. (2001). The history of children's use of electronic media. In D. Singer & J. Singer

(Eds.), *Handbook of children and the media* (pp. 7-27), Thousand Oaks, CA: Sage.

Paoletti, J. (2012). *Pink and blue: Telling the boys from the girls in America*. Bloomington,

IN: Indiana University Press. Retrieved from http://search.ebscohost.com/

login.aspx?direct=true&db=psyh&AN=2012-08701-000&site=ehost-live

Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle

childhood: Links with peer group acceptance and feelings of loneliness and social

dissatisfaction. *Developmental Psychology*, *29*(4), 611-621. doi:10.1037/0012-

1649.29.4.611

Pasterski, V., Geffner, M. E., Brain, C., Hindmarsh, P., Brook, C., & Hines, M. (2011).

Prenatal hormones and childhood sex segregation: Playmate and play style

preferences in girls with congenital adrenal hyperplasia. *Hormones and Behavior,*

59(4), 549-555. doi:10.1016/j.yhbeh.2011.02.007

Paz-Albo Prieto, J., Cvencek, D., Llácer, C. H., Escobar, A. H., & Meltzoff, A. N. (2017).

Preschoolers' mathematical play and colour preferences: A new window into the

development of gendered beliefs about math. *Early Child Development and*

Care, *187*(8), 1273-1283. doi:10.1080/03004430.2017.1295234

Pennell, G. E. (1994). Babes in toyland: Learning an ideology of gender. *Advances in*

Consumer Research, 21, 359-364.

Perry, D. G., & Bussey, K. (1979). The social learning theory of sex differences: Imitation

is alive and well. *Journal of personality and social psychology*, *37*(10), 1699.

Pike, J. J., & Jennings, N. A. (2005). The Effects of Commercials on Children's

Perceptions of Gender Appropriate Toy Use. *Sex Roles, 52*(1-2), 83-91.

doi:10.1007/s11199-005-1195-6

Pine, K. J., & Nash, A. (2002). Dear Santa: The effects of television advertising on young

children. *International Journal of Behavioral Development*, *26*(6), 529-539.

doi:10.1080/01650250143000481

Pingree, S. (1978). The effects of nonsexist television commercials and perceptions of

reality on children's attitudes about women. *Psychology of Women Quarterly*, *2*(3),

262-277.

Plakoyiannaki, E., & Zotos, Y. (2009). Female role stereotypes in print advertising:

Identifying associations with magazine and product categories. *European Journal

of Marketing, 43*(11-12), 1411-1434. doi:10.1108/03090560910989966

Pollay, R. W. (1986). Quality of life in the padded sell: Common criticisms of advertising's

cultural character and international public policies. *Current Issues and Research in

Advertising*, *9*(1-2), 173-250.

Pomerleau, A., Bolduc, D., Malcuit, G., & Cossette, L. (1990). Pink or blue:

Environmental gender stereotypes in the first two years of life. *Sex Roles, 22*(5-6),

359-367. doi:10.1007/BF00288339

Pomerantz, E. M., Altermatt, E. R., & Saxon, J. L. (2002). Making the grade but feeling

distressed: Gender differences in academic performance and internal

distress. *Journal of Educational Psychology*, *94*(2), 396-404. doi:10.1037/0022-

0663.94.2.396

Pope, H. J., Olivardia, R., Gruber, A., & Borowiecki, J. (1999). Evolving ideals of male

body image as seen through action toys. *International Journal of Eating

Disorders*, *26*(1), 65-72. doi:10.1002/(SICI)1098-108X(199907)26:1<65::AID-

EAT8>3.0.CO;2-D

Powlishta, K. K. (2004). Gender as a social category: Intergroup processes and gender-role

development. In M. Bennett, F. Sani, M. Bennett, F. Sani (Eds.), *The development

of the social self* (pp. 103-133). New York, NY, US: Psychology Press.

doi:10.4324/9780203391099_chapter_4

Powlishta, K. K., Serbin, L. A., & Moller, L. C. (1993). The stability of individual

differences in gender typing: Implications for understanding gender

segregation. *Sex Roles*, *29*(11-12), 723-737. doi:10.1007/BF00289214

R Core Team (2016). *R: A language and environment for statistical computing*. R
Foundation for Statistical Computing, Vienna, Austria. Retrieved from:
http://www.R- project.org/.

Raag, T., & Rackliff, C. L. (1998). Preschoolers' awareness of social expectations of
gender: Relationships to toy choices. *Sex Roles, 38*(9-10), 685-700.
doi:10.1023/A:1018890728636

Rabelo, L. Z., Bortoloti, R., & Souza, D. H. (2014). Dolls are for girls and not for boys:
Evaluating the appropriateness of the implicit relational assessment procedure for
school-age children. *The Psychological Record*, *64*(1), 71-77. doi:10.1007/s40732-
014-0006-2

Rangel, U., & Keller, J. (2011). Essentialism goes social: Belief in social determinism as a
component of psychological essentialism. *Journal of Personality and Social
Psychology*, *100*(6), 1056-1078. doi:10.1037/a0022401

Raskin, P. A., & Israel, A. C. (1981). Sex-role imitation in children: Effects of sex of child,
sex of model, and sex-role appropriateness of modeled behavior. *Sex Roles*, *7*(11),
1067-1077. doi:10.1007/BF00287584

Rheingold, H. L., & Cook, K. V. (1975). The contents of boys' and girls' rooms as an index
of parents' behavior. *Child development,* 46(2), 459-463. doi:10.2307/1128142

Rich, E. (2005, December). Young women, feminist identities and neo-liberalism. In
Women's Studies International Forum, 28(6), 495-508. .
doi:10.1016/j.wsif.2005.09.006

Richardson, J. G., & Simpson, C. H. (1982). Children, gender, and social structure: An
analysis of the contents of letters to Santa Claus. Child Development, 53(2), 429-
436. doi:10.2307/1128986

Ridgeway, C. L., & Bourg, C. (2004). Gender as Status: An Expectation States Theory
Approach. In A. H. Eagly, A. E. Beall, R. J. Sternberg, A. H. Eagly, A. E. Beall, R.

J. Sternberg (Eds.), *The psychology of gender* (pp. 217-241). New York, NY, US: Guilford Press.

Robinson, T. N., Saphir, M. N., Kraemer, H. C., Varady, A., & Haydel, K. F. (2001). Effects of reducing television viewing on children's requests for toys: A randomizedcontrolled trial. *Journal of Developmental and Behavioral Pediatrics*, *22*(3), 179-184. doi:10.1097/00004703-200106000-00005

Robinson, T., & Anderson, C. (2006). Older Characters in Children's Animated Television Programs: A Content Analysis of Their Portrayal. *Journal of Broadcasting & Electronic Media*, *50*(2), 287-304. doi:10.1207/s15506878jobem5002_7

Robinson, T., Callister, M., Magoffin, D., & Moore, J. (2007). The portrayal of older characters in Disney animated films. *Journal of Aging Studies*, *21*(3), 203-213. doi:10.1016/j.jaging.2006.10.001

Rogoff, B. (2003). *The cultural nature of human development*. Oxford University Press.

Ruble D. N., & Martin C. L. (1998). Gender development. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Vol 3. Social, emotional, and personality development* (pp. 933–1016). New York: Wiley.

Ruble, D. N. (1994). A phase model of transitions: Cognitive and motivational consequences. In M. P. Zanna, M. P. Zanna (Eds.), *Advances in experimental social psychology, Vol. 26* (pp. 163-214). San Diego, CA, US: Academic Press. doi:10.1016/S0065-2601(08)60154-9

Ruble, D. N., & Stangor, C. (1986). Stalking the elusive schema: Insights from developmental and social-psychological analyses of gender schemas. *Social Cognition*, *4*(2), 227-261. doi:10.1521/soco.1986.4.2.227

Ruble, D. N., Balaban, T., & Cooper, J. (1981). Gender constancy and the effects of sex-typed televised toy commercials. *Child Development*, *52*(2), 667-673. doi:10.2307/1129188

Ruble, D. N., Martin, C. L., & Berenbaum, S. (2006). Gender development. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Personality and social development* (6th ed., pp. 858–932). New York, NY: Wiley.

Ruble, D. N., Taylor, L. J., Cyphers, L., Greulich, F. K., Lurye, L. E., & Shrout, P. E. (2007). The role of gender constancy in early gender development. *Child Development, 78*(4), 1121-1136. doi:10.1111/j.1467-8624.2007.01056.x

Rudman, L. A., & Glick, P. (2012). *The social psychology of gender: How power and intimacy shape gender relations*. Guilford Press.

Rudman, L. A., & Goodwin, S. A. (2004). Gender Differences in Automatic In-Group Bias: Why Do Women Like Women More Than Men Like Men?. *Journal of Personality and Social Psychology*, *87*(4), 494-509. doi:10.1037/0022-3514.87.4.494

Russell, R., & Tyler, M. (2002). Thank Heaven for Little Girls: 'Girl Heaven' and the Commercial Context of Feminine Childhood. *Sociology*, *36*(3), 619-637. doi:10.1177/0038038502036003007

Rutland, A., Cameron, L., Milne, A., & McGeorge, P. (2005). Social norms and self-presentation: Children's implicit and explicit intergroup attitudes. *Child development, 76*(2), 451-466.

Sadker, M., & Sadker, D. (1994). *Failing at Fairness: How Our Schools Cheat Girls*. New York: Touchstone.

Sadker, M., & Sadker, D. (2010). *Failing at fairness: How America's schools cheat girls*. New York: Simon and Schuster.

