Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

From Pages to Play: Gender Stereotypes in Children's Magazines and Their Influence on Mother–Child Talk

Harriet Tenenbaum

h.tenenbaum@surrey.ac.uk

University of Surrey

Jessica Riley

University of Surrey

Katherine Cooper

University of Surrey

Lydia Jamieson

University of Surrey

Lindsey Cameron

University of Kent

Lauren Spinner

Education Endowment Foundation

Research Article

Keywords:

Posted Date: May 21st, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9114178/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Different forms of media may present a gender-normative perspective to children. Study 1 analysed the content of the activities in magazines targeting school-aged children. Magazines targeting girls had more activities with quizzes, writing, and cooking and used more emotion words than those targeting boys. In contrast, magazines targeting boys had more activities with educational, visual skills, and hand-eye coordination content than those targeting girls. Study 2 examined how mothers (n = 97) and their children (M = 7 years, 7 months, SD = 8.55 months) completed 4 activities from the magazines stereotyped for girls (quiz, writing) and boys (puzzle, word search) during an online interaction. During activities stereotyped for girls, mothers and children engaged in more introspection and used more emotion words than during activities stereotyped for boys. In contrast, mothers and children used more task-oriented talk during activities stereotyped for boys than for girls. No differences based on child gender were found in mother or child talk. The findings suggest that magazines not only reflect gender stereotypes but contribute to gender-stereotyped interactions. We discuss these findings in relation to gender theories and offer practical suggestions.

Introduction

Children's media and toys often present a gender-normative, binary perspective to children. Children's television (Ward & Grower, 2020), books (Hamilton et al., 2006; Pompper & Merskin, 2020), magazines (Spinner et al., 2023), and toys (Murnen et al., 2016; Reich et al., 2018) depict girls and boys in ways that reflect traditional gender norms. These forms of media may influence the ways that parents and children engage with each other. This engagement may contribute to children's gender stereotypical knowledge and future behavior (Leman & Tenenbaum, 2011). Research has not examined how everyday media influences parents' and children's talk. Here we focus on two studies on one such form of media aimed at 6- to 9-year-old children: children's magazines. Children's magazines are popular and can be found in grocery, book, and toy stores, airports, and train stations. In the UK alone, over 1.5 million children's print magazines were sold in 2018 (Statista, 2019). Study 1 is a content analysis of the activity types present in six of the most popular magazines in the UK. We focused on activities because they can influence how children engage with magazines. Study 2 is an observational study of how mothers and children engage with this form of media to examine whether gendered materials might contribute to gender-stereotyped behaviours.

Gender in Children's Media and Toys

Although there are many types of media and toys, they tend to converge in the view of gender they present to children. Traditional media, such as television overrepresents boys and men compared to girls and women (Aubrey & Harrison, 2004; Walsh & Leaper, 2019; Ward & Grower, 2020). Television programmes also tend to show stereotypical portrayals of children. For example, US programmes aimed at preschoolers portray girls more than boys engaging in art activities (Walsh & Leaper, 2019). First and

second grade children's self-identified favourite programmes tend to show girls as frailer than boys (Aubrey & Harrison, 2004).

Gendered portrayals also extend to educational materials, such as children's books. Indeed, US children's books show boys more than girls as active (Berry & Wilkins, 2017), as do English-language textbooks targeting young Slovenian children (Sovič & Hus, 2015). US picture books (Hamilton et al., 2006) and the popular Mr Men/Little Miss books portray boys more than girls being adventurous (Pownall & Heflick, 2023), while French language children's books display boys more than girls fixing mechanical objects (Brugeilles et al., 2002) and portray male characters with a greater range of occupations than female characters (Brugeilles et al., 2002). In award-winning children's US picture books, women and girls were depicted in gender stereotypic ways by residing in home settings, exhibiting nurturing behavior, and occupying stereotypical feminine job roles (Hamilton et al., 2006). Even scouting manuals for children in the US show gendered portrayals with girls portrayed as more communal and boys as more agentic (Wickens et al., 2025).