Sandnabba, N. K., & Ahlberg, C. (1999). Parents' attitudes and expectations about children's cross-gender behaviour. *Sex Roles, 40*(3-4), 249-263. doi:10.1023/A:1018851005631

Scharrer, E. (2004). Virtual Violence: Gender and Aggression in Video Game

Advertisements. *Mass Communication & Society*, *7*(4), 393-412.

doi:10.1207/s15327825mcs0704_2

Schmader, T., Johns, M., & Forbes, C. (2008). An integrated process model of stereotype

threat effects on performance. *Psychological Review*, *115*(2), 336-356.

doi:10.1037/0033-295X.115.2.336

Schuette, C. T., Ponton, M. K., & Charlton, M. L. (2012). Middle school children's career

aspirations: Relationship to adult occupations and gender. *The Career Development

Quarterly*, *60*(1), 35-46. doi:10.1002/j.2161-0045.2012.00004.x

Schuette, C., & Killen, M. (2009). Children's evaluations of gender-stereotypic household

activities in the family context. *Early Education and Development*, *20*(4), 693-712.

doi:10.1080/10409280802206908

Schwartz, L. A., & Markham, W. T. (1985). Sex stereotyping in children's toy

advertisements. *Sex Roles*, *12*(1-2), 157-170. doi:10.1007/BF00288044

Scott, K. P., & Feldman-Summers, S. (1979). Children's reactions to textbook stories in

which females are portrayed in traditionally male roles. *Journal of Educational

Psychology*, *71*(3), 396-402. doi:10.1037/0022-0663.71.3.396

Seavey, C. A., Katz, P. A., & Zalk, S. R. (1975). Baby X. *Sex Roles*, *1*(2), 103-109.

Seiter, E. (1993). *Sold separately: Children and parents in consumer culture*. Piscataway,

NJ, US: Rutgers University Press.

Sen, M. G. (1999). *Boys Don't Make Breakfast: Differential Memory for Own-gender-

stereotyped Events by Two-year-old Children* (Doctoral dissertation, University of

Minnesota).

Serbin, L. A., & Sprafkin, C. (1986). The salience of gender and the process of sex typing

in three- to seven-year-old children. *Child Development, 57*(5), 1188-1199.

doi:10.2307/1130442

Serbin, L. A., Connor, J. M., Burchardt, C. J., & Citron, C. C. (1979). Effects of peer presence on sex-typing of children's play behavior. *Journal of Experimental Child Psychology*, *27*(2), 303-309.

Serbin, L. A., Moller, L. C., Gulko, J., Powlishta, K. K., & Colburne, K. A. (1994). The emergence of gender segregation in toddler playgroups. In C. Leaper, C. Leaper (Eds.), *Childhood gender segregation: Causes and consequences* (pp. 7-17). San Francisco, CA, US: Jossey-Bass.

Serbin, L. A., Poulin-Dubois, D., Colburne, K. A., Sen, M. G., & Eichstedt, J. A. (2001). Gender stereotyping in infancy: Visual preferences for and knowledge of gender-stereotyped toys in the second year. *International Journal of Behavioral Development*, *25*(1), 7-15. doi:10.1080/01650250042000078

Servin, A., Bohlin, G., & Berlin, L. (1999). Sex differences in 1-, 3-, and 5-year-olds' toy-choice in a structured play-session. *Scandinavian Journal Of Psychology*, *40*(1), 43-48. doi:10.1111/1467-9450.00096

Shanahan, J., & Morgan, M. (1999). *Television and its viewers: Cultivation theory and research*. Cambridge University Press.

Sheldon, J. P. (2004). Gender stereotypes in educational software for young children. *Sex Roles, 51*(7-8), 433-444. doi:10.1023/B:SERS.0000049232.90715.d9

Shell, R., & Eisenberg, N. (1990). The role of peers' gender in children's naturally occurring interest in toys. *International Journal of Behavioral Development, 13*(3), 373-388. doi:10.1177/016502549001300309

Sherman, A. M., & Zurbriggen, E. L. (2014). 'Boys can be anything': Effect of Barbie play on girls' career cognitions. *Sex Roles*, *70*(5-6), 195-208. doi:10.1007/s11199-014-0347-y

Shrum, L. J., Burroughs, J. E., & Rindfleisch, A. (2004). A process model of consumer cultivation: The role of television is a function of the type of judgment. In L. J.

Shrum, L. J. Shrum (Eds.), *The psychology of entertainment media: Blurring the lines between entertainment and persuasion* (pp. 177-191). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Shutts, K., Banaji, M. R., & Spelke, E. S. (2010). Social categories guide young children's preferences for novel objects. *Developmental Science*, *13*(4), 599-610. doi:10.1111/j.1467-7687.2009.00913.x

Signorella, M. L., Bigler, R. S., & Liben, L. S. (1993). Developmental differences in children's gender schemata about others: A meta-analytic review. *Developmental Review, 13*(2), 147-183. doi:10.1006/drev.1993.1007

Signorielli, N. (1989). Television and conceptions about sex roles: Maintaining conventionality and the status quo. *Sex Roles*, *21*(5-6), 341-360. doi:10.1007/BF00289596

Signorielli, N. (2001). Television's gender role images and contribution to stereotyping: Past, present, future. In D. Singer & J. Singer (Eds.), *Handbook of children and the media*, (pp. 341-358), Thousand Oaks, CA: Sage.

Sinno, S., Schuette, C., & Killen, M. (2014). Developmental social cognition about gender roles in the family and societal context. In P. J. Lema & H. R. Tenenbaum (Eds.), *Gender and development* (pp. 133-154). New York, NY, US: Psychology Press.

Skinner, C. (2013). Gender and language in best-selling children's picture books: Who gets to speak?. *Dissertation Abstracts International*, *74*

Slaby, R. G., & Frey, K. S. (1975). Development of gender constancy and selective attention to same-sex models. *Child Development*, *46*(4), 849-856. doi:10.2307/1128389

Smith, C., & Lloyd, B. (1978). Maternal behavior and perceived sex of infant: Revisited. *Child development*, 49(4), 1263-1265. doi:10.2307/1128775

Smith, E. (2011). Women into science and engineering? Gendered participation in higher

   education STEM subjects. *British Educational Research Journal*, *37*(6), 993-1014.

   doi:10.1080/01411926.2010.515019

Smith, L. J. (1994). A content analysis of gender differences in children's

   advertising. *Journal Of Broadcasting & Electronic Media*, *38*(3), 323-337.

   doi:10.1080/08838159409364268

Spees, J. G., & Zimmerman, T. S. (2002). Gender messages in parenting magazines: A

   content analysis. In T. S. Zimmerman, T. S. Zimmerman (Eds.), *Integrating gender

   and culture in parenting* (pp. 73-100). New York, NY, US: Haworth Press.

Spinner, L., Cameron, L., & Tenenbaum, H. (2016). *Gender-stereotyped Messages in Pre-

   school Children's Magazines*. Paper presented at the University of Kent, Canterbury,

   UK.

Statista. (2016). Retrieved from https://www.statista.com/statistics/321625/children-s-

   magazines-ranked-by-sales-volume-uk-2013/

Statista. (2016a). *Children's Magazines Ranked by Print Retail Sales Volume in the United

   Kingdom (UK) In 2016 (In Copies Sold)*. Retrieved from https://www.statista.com/

   statistics/321625/children-s-magazines-ranked-by-sales-volume-uk-2013/

Statista. (2016b). *Share of children who regularly read books, magazines or comics in the

   United Kingdom (UK) from 2014 to 2016, by age*. Retrieved from

   https://www.statista.com/statistics/398258/children-use-of-books-magazines-and-

   comics-by-age-uk/

Steffens, M. C., Jelenec, P., & Noack, P. (2010). On the leaky math pipeline: Comparing

   implicit math-gender stereotypes and math withdrawal in female and male children

   and adolescents. *Journal of Educational Psychology*, *102*(4), 947-963.

   doi:10.1037/a0019920

Steinberg, S. R. (2011). *Kinderculture: The corporate construction of childhood* (3rd ed.).

    Colorado: Westview Press.

Stennes, L. M., Burch, M. M., Sen, M. G., & Bauer, P. J. (2005). A Longitudinal Study of

    Gendered Vocabulary and Communicative Action in Young Children.

    Developmental Psychology, 41(1), 75-88. doi:10.1037/0012-1649.41.1.75

Stern, S. L., & Schoenhaus, T. (1990). *Toyland: The high-stakes game of the toy industry*.

    New York: McGraw-Hill/Contemporary.

Sternglanz, S. H., & Serbin, L. A. (1974). Sex role stereotyping in children's television

    programs. *Developmental Psychology*, *10*(5), 710.

Steyer, I. (2014). Gender representations in children's media and their influence. *Campus-*

    Wide Information Systems, *31*(2/3), 171-180.

Stipek, D. J., & Gralinski, J. H. (1991). Gender differences in children's achievement-

    related beliefs and emotional responses to success and failure in

    mathematics. *Journal of Educational Psychology*, *83*(3), 361-371.

    doi:10.1037/0022-0663.83.3.361

Strack, F., & Deutsch, R. (2004). Reflective and Impulsive Determinants of Social

    Behavior. *Personality And Social Psychology Review*, *8*(3), 220-247.

    doi:10.1207/s15327957pspr0803_1

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of*

    experimental psychology, *18*(6), 643.

Sutfin, E. L., Fulcher, M., Bowles, R. P., & Patterson, C. J. (2008). How lesbian and

    heterosexual parents convey attitudes about gender to their children: The role of

    gendered environments. *Sex Roles*, *58*(7-8), 501-513. doi:10.1007/s11199-007-

    9368-0

Sweet, E. (2014). Toys are more divided by gender now than they were 50 years ago. *The Atlantic*, *9*, 2014. Retrieved from: http://pinxit.com/page67/downloads-7/files/Toys_Gender_Atlantic.pdf

Szkrybalo, J., & Ruble, D. N. (1999). 'God made me a girl': Sex-category constancy judgments and explanations revisited. *Developmental Psychology*, *35*(2), 392-402. doi:10.1037/0012-1649.35.2.392

Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, *223*(5), 96-103.

Tanenhaus, M. K., Spivey-Knowlton, M. J., Eberhard, K. M., & Sedivy, J. C. (2005). 'Integration of visual and linguistic information in spoken language comprehension': Erratum. *Science*, *307*(5711)

Tedesco, N. S. (1974). Patterns in prime time. *Journal of communication*, *24*(2), 119-124.

Tenenbaum, H. R. (2009). 'You'd be good at that': Gender patterns in parent-child talk about courses. *Social Development*, *18*(2), 447-463. doi:10.1111/j.1467-9507.2008.00487.x

Tenenbaum, H. R., & Leaper, C. (2002). Are parents' gender schemas related to their children's gender-related cognitions? A meta-analysis. *Developmental Psychology*, *38*(4), 615-630. doi:10.1037/0012-1649.38.4.615

Tenenbaum, H. R., & Leaper, C. (2003). Parent-child conversations about science: The socialization of gender inequities?. *Developmental Psychology*, *39*(1), 34-47. doi:10.1037/0012-1649.39.1.34

Tenenbaum, H. R., & May, D. (2014). Gender in parent-child relationships. In P. J. Leman & H. R. Tenenbaum (Eds.), *Gender and development* (pp. 1-19). New York, NY, US: Psychology Press.

Thompson, S. K. (1975). Gender labels and early sex role development. *Child Development*, 339-347.

Thompson, T. L. and Zerbinos, E. 1995. Gender roles in animated cartoons: Has the picture changed in 20 years?. *Sex Roles*, 32: 651–673. doi:10.1007/BF01544217

Thorne, B. (1993). *Gender play: Girls and boys in school*. Piscataway, NJ, US: Rutgers University Press.

Tobin, D. D., Menon, M., Menon, M., Spatta, B. C., Hodges, E. E., & Perry, D. G. (2010). The intrapsychics of gender: A model of self-socialization. *Psychological Review*, *117*(2), 601-622. doi:10.1037/a0018936

Todd, B. K., Barry, J. A., & Thommessen, S. O. (2017). Preferences for 'gender- typed' toys in boys and girls aged 9 to 32 months. *Infant And Child Development, 26*(3), doi:10.1002/icd.1986

Trautner, H. M., Ruble, D. N., Cyphers, L., Kirsten, B., Behrendt, R., & Hartmann, P. (2005). Rigidity and flexibility of gender stereotypes in childhood: Developmental or differential?. *Infant and Child Development, 14*(4), 365-381. doi:10.1002/icd.399

Trawick-Smith, J., Wolff, J., Koschel, M., & Vallarelli, J. (2015). Effects of toys on the play quality of preschool children: Influence of gender, ethnicity, and socioeconomic status. *Early Childhood Education Journal*, *43*(4), 249-256. doi:10.1007/s10643-014-0644-7

Turgeon, S. M. (2008). Sex differences in children's free drawings and their relationship to 2d:4d ratio. *Personality and Individual Differences*, *45*(6), 527-532. doi:10.1016/j.paid.2008.06.006

Twenge, J. M. (2001). Changes in women's assertiveness in response to status and roles: A cross-temporal meta-analysis, 1931–1993. *Journal Of Personality And Social Psychology*, *81*(1), 133-145. doi:10.1037/0022-3514.81.1.133

Ward, L. M., & Friedman, K. (2006). Using TV as a guide: Associations between television viewing and adolescents' sexual attitudes and behavior. *Journal of Research on Adolescence*, *16*(1), 133-156. doi:10.1111/j.1532-7795.2006.00125.x

Warin, J. (2000). The attainment of self-consistency through gender in young children. *Sex Roles*, *42*(3-4), 209-231. doi:10.1023/A:1007039222998

Wehren, A., & de Lisi, R. (1983). The development of gender understanding: Judgments and explanations. *Child Development*, *54*(6), 1568-1578. doi:10.2307/1129820

Weinburgh, M. (1995). Gender differences in student attitudes toward science: A meta-analysis of the literature from 1970 to 1991. *Journal of Research In Science Teaching*, *32*(4), 387-398. doi:10.1002/tea.3660320407

Weisgram, E. S. (2016). The cognitive construction of gender stereotypes: Evidence for the dual pathways model of gender differentiation. *Sex Roles*, *75*(7-8), 301-313. doi:10.1007/s11199-016-0624-z

Weisgram, E. S., Fulcher, M., & Dinella, L. M. (2014). Pink gives girls permission: Exploring the roles of explicit gender labels and gender-typed colors on preschool children's toy preferences. *Journal of Applied Developmental Psychology*, *35*(5), 401-409. doi:10.1016/j.appdev.2014.06.004

Weitzman, L. J., Eifler, D., Hokada, E., & Ross, C. (1972). Sex-role socialization in picture books for preschool children. *American journal of Sociology*, *77*(6), 1125-1150.

Westby, C., & Robinson, L. (2014). A developmental perspective for promoting theory of mind. *Topics In Language Disorders*, *34*(4), 362-382. doi:10.1097/TLD.0000000000000035

White, M. J., & White, G. B. (2006). Implicit and explicit occupational gender stereotypes. *Sex Roles*, *55*(3-4), 259-266. doi:10.1007/s11199-006-9078-z

Wigfield, A., Battle, A., Keller, L. B., & Eccles, J. S. (2002). Sex differences in

motivation, self-concept, career aspiration, and career choice: Implications for

cognitive development. In A. McGillicuddy-De Lisi & R. De Lisi, (Eds.), *Biology,*

society, and behavior: The development of sex differences in cognition (pp. 93-

124). Westport, CT, US: Ablex Publishing.

Williams, T. M. (1985). Implications of a natural experiment in the developed world for

research on television in the developing world. *Journal of Cross-Cultural*

Psychology, *16*(3), 263-287.

Wilson, T. D., Lindsey, S., & Schooler, T. Y. (2000). A model of dual

attitudes. *Psychological Review*, *107*(1), 101-126. doi:10.1037/0033-

295X.107.1.101

Wong, W. I., & Hines, M. (2015). Effects of gender color-coding on toddlers' gender-

typical toy play. *Archives of Sexual Behavior*, *44*(5), 1233-1242.

doi:10.1007/s10508-014-0400-5

Wood, E., Desmarais, S., & Gugula, S. (2002). The impact of parenting experience on

gender stereotyped toy play of children. *Sex Roles*, *47*(1-2), 39-49.

doi:10.1023/A:1020679619728

Wood, W., & Eagly, A. H. (2002). A cross-cultural analysis of the behavior of women and

men: Implications for the origins of sex differences. *Psychological Bulletin*, *128*(5),

699-727. doi:10.1037/0033-2909.128.5.699

Wood, W., & Eagly, A. H. (2012). Biosocial Construction of Sex Differences and

Similarities in Behavior. *Advances in Experimental Social Psychology*, *46*, 55-123.

doi: 10.1016/B978-0-12-394281-4.00002-7

Yates, D., Moore, D., & McCabe, G. (1999). *The Practice of Statistics* (1st Ed.). New

York: Freeman

Yee, M., & Brown, R. (1994). The development of gender differentiation in young

children. *British Journal of Social Psychology, 33*(2), 183-196. doi:10.1111/j.2044-

8309.1994.tb01017.x

Yeung, W. J., Duncan, G. J., & Hill, M. S. (2000). Putting fathers back in the picture:

Parental activities and children's adult outcomes. *Marriage & Family Review*, *29*(2-

3), 97-113. doi:10.1300/J002v29n02_07

Younger, B. A., & Fearing, D. D. (1999). Parsing items into separate categories:

Developmental change in infant categorization. *Child Development*, *70*(2), 291-

303.

Zemore, S. E., Fiske, S. T., & Kim, H. (2000). Gender stereotypes and the dynamics of

social interaction. In T. Eckes, H. M. Trautner, T. Eckes, H. M. Trautner

(Eds.), *The developmental social psychology of gender* (pp. 207-241). Mahwah, NJ,

US: Lawrence Erlbaum Associates Publishers.

Zosuls, K. M., Ruble, D. N., Tamis-LeMonda, C. S., Shrout, P. E., Bornstein, M. H., &

Greulich, F. K. (2009). The acquisition of gender labels in infancy: Implications for

gender-typed play. *Developmental Psychology, 45*(3), 688-701.

doi:10.1037/a0014053

Zucker, K. J., Bradley, S. J., Kuksis, M., Pecore, K., Birkenfeld-Adams, A., Doering, R.

W., & Wild, J. (1999). Gender constancy judgments in children with gender

identity disorder: Evidence for a developmental lag. *Archives of Sexual

Behavior*, *28*(6), 475- 502. doi:10.1023/A:1018713115866

Zurbriggen, E. L., & Roberts, T. A. (Eds.). (2013). *The sexualization of girls and girlhood:

Causes, consequences, and resistance*. Oxford University Press.