Like television and books, children's magazines also conform to gender stereotypes. For example, Japanese magazines targeting preschoolers had more food, home, and clothing themes when targeting girls than boys (Hata, 2014). Similarly, British magazines for preschool-aged children have more food, fashion, and home themes in magazines targeting girls than magazines targeting boys or neutral (targeting girls and boys) magazines. In contrast, there were more occupations mentioned in magazines targeting boys than girls or neutral magazines (Spinner et al., 2023).

Magazines aimed at preschoolers not only display messages that suggest what is gender appropriate to children, but they include activities for children to complete, often with a parent. These activities present overt opportunities for gendered interaction, which is why they were the focus of this research. Past content analysis of activity pages revealed stereotypical gender differences, with more pages devoted to educational activities in magazines targeting boys than the others, and more help-seeking in the girls' magazines than others (Spinner et al., 2023). However, research has not yet examined magazines that target school-aged children. Finally, studies have not examined how parents and children engage in these activities together and in doing so, examine how magazines may influence parent-child talk.

Research on children's toys is relevant to research on children's magazines because the activities included in magazines create opportunities for interaction similar to those provided by toys. Like magazines, toys also vary with the gender that they target (for comprehensive reviews, see Fulcher & Coyle, 2018; Liben et al., 2018). For example, the language in the blurbs on Lego sets encourage risk-taking and active behaviors in sets targeting boys more than sets targeting girls (Reich et al., 2018). Dolls and action figures in the US are portrayed differently with girl dolls tending to show friendly faces and wearing revealing clothing, while boy dolls tend to be shown as active with a body-in-motion (Murnen et al., 2016). Even advertisements for sports toys in the US, which picture more girls than boys, display boys being more active than girls (McGovern & Dinella, 2024). Thus, media and toys depict gender stereotypical portrayals of children, which may influence children's beliefs and behavior. Indeed,

children's stereotypes echo these norms, with their content focused on appearance for girls and activities for boys (Miller, 2025).

Theoretical Perspectives

Gender schemas theories (Bem, 1981; Martin & Halverson Jr, 1981) suggest that children actively construct their understanding of gender from patterns that they perceive in their social worlds (Leaper, 2015). These patterns lead children to develop gender schemas or cognitive representations from the patterns of behaviors and objects they perceive as more typical of boys and men or girls and women. These schemas then serve as a guide for children's behavior, with children acting in accordance with the schema stereotyped for their identified gender. Children may become more comfortable enacting behaviors in which they frequently participate. As a result, gendered patterns of behaviors may become more routine and crystallised (Leman & Tenenbaum, 2011). Over time, children rely on these gendered ways of being to interpret and engage with the world around them.

Media may be one source of information that supports gender schemas. Cultivation analysis suggests that the repetition of themes and stereotypes over time in the media leads individuals to cultivate beliefs about the world matching media content (Gerbner, 1998; Potter, 2014). Boys and girls are transformed into masculine- and feminine-stereotyped adults through gender socialization processes, with higher exposure leading to a greater intensity of effects (Oppliger, 2007). Indeed, greater consumption of television in adolescent boys from three ethnic groups was related to more traditional gender attitudes (Aguinaldo et al., 2024). Media may be thought of as a manual for how children can become "gendered actors" (West & Zimmerman, 1987). This is one reason we need to understand what type of gender messages media convey to children.

Parent-Child Conversations

Another reason we need to understand the content of toys and media is because the activities in children's media may structure how parents engage with children. Socio-cultural theories further posit that cultural tools (including children's media and toys) may guide parent-child interactions, such as conversations, and children's learning (Wertsch, 1991). According to this approach, children learn the values and beliefs of their society through these everyday parent-child conversations (Rogoff, 1990; Rogoff et al., 2018). Conversations may increase learning because children appropriate the interpersonal sphere into the intrapersonal sphere (Vygotsky, 1980). For example, when mothers used more emotion labels in their talk, 4- to 6-year-old children had better emotion understanding six months later after controlling for previous emotion understanding (Aznar & Tenenbaum, 2013). Moreover, parent-child conversations continue to socialise children's emotion throughout middle childhood (Zeman et al., 2010). Thus, everyday conversations may guide children into middle childhood and beyond.

The Present Research

The current research aims to examine the extent to which school-age children's magazines targeted at boys and girls align with gender stereotypes, and shape adult-child interactions in gender conforming