Appendix A: Ethics Approval and Measures Employed

for Study 1

APPROVAL BY PSYCHOLOGY RESEARCH ETHICS COMMITTEE [20154096]

Your Study has been approved. You can now proceed to do your Study
without resubmitting documents to the ethics committee. However,
before proceeding with the research, please ensure you deal with
all the issues outlined below. You MUST deal with these issues
prior to data collection, otherwise this Ethics approval is not
valid.

This project requires a valid CRB check in addition
 to this approval. It is your responsibility to provide
it to the departmental office before you begin collecting data.

Date: 2015/04/06
Code: 20154096

Applicant details:
Name: Lauren Spinner
Status: PhD Student
Email address: ls531@kent.ac.uk

Title of the research:
Exploring the role of gender-typed toys and colours on children's interests, stereotypes, and
cognitive abilities

When carrying out this research you are reminded to
* follow the School Guidelines for Conducting Research with Human Participants
* comply with the Data Protection Act 1998
* refer any amendments to the protocol to the Panel

Please keep this form in a safe place. You may be asked to present it at a later stage of your
Study for monitoring purposes. Final year project students and MSc students will need to
submit a copy of this form with their project.

You can log in at http://www.kent.ac.uk/psychology/technical/ethics/index.php to copy or
print pregenerated handouts for this Study.

Gender Study Information Sheet

Who is organising this Study?

My name is Lauren Spinner and I am a   postgraduate research student in the School of Psychology at the University of Kent. The Study is being supervised by Dr Lindsey Cameron who is a Lecturer in Psychology researcher in the department.

What am I interested in?

I am currently looking at how children learn about gender roles, and the toy preferences of girls and boys. We are interested in how the appearance of children's toys (pink/blue) and whether toys are typically seen as being for 'boys' or 'girls' can affect children's interest in them. We are also investigating how children's toy preference is affected by their understanding of gender. Specifically, their understanding that gender stays the same as people get older and despite changes in appearance like changes in hairstyle and clothes. Finally, we are interested in children's beliefs about their parents' views of toys and so will ask them to rate how much their parents would like them to play with each toy.

What are we going to do?

Children who participate will be required to complete a few short tasks. These use pictures, stories and real toys, and are fun, interactive and age-appropriate. This will take approximately fifteen minutes. We will also note down the age and sex of each participant. All children's answers are highly confidential. Finally, we will, of course, ask your child whether they agree to take part before beginning. If they do not agree, they will just continue normal pre-school activities, and we make sure they know they can stop the interview at any time. Parents will also be asked to complete two short questionnaires to assess their views on the toys, and to gauge what toys their children play with on a regular basis.

I am a postgraduate psychology student and also a qualified teacher and therefore have several years of experience in conducting this type of research and working in schools. I have an up to date DBS check and the research has been approved by the University's Psychology Ethical Review committee.

What happens to the information I provide?

Participation in this Study guarantees confidentiality of the information you provide. No one apart from the researcher will have any access to the information you provide. Your child's name and any other identifying information will be stored separately from his or her data in a securely locked filing cabinet for as long as is required by the Data Protection Act, and then they will be destroyed by our confidential shredding service. Once the data are analysed, a report of the findings may be submitted for publication. Only broad trends will be reported and it will not be possible to identify any individuals. A summary of the results will be sent to all participating families, once the Study is complete.

Contact for further information

If you have any further questions, or decide after the Study that you no longer want your child's data included, please do not hesitate to contact me at ls531@kent.ac.uk or my supervisor, Dr Cameron, on 01227 827873. Thank you for your interest and co-operation.

Consent Form

Title of project: Children and Parents' Toy Preferences: The Effect of Toy Colour and Function on Toy Interest

Name of Researchers: Lauren Spinner and Dr Lindsey Cameron

I am the parent / legal guardian of:

_____
(please print child's name)

☐   I understand that participation in the Study is voluntary. I have the right to withdraw my consent to participate in the Study and I may request that my data will be destroyed at any time and without giving any reasons.

☐   I certify that I have carefully read and understood the participant information. I had the opportunity to clarify any questions in advance.

☐   I agree that my child can participate in the Study 'Is there also a tool for this?'.

Signature: _____ Date: _____

Researcher signature: _____ Date: _____

(Information to be given orally to child participants before the interview begins)

Hello, thank you for coming to talk to me today. I was wondering if you would mind answering a few questions for me? We're going to look at some toys and some pictures of different characters and I will ask you a few questions. All you have to do is tell me your answer or point to it these response sheets and I will write it down. Don't worry, there are no right or wrong answers, I'd just like to know which toys you prefer to play with. Your name won't be on the answer sheet, so no one will know which answers you've chosen, okay? Would you like to take part? Do you have any questions before we start?

Participant demographics

Participant number: _____

Child's Gender: male/female

Date of birth: /   /   Age: _____ years _____ months

Participant responses

Toy 1: (tick 1 option)

Toy interest - *How much do you like this toy?*	**Not at all**	**A little**	**A lot**
Child response			

Gender stereotype - *Who should play with this toy?*	**Only boys**	**Only girls**	**Both**
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	**Not at all**	**A little**	**A lot**
Child response			

Toy 2: (tick 1 option)

Toy interest - *How much do you like this toy?*	**Not at all**	**A little**	**A lot**
Child response			

Gender stereotype - *Who should play with this toy?*	**Only boys**	**Only girls**	**Both**
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	**Not at all**	**A little**	**A lot**
Child response			

Toy 3: (tick 1 option)

Toy interest - *How much do you like this toy?*	**Not at all**	**A little**	**A lot**
Child response			

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	Not at all	A little	A lot
Child response			

Toy 4: (tick 1 option)

Toy interest - *How much do you like this toy?*	Not at all	A little	A lot
Child response			

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	Not at all	A little	A lot
Child response			

Toy 5: (tick 1 option)

Toy interest - *How much do you like this toy?*	Not at all	A little	A lot
Child response			

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	Not at all	A little	A lot
Child response			

Toy 6: (tick 1 option)

Toy interest - *How much do you like this toy?*	Not at all	A little	A lot
Child response			

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	Not at all	A little	A lot
Child response			

Toy 7: (tick 1 option)

Toy interest - *How much do you like this toy?*	Not at all	A little	A lot
Child response			

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	Not at all	A little	A lot
Child response			

Toy 8: (tick 1 option)

Toy interest - *How much do you like this toy?*	Not at all	A little	A lot
Child response			

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Child response			

Judgement of parents' views - *How much would your parents like you to play with this toy?*	Not at all	A little	A lot
Child response			

Parents' responses

Toy 1:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Toy 2:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Toy 3:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Toy 4:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Toy 5:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Toy 6:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Toy 7:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Toy 8:

Gender stereotype - *Who should play with this toy?*	Only boys	Only girls	Both
Parent response			

Parents' views - *How much would you like your child to play with this toy?*	Not at all	A little	A lot
Parent response			

Materials

Strongly Masculine-typed Toys:

Toys similar to each of the examples above were purchased. The plane and the truck were kept in their original colours, whilst the tools and the army figure were re-painted in feminine colours (pink and purple) using non-toxic acrylic paint.

Strongly Feminine-typed Toys:

Toys similar to the examples above were purchased. The tea set was re-painted in masculine colours (red, blue, and black) using non-toxic acrylic paint. Rather than painting the baby doll, the pink baby grow was replaced with a pirate outfit. The wand and the pony were kept in their original colours.

Children's response options:

Not at all

A little

A lot
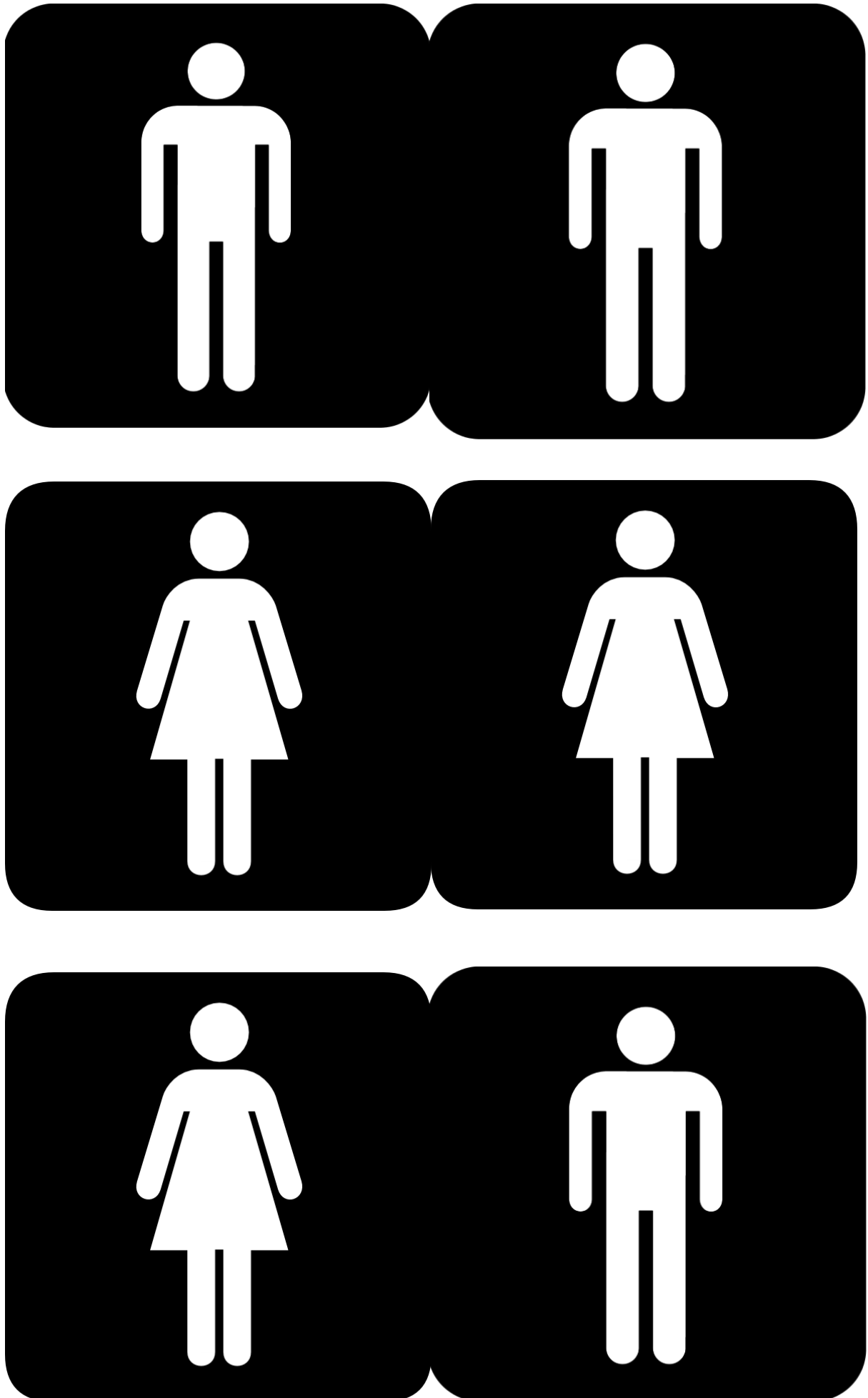
Gender Constancy Measure (Arthur, Bigler, & Ruble, 2009).

B.1. Stability items

1.When you were a baby, were you a boy, or a girl, or sometimes a boy and sometimes a girl?

2. When you grow up, will you be a man, a woman, or sometimes a man and sometimes a woman?

3. If you have kids when you grow up, will you be a mummy, a daddy, or sometimes a mummy and sometimes a daddy?

4. This is a man [photo]. When this grown-up was little, was the grown-up really a girl or really a boy, or could this grown-up really have been sometimes a boy and sometimes a girl?

5. This is a woman [photo]. When this grown-up was little, was this grown-up really a girl or really a boy, or could this grown-up really have been sometimes a boy and sometimes a girl?

6. This is a boy [photo]. When this child grows up, will this child really be a daddy or really be a mummy, or could this child really be sometimes a mummy and sometimes a daddy?

7. This is a girl [photo]. When this child grows up, will this child really be a daddy or really be a mummy, or could this child really be sometimes a mummy and sometimes a daddy?

B.2. Consistency items

1. If you went into the other room and put on clothes like these [other-sex clothes], would you then really be a boy or really be a girl?

 Follow-up question (if correct): Why did you say you would really be a [same sex]? Is it because you didn't want to be a [other sex] or because you can't change from a [same sex] to a [other sex]?

2. When you grow up, if you do the work that [other sex] do, will you really be a man or really be a woman?

Follow up question (if correct): Why did you say you would really be a [same sex]? Is it because you didn't want to be a [other sex] or because you can't change from a [same sex] to a [other sex]?

3. If this child [other-sex photo] put on clothes like these [same-sex clothes], would that child then really be a boy or really be a girl?

4. If this grown-up did the work the women usually do, would this grown-up really be a man or really be a woman?

5. If this child [male photo] was very quiet, wore barrettes, and cooked, would this child really be a boy or really be a girl?

6. If this woman [female photo] wore clothes like this [suit], would this person really be a man or really be a woman?

7. If this child [female photo] was very loud, wore cowboy boots, and used tools, would this child really be a boy or really be a girl?

8. If a boy wore nail polish, would he become a girl?

8a [Boys only]: If I put nail polish on you right now, would you become a girl?

9. If a girl had really short hair, would she become a boy?

9a [Girls only]: If I cut your hair really short right now, would you become a boy?

10. If a boy played with baby dolls, would he become a girl?

10a [Boys only]: If you played with baby dolls right now, would you become a girl?

11. If a girl played with trucks, would she become a boy?

11a [Girls only]: If you played with trucks right now, would you become a boy?

12. If you really wanted to be a [other sex: boy/girl], could you be?

13. If you really wanted to be a [other sex: mommy/daddy], could you be?

14. If this boy [photo] really wants to be a woman when he grows up, can he be? Why?

15. If this girl [photo] really wants to be a boy, can she be? Why?

Pre-School Activities Inventory

Child's name:_____

Age:_____ years _____ months

Child's sex: M / F (circle as appropriate)

Instructions

This inventory is about the everyday activities of preschool children. It is in three sections: toy preferences, activities, and characteristics. Each question asks how frequently the child plays with particular toys, engages in particular activities or shows particular characteristics. There are five possible answers: (N) Never, (HE) Hardly Ever, (S) Sometimes, (O) Often, or (VO) Very Often. Answer each question by circling the response which best describes the child.

e.g., N HE (S) O VO

Please answer all of the questions. If you are unsure about which response best describes the child for any of the questions then please answer according to the response which seems most appropriate.

(KEY: N = Never, HE = Hardly Ever, S = Sometimes, O = Often, VO = Very Often)

PART 1: TOYS: Please answer these questions according to how often the child played with the following toys during the past month.

1. Guns (or used objects as guns).. N HE S O VO
2. Jewellery... N HE S O VO
3. Tool set.. N HE S O VO
4. Dolls, doll's clothes or doll's carriage.. N HE S O VO
5. Trains, cars or airplanes.. N HE S O VO
6. Swords (or used objects as swords)... N HE S O VO
7. Tea set.. N HE S O VO

PART 2: ACTIVITIES: Please answer these questions according to how often the child engaged in the following activities during the past month.

1. Playing house (e.g., cleaning, cooking)... N HE S O VO
2. Playing with girls... N HE S O VO
3. Pretending to be a female character (e.g., princess)............................... N HE S O VO
4. Playing at having a male occupation (e.g., soldier)................................ N HE S O VO
5. Fighting... N HE S O VO
6. Pretending to be a family character (e.g., parent)................................... N HE S O VO
7. Sports and ball games... N HE S O VO
8. Climbing (e.g., fences, trees, gym equipment)...................................... N HE S O VO
9. Playing at taking care of babies.. N HE S O VO
10. Showing interest in real cars, trains and airplanes............................... N HE S O VO
1 1 . Dressing up in girlish clothes.. N HE S O VO

PART 3: CHARACTERISTICS: Please answer these questions according to how often the child shows the following characteristics:

1 . Likes to explore new surroundings.. N HE S O VO
2. Enjoys rough and tumble play... N HE S O VO
3. Shows interest in snakes, spiders or insects.. N HE S O VO
4. Avoids getting dirty.. N HE S O VO
5. Likes pretty things.. N HE S O VO
6. Avoids taking risks... N HE S O VO

NOW PLEASE CHECK THAT YOU HAVE ANSWERED ALL THE QUESTIONS

Debrief given orally to individual children immediately after they have completed the interview:

Thank you for taking part in this project. I hope you enjoyed it. Now remember no one is going to know the answers you gave because look, I didn't put your name on the answer sheet. We just wanted to see which toys you preferred to play with from all of the ones that we showed you, and whether you thought other boys and girls should play with them too.

Now remember, nobody will find out what answers you gave and your name doesn't go anywhere on this answer sheet. There are no right and wrong answers; we were just interested in what you think.

You have done really well. Well done and thank you for taking part. Do you have any questions? Here is a letter home for your parents/carers.

University of Kent

Lauren Spinner

School of Psychology

University of Kent,

Canterbury

Dear Parents,

Thank you for allowing your child to participate in our research project. I am a postgraduate research student in the School of Psychology at the University of Kent and this research is for my PhD thesis. It was completed under the supervision of Dr Lindsey Cameron, a Lecturer in Psychology at the University of Kent.

This Study investigated whether the colour of a toy and whether it is typically associated with girls or boys, influenced children's interest in that toy. For example, if a boy is shown a masculine toy, such as a toy truck, but it is presented in feminine colours, such as pink and purple, does this affect whether a boy or girl would like to play with the toy? We also asked children what they believe other children and their parents would think of the toys. Finally, we asked questions to tap into children's understanding of gender (that it stays the same as they get older and despite superficial changes in appearance such as hairstyle and clothes). Other important factors including the age and sex of the children were also recorded as these have been shown to have a relationship with gender understanding and toy preference.

A substantial amount of research suggests that societal stereotypes about gender can influence children's toy preference and behaviour. This is problematic because it restricts children's opportunities to play with a variety of toys, and can lead to gender segregation in choice or playmate. There has been little experimental research on the role of toy colour on children's toy preferences and its interaction with children's understanding of gender, and so the current research will make an important contribution to the area.

We expect to find that children will prefer to play with gender-typical than atypical toys, i.e. boys will prefer toys typically viewed as masculine over feminine toys, and vice versa, and that the colour of the toy will affect toy-interest, i.e. girls will show more interest in toys painted in feminine colours than any other. Consistent with previous research, we also expect to find that children will have a better understanding of gender with age, and that this will influence toy preference. Finally, compared with children, we expect to find that parents will view toys more flexibly, in terms of whether girls or boys like to play with them.

Thank you again for your cooperation, we hope that your child enjoyed taking part in our Study.

If you would like to withdraw your own or your child's data from the Study, please contact the Psychology department at the address below, quoting the participant code. The code is formed of yours or your child's initials (depending on whose data you are referring to), followed by the digits of your/their date of birth (DDMMYY), e.g. Joe Bloggs, born on 2nd January 2010, would be JB020110.

If you have any serious concerns about the ethical conduct of this Study, please write to the address below. Please address any ethical concerns to the Chair of the Psychology Research Ethics Panel, providing a detailed account of your concern.

School of Psychology

Keynes College,

University of Kent,

Canterbury,

Kent CT2 7NP

If you have any further questions, you can contact me at ls531@kent.ac.uk

Yours sincerely,

Lauren Spinner

Supervisor contact details:

Dr Lindsey Cameron

L.Cameron@kent.ac.uk

Phone: 01227 827873

Appendix B: Ethics Approval and Measures Employed for Study 2

APPROVAL BY PSYCHOLOGY RESEARCH ETHICS COMMITTEE [20153610]

Your Study has been approved. You can now proceed to do your Study
without resubmitting documents to the ethics committee.

This project requires a valid CRB check in addition
to this approval. It is your responsibility to provide
it to the departmental office before you begin collecting data.

Date: 2015/12/09
Code: 20153610

Applicant details:
Name: Lauren Spinner
Status: PhD Student
Email address: ls531@kent.ac.uk

Title of the research:
Do eye movements reveal automatic gender-typing of children's toys and activities when
presented in audiovisual scenes?

When carrying out this research you are reminded to
* follow the School Guidelines for Conducting Research with Human Participants
* comply with the Data Protection Act 1998
* refer any amendments to the protocol to the Panel

Please keep this form in a safe place. You may be asked to present it at a later stage of your
Study for monitoring purposes. Final year project students and MSc students will need to
submit a copy of this form with their project.

You can log in at http://www.kent.ac.uk/psychology/technical/ethics/index.php to copy or
print pregenerated handouts for this Study.

Eyetracking Study Information Sheet

Who is organising this Study?

My name is Lauren Spinner and I am a postgraduate research student in the School of Psychology at the University of Kent. The Study is being supervised by Dr Lindsey Cameron and Dr Heather Ferguson who are Lecturers and researchers in the Psychology department.

I have several years of experience in conducting research with children and working in schools, and I have an up to date DBS check. The research has been approved by the University's Psychology Ethical Review committee.

What am I interested in?

I am currently using eyetracking methods to investigate which objects children and parents look at in specific audiovisual scenes. I want to find out whether children and parents fixate on the same objects, and whether this is affected by the main character in the scene. I am also interested in children's cognitive development and their understanding of gender; at what age do children understand that gender stays the same as people get older, despite changes in appearance such as hairstyle and clothes? This Study will address these research questions.

What are we going to do?

Both you and your child will be required to complete a few short tasks, independently. These will use computer-generated images and pictures, and are fun, interactive and age-appropriate. The tasks will take approximately twenty minutes to complete, per person. We will note down the sex of you and your child, and your child's date of birth (in order to calculate their age in months). All answers are highly confidential and will only be accessible to the researchers. Finally, we will of course ask your child verbally whether they agree to take part before beginning the Study. We will make sure they know that they can stop the Study at any time.

What happens to the information I provide?

Participation in this Study guarantees confidentiality of the information you provide. No one apart from the researcher will have any access to the information you provide. Your child's name and any other identifying information will be stored separately from his or her data in a securely locked filing cabinet for as long as is required by the Data Protection Act, and then they will be destroyed by our confidential shredding service. Once the data are analysed, a report of the findings may be submitted for publication. Only broad trends will be reported and it will not be possible to identify any individuals. A summary of the results will be sent to all participating families, once the Study is complete.

Contact for further information

If you have any further questions, or decide after the Study that you no longer want your child's data included, please do not hesitate to contact me at ls531@kent.ac.uk or my supervisor, Dr Cameron, on 01227 827873. Thank you for your interest and co-operation.

Consent Form

Title of project: Do parents and children look at the same objects in an audiovisual scene?

Name of Researchers: Lauren Spinner, Dr Lindsey Cameron, & Dr Heather Ferguson

My name is:

_____

I am the parent / legal guardian of:

_____

(Please print child's name)

☐ I understand that participation in the Study is voluntary. I have the right to withdraw my consent to participate in the Study and I may request that my data will be destroyed at any time and without giving any reasons.

☐ I certify that I have carefully read and understood the participant information. I had the opportunity to clarify any questions in advance.

☐ I agree that my child can participate in the Study 'Do parents and children look at the same objects in an audiovisual scene?'

☐ I agree to participate in the Study 'Do parents and children look at the same objects in an audiovisual scene?'

(Please tick each box if you consent)

Signature: _____ Date: _____

Researcher signature: _____ Date: _____

(Information to be given orally to children before the experiment begins)

Hello, thank you for coming to take part in the Study today. We're going to do a few different activities together and the first part will be on the computer. I'm going to show you some images, and you'll hear a sentence being read out through the speaker; all you have to do is look at the screen. Sometimes questions will pop up, and you can answer them by pressing one of these buttons (show child response pad). After that you'll do another activity on the computer where you'll be looking at some words in different colours, and then I will show you some pictures of different people and toys and ask you a few questions about them.

Your name won't be on any of the answer sheets, so no one will know which answers you've chosen, and if you want to stop or take a break at any time, you just let me know, okay? Would you like to take part? Do you have any questions before we start?

Child instructions for eye tracking

We are going to do a few different activities, but the first thing you're going to do is look at some images on the computer screen; you will hear some sentences read out through the speaker and I would just like you to look at the scenes. I'll give you two practice scenes to look at first and then we'll start properly, okay? If you would like a break at any time, just tell me when the black dot appears on the screen and I will pause it for you, so that you can have a rest. After some of the scenes, you will see a question appear; you can answer this question by pressing one of these buttons (responses will be on a pad).

Then, once you've looked at all of the scenes you will see some different coloured words appear on the screen – using the buttons on the keypad I will show you some pictures of some people and some toys and ask you a few questions about them and then

(Explicit Gender Stereotype Measure)

Participant demographics

Participant number: _____

Gender: male/female

Date of birth ____/_____/_____   Age: _____ years _____ months

Participant responses

Please tick 1 option for each toy

Who do you think should play with this toy?

	Only boys	Only girls	Both boys and girls
Toy 1			
Toy 2			
Toy 3			
Toy 4			
Toy 5			
Toy 6			
Toy 7			
Toy 8			

(Pictures of toys included in explicit gender stereotype measure)

Eye-tracking Scenes

Example experimental scene:

Example filler scene:

Verbal debriefing to parents and children at the same time:

"Thank you for taking part in this Study. We asked you to look at the scenes on the computer screen because we are interested in finding out which objects you look at in the scene when the character is a boy versus a girl. When the character is a boy we expect you to look at the toys which are stereotypically masculine e.g. the dinosaur, and when the character is a girl, we expect you to look at the toys which are stereotypically feminine e.g. the wand. This would be an automatic response. The other tasks which you completed, such as the Stroop test and the questionnaire about the toys were given to you because we want to know if performance on these has any relationship to what you looked at in the scenes. Thank you again for taking part; please let me know if you have any questions. If you would like to withdraw your data at any time please contact me via email."

Appendix C: Study 3 Coding Framework

Magazine:

Issue No and month:

Boys'/Girls'/Both

1.

	Male	**Female**	**Ambiguous**
What is the gender of the characters and how many are present?			

2.

	Active	**Passive**	**Unsure**	**N/A**
If there are **female** characters present, are they active or passive? E.g. active would involve physical movement, and passive would involve posing				
If there are **male** characters present, are they active or passive? E.g. active would involve physical movement, and passive would involve posing				

3.

	Gender stereotyped (pink/purple for girls' mag, blue/red/black for boys' mag)	**Counter stereotyped** (pink/purple for boys' mag, blue/red/black for girls' mag)	**Neutral** (A variety of colours)
Is the overall colour scheme of the front page:			

4a.

	Yes	**No**
Are any of the characters speaking?		

4b.

	Male	Female
If yes, how many speaking characters are male and how many are female?		
How many words, in total, do the male and female characters say?		

5.

	Yes [write down the word(s) used]	No
Are there any words on the front cover related to risk? E.g. 'danger', 'hero'		
Are there any words on the front cover related to appearance? E.g. 'beauty', 'jewellery'	**Elsa's hair style, fashion, Elsa's party dress**	

6.

	Yes (if so, write down what the activities are)	No
Are any creative activities mentioned on the front cover? E.g. colouring, creating		
Are any word-based activities mentioned on the front cover? E.g. word searches, cross-words		

Appendix D: Study 4 Coding Framework

Magazine name: Issue No and month:

Total no. of pages:

Colour:

	Gender stereotyped (pink/purple for girls' mag, blue/red/black for boys' mag)	**Counter stereotyped** (pink/purple for boys' mag, blue/red/black for girls' mag)	**Neutral** (A variety of colours)
Are the colours of the magazine **title**...			

Themes in the entire issue:

	Male	**Female**	**Ambiguous**
1. How many of the characters are...			

	Food	**Fashion**	**Home**	**Job**
2. Themes: how many pages are dedicated to the following topics...				

3. Total no. of stories in the issue	
4. How many of the stories demonstrate **competition** between the characters?	
5. How many of the stories reference **'getting married'?**	
6. How many of the stories demonstrate **co-operation or helping behaviour** amongst the characters?	
7. How many times is the reader instructed to ask for an **adult's help**?	

Behaviour of the characters in entire issue:

Licensed withdrawal

	Total no. of occurrences in male characters	**Total no. of occurrences in female characters**
8. Count each occurrence of 'licensed withdrawal'		

Deference-dominance

	Total male 'deference'	Total male 'dominance'	Total female 'deference'	Total female 'dominance'
9. Count each occurrence of 'deference' & 'dominance'				

Function ranking

	Total no. of occurrences in male characters	Total no. of occurrences in female characters
10. Count each occurrence of 'function ranking'		

Object contact

	Total male 'utilitarian contact'	Total male 'feminine touch'	Total female 'utilitarian contact'	Total female 'feminine touch'
11. Count each occurrence of 'utilitarian contact' & 'feminine touch'				

Bravery/rescue

	Total no. of male characters who demonstrate bravery/rescue	Total no. of female characters who demonstrate bravery/rescue
12. How many characters demonstrate acts of bravery or rescue?		

Primping

	Total no. of male characters who attempt to improve appearance	Total no. of female characters who attempt to improve appearance
13. How many characters act to improve the appearance of their face or body?		

Aggression

	Total no. of male characters who display aggressive behaviour	Total no. of female characters who display aggressive behaviour
15a. How many characters display aggressive behaviour?		

15b. On a scale of 1 – 5, how aggressive overall are the male characters in this issue?

1	2	3	4	5
No aggression				Very high levels of aggression

15c. On a scale of 1 – 5, how aggressive overall are the female characters in this issue?

1	2	3	4	5
No aggression				Very high levels of aggression

16a. On a scale of 1 – 5, how active are the male characters in this issue?

1	2	3	4	5
Very low activity levels: Passive or quiet				Very high activity levels: busy, doing a lot

16b. On a scale of 1 – 5, how active are the female characters in this issue?

1	2	3	4	5
Very low activity levels: Passive or quiet				Very high activity levels: busy, doing a lot

17. Adjectives

	'Fast'	'Strong'	'Brave'	'Pretty'	'Caring'	'Kind'	'Clever'
No. of male characters described as...							
No. of female characters described as...							

Education

18. How many activities are identified as 'educational', either via symbols or words?	

Magazine coding framework guidance

Themes:

- **Food** = pictures of food, references to cooking/baking, recipes or activities based around making food

- **Fashion** = references to clothes, hairstyles, jewellery & accessories

- **Home** = references to home-making, such as cleaning, decorating, & caring for children and/or animals

- **Job** = references to people in working roles

Instruction = the no. of times the reader is instructed to/or it is suggested to ask for an adult's help (usually in the context of activities such as 'cut & stick')

Behavioural categories:

- **Licensed withdrawal:** 'The character is psychologically removed from the social situation or appears un-oriented or in need of protection. Demonstrations of licensed withdrawal include **shyness, nervous giggling, face covering, head or eye aversion, hiding or peeking out from behind an object, looking into space with an unfocused gaze and snuggling or nuzzling'** (Browne, 1998). Count each occurrence of an indicator (such as face covering or giggling) to work out intensity of the behaviour category, and tally scores separately for male and female characters.

- **Deference-dominance (ordinal):** 'Examples of **deference behaviours include head, knee, or body cants, child-like postures and displays of appeasement or mock fear**. **Dominance** behaviours involve holding or **restraining, assault, and space-occupying postures**.' (Browne, 1998). Code as above.

- **Function ranking (ordinal):** 'Examples of behaviours indicating **higher function ranking include giving verbal instructions** (explanations or other directions) and moulding behaviour through contact (as in pushing or feeding).' (Browne, 1998). Code as above.

- **Object contact (ordinal):** 'Utilitarian contact involves object manipulation, grasping, and causing objects to "work." Feminine touch is when the character is seen cradling, caressing, or gently touching and object.' Code as above.

- **Bravery/rescue (nominal):** record whether the character exhibits bravery or rescues another character

- **Primp (nominal):** whether the character acts to improve the appearance of their face or body

- **Activity levels** on a scale of 1-5 (1= low; passive or quiet, 5 = high; busy, doing a lot) ☐ Aggression on a scale of 1-5 (1= no aggressive behaviour displayed, 5 = high levels of aggression displayed).

- **Aggression** is defined as 'acting against another person or thing: hitting, throwing, grabbing, loud or abusive talk, face making, and determined behavior (as in aggressively pursuing a goal)' (Browne, 1998)

Educational claims

Record, throughout the entire issue, the no. of times an activity is referred to as 'educational'. Some of the magazines have 'stamps' or symbols to indicate the pages containing activities which develop skills in line with the national curriculum.

Appendix E: Ethics Approval and Measures Employed for Study 5

APPROVAL BY PSYCHOLOGY RESEARCH ETHICS COMMITTEE
[201614646731233907]

Your Study has been approved. You can now proceed to do your Study
without resubmitting documents to the ethics committee.

This project requires a valid CRB check in addition
 to this approval. It is your responsibility to provide
it to the departmental office before you begin collecting data.

Date: 2016/05/31
Code: 201614646731233907

Applicant details:
Name: Lauren Spinner
Status: PhD Student
Email address: ls531@kent.ac.uk

Title of the research:
Can surprising children with counter-stereotypical toys reduce gender-typed beliefs, and is
this moderated by gender flexibility?

When carrying out this research you are reminded to
* follow the School Guidelines for Conducting Research with Human Participants
* comply with the Data Protection Act 1998
* refer any amendments to the protocol to the Panel

Please keep this form in a safe place. You may be asked to present it at a later stage of your
Study for monitoring purposes. Final year project students and MSc students will need to
submit a copy of this form with their project.

You can log in at http://www.kent.ac.uk/psychology/technical/ethics/index.php to copy or
print pregenerated handouts for this Study.

University of **Kent**

Lauren Spinner

School of Psychology

University of Kent,

Canterbury

CT2 7NZ

Ls531@kent.ac.uk

[DATE]

Dear [HEADTEACHER],

My name is Lauren Spinner and I am a PhD student in the School of Psychology at the University of Kent. I am also a qualified teacher and therefore have several years of experience working in an educational setting. I am currently working on a research project looking at children's gender stereotypes and toy preferences. The Study is being supervised by Dr Lindsey Cameron who is a Senior Lecturer in Psychology. I am writing to ask if your school would be interested in participating in the project. This would involve conducting short 15 minute interviews with some of your pupils in which they will complete a number of fun, interactive and age-appropriate tasks.

What are we researching?

A substantial amount of psychological research suggests that from as young as 3 years children become very fixed in their ideas of what is appropriate behaviour for girls and boys, men and women. These gender stereotypes can have a negative impact on children as they restrict their thinking and behaviour. Gender roles and stereotypes can impact on children's education, career aspirations, friendship choices and toy preferences. However, the role that toys play in strengthening gender stereotypes has not yet been fully explored, and this is the aim of the current research.

What will happen in the Study?

We will be interviewing children aged 5-8 years. **Children who participate will be required to complete a few short tasks that will measure their understanding of gender, their toy preferences and stereotypes, and their judgement of children who play with gender stereotypical and counter-stereotypical toys. We will also ask children for their age and note down their gender. This will take approximately fifteen minutes per child**.

In one task the children will be presented with stories and illustrations to find out if children understand that gender usually stays the same as a person gets older, despite changes in appearance such as hairstyle and clothes. In the another task children will be presented with images of children and toys; the images with either be gender-stereotypical (e.g. a boy playing with cars), or counter-stereotypical (e.g. a girl playing with cars), and

children will be asked whether they would like to play with the children in the pictures and whether it's okay or not okay for others to exclude them from play based on their toy choices. Finally, children will shown pictures of 11 different occupational settings and asked whether both boys and girls can do these jobs when they grow up.

All participants' answers are highly confidential. Consent must be obtained from parents and we provide these letters – we can use opt-in or opt-out forms, whichever you prefer. We also always ask children if they want to take part. The interviews would hopefully take place in a quiet, communal area of the school and the children will be interviewed individually and supervised by myself or a research assistant at all times.

Further information

I have an up-to-date DBS check. Our research has been reviewed and approved by the University's Psychology Ethical Review committee ensuring that it meets ethical guidelines and poses minimal risk to participants. I will coordinate with staff members to ensure minimal disruption during the session. My colleagues and I generally find that the children really do enjoy taking part. After taking part in the Study, children will be given a letter to take home outlining in more detail the purpose of the Study.

If you have any further questions please do not hesitate to contact me at ls531@kent.ac.uk or on 07894 440535.

Thank you for your time.

Yours Faithfully,

Lauren Spinner

School of Psychology

University of Kent,

Canterbury

CT2 7NZ

Ls531@kent.ac.uk

[DATE LETTER SENT]

RE: Important information about a research project being conducted at your child's school

University of Kent Psychology Ethics Approval # [INSERT NUMBER HERE]

Dear Parents / Carers,

My name is Lauren Spinner and I am a postgraduate research student in the School of Psychology at the University of Kent. I am currently working on a research project looking at how children learn about gender roles, and the toy preferences of girls and boys. My supervisor and I are interested in children's views of stereotypical and counter-stereotypical 'boys'' and 'girls'' toys. We are also investigating how children's toy preference is affected by their understanding of gender; specifically, their understanding that gender stays the same as people get older and despite changes in appearance like changes in hairstyle and clothes. Finally, we are interested in children's beliefs about male- and female-dominated occupations, whether it's okay for peers to play with counter-stereotypical toys, and how much they would like to play with children who have counter-stereotypical toy preferences. The Study is being supervised by Dr Lindsey Cameron who is a Senior Lecturer in the Psychology department at the University.

[HEADTEACHER NAME] would like [SCHOOL] to participate in the project. I would be most grateful if you would allow your child to take part. Children who participate will be required to complete a few short tasks. These use pictures and stories, and are fun, interactive and age-appropriate. This will take approximately fifteen minutes. We will also note down the age and sex of each participant. All children's answers are highly confidential. Finally, we will of course ask your child whether they agree to take part before beginning. If they do not agree, they will just continue normal school activities, and we will make sure they know they can stop the interview at any time.

As well as being a postgraduate psychology student I am also a qualified teacher, and therefore have several years of experience in conducting this type of research and working in schools. I have an up to date DBS check and the research has been approved by the University's Psychology Ethical Review committee. We will coordinate with staff to ensure minimal disruption within the session. My colleagues and I have found that children really do enjoy taking part. After taking part in the Study, children will be given a sticker as a thank-you for taking part, and a letter to take home outlining in more detail the Study.

Although [HEADTEACHER] has most kindly allowed me access to the school, I will not include your child if you object to their participation, but you need to let me know this. **If you do NOT wish your child to take part please let us know by EITHER:**

1. Returning a signed copy of the slip below to **a member of staff at the school**
2. Contacting me by email at ls531@kent.ac.uk

If you are happy for your child to take part, you do not need to do anything. Unless we receive a signed copy of the slip below by [DATE– MUST BE AT LEAST 2 WEEKS FROM DATE LETTER SENT], we will assume you are happy for your child to take part. Should you decide after the Study that you no longer want your child's data included, simply contact me and I will withdraw it. If you have any further questions please do not hesitate to contact me at ls531@kent.ac.uk or my supervisor, Dr Cameron, on 01227 827873. Thank you for your cooperation.

Yours sincerely,

Lauren Spinner

………………………………………………………………………………………………

I **DO NOT** give permission for my child to participate in Lauren Spinner's project.

Name of child …………………………………………………………………...

Signature of parent / guardian …………………………………………………...

If you have any serious concerns about the ethical conduct of this Study, please inform the Chair of the Psychology Research Ethics Panel in writing, providing a detailed account of your concern. Email: psychethics@kent.ac.uk or Post: Ethics Chair, School of Psychology, University of Kent, Canterbury, CT2 7NP.

Consent

Hello!

Thank you for coming to talk to me today. I was wondering if you would mind answering a few questions for me?

We're going to look at some pictures of toys and different characters and I will ask you a few questions. All you have to do is tell me your answer or point to it on the screen.

Don't worry, there are no right or wrong answers, I'd just like to know which toys you prefer to play with and what you think about the children in the pictures.

All of your answers are private, so other children, your parents or your teachers will not know what you write, and we will not ask for your name. This means that you can answer all of the questions honestly because they will stay private.

Are you happy to take part? Do you have any questions before we start?

Please tick the box below if you would like to continue with the survey.

○ I am happy to take part

Demographics

Are you a girl or a boy? If you are not sure how to answer this question, please choose the option which says 'unsure'.

[▼]

What year group are you in?

[▼]

What **year** were you born?

[▼]

What **month** were you born?

[▼]

What **date** were you born?

[▼]

Magazine images info

You will now see pages from a magazine which show 2 different children playing with their favourite toys. Take a look at the pictures and then answer the questions which follow.

Magazine stereotypic condition

Magazine counterstereotypic condition

Imagine that a group of boys are playing with cars. The girl in the photo comes over and asks if she can play. Two of the boys say that she cannot play because she is a girl.

Is it all right or not all right for the boys to tell the girl that she can't play?

○ All right

○ A little bit all right

○ Not all right

Why do you think it is all right for the boys to tell the girl that she cannot play? (Please write your answer below)

```
[                ]
```

Why do you think it is not all right for the boys to tell the girl that she cannot play? (Please write your answer below)

```
[                ]
```

Why do you think it is a little bit all right for the boys to tell the girl that she cannot play? (Please write your answer below)

```
[                ]
```

Social Exclusion measure - boy

Now imagine that a group of girls are playing with dolls. The boy in the photo comes over and asks if he can play. Two of the girls say that he cannot play because he is a boy.

Is it all right or not all right for the girls to tell the boy that he can't play?

○ All right

○ A little bit all right

○ Not all right

Why do you think it is all right for the girls to tell the boy that he cannot play? (Please write your answer below)

Why do you think it is not all right for the girls to tell the boy that he cannot play? (Please write your answer below)

Why do you think it is a little bit all right for the girls to tell the boy that he cannot play? (Please write your answer below)

Play-mate choice

If you had to choose one of the children to play with, which one would you choose; the girl or the boy?

○ Girl

○ Boy

Why would you choose to play with this child? (Please write in the box below)

Toy preferences and gender flexibility intro

You will now see pictures of 8 different toys. After each picture you will be asked how much you like each toy, and who you think ***should*** play with each toy.

Remember there are no right or wrong answers!

Baby

How much do you like this toy?

Not at all	A little	A lot
○	○	○

Who should play with this toy?

Only boys	Only girls	Both boys and girls
○	○	○

Car

How much do you like this toy?

Not at all   A little   A lot

○   ○   ○

Who should play with this toy?

Only boys   Only girls   Both boys and girls

○   ○   ○

Plane

How much do you like this toy?

Not at all   A little   A lot

○   ○   ○

Who should play with this toy?

Only boys   Only girls   Both boys and girls

○   ○   ○

Pony

How much do you like this toy?

Not at all	A little	A lot
○	○	○

Who should play with this toy?

Only boys	Only girls	Both boys and girls
○	○	○

Tea set

How much do you like this toy?

Not at all   A little   A lot

○   ○   ○

Who should play with this toy?

Only boys   Only girls   Both boys and girls

○   ○   ○

Tool set

How much do you like this toy?

Not at all	A little	A lot
○	○	○

Who should play with this toy?

Only boys	Only girls	Both boys and girls
○	○	○

Truck

How much do you like this toy?

Not at all   A little   A lot

○   ○   ○

Who should play with this toy?

Only boys   Only girls   Both boys and girls

○   ○   ○

Wand

How much do you like this toy?

Not at all   A little   A lot

○   ○   ○

Who should play with this toy?

Only boys   Only girls   Both boys and girls

○   ○   ○

Thank you for taking part!

I hope you enjoyed it. Now remember no one is going to know the answers you gave. We just wanted to see which toys you preferred to play with from all of the ones that we showed you, how much you'd like to play with the children in the pictures, and what you thought about boys and girls doing different jobs when they grow up.

There were no right and wrong answers; we were just interested in what you think!

You have done really well, thank you for taking part.

Do you have any questions? Here is a letter home for your parents/carers.

Survey Powered By Qualtrics

Lauren Spinner

School of Psychology

University of Kent,

Canterbury

Ls531@kent.ac.uk

Dear Parents,

Thank you for allowing your child to participate in our research project. I am a postgraduate research student in the School of Psychology at the University of Kent and this research is for my PhD thesis. It was completed under the supervision of Dr Lindsey Cameron, a Senior Lecturer in Psychology at the University of Kent.

This Study investigated children's toy preferences and gender stereotypes. Children were presented with 8 different images of toys and asked to rate how much they liked them and who they thought should play with them; only boys, only girls, or both boys and girls. We were also interested in whether exposure to counter-stereotypical images (e.g. a boy playing with My Little Pony) affected children's beliefs about male- and female-dominated occupations.

Children were shown 2 images of children playing with different toys and were asked to rate how much they would like to take part in different activities with the child in the picture (such as riding bikes with them), whether it's ok or not ok for other children to exclude the child from play based on their toy choice, and whether both boys and girls can have a variety of occupations when they grow up. Finally, we asked questions to tap into children's understanding of gender (that it usually stays the same as they get older, despite superficial changes in appearance such as hairstyle and clothes). Other important factors including the age and sex of the children were also recorded as these have been shown to have a relationship with gender understanding and toy preference.

A substantial amount of research suggests that stereotypes about gender can influence children's toy preference and behaviour. This is problematic because it restricts children's opportunities to play with a variety of toys, and can lead to gender segregation. There has been little experimental research on whether exposure to peers playing with counter-stereotypical toys can reduce children's gender-stereotyped beliefs, so the current research will make an important contribution to the area.

We expect to find that boys will prefer toys typically viewed as masculine over feminine toys, and girls will prefer feminine toys over masculine toys. Consistent with previous research, we also expect to find that children will have a better understanding of gender with age. However, we predict that children who view the images of peers playing with counter-stereotypical toys will display more flexibility around the jobs that men and women can do, and be more likely to reject peer exclusion based on toy preference.

Thank you again for your cooperation, we hope that your child enjoyed taking part in our Study.

If you would like to withdraw your own or your child's data from the Study, please contact the Psychology department at the address below, quoting the participant code. The code is formed of your child's initials, followed by the digits of their date of birth (DDMMYY), e.g. Joe Bloggs, born on 2nd January 2010, would be JB020110.

If you have any serious concerns about the ethical conduct of this Study, please write to the address below. Please address any ethical concerns to the Chair of the Psychology Research Ethics Panel, providing a detailed account of your concern.

School of Psychology

Keynes College,

University of Kent,

Canterbury,

Kent CT2 7NP

If you have any further questions, you can contact me at ls531@kent.ac.uk

Yours sincerely,

Lauren Spinner

Supervisor contact details:

Dr Lindsey Cameron

L.Cameron@kent.ac.uk

Phone: 01227 827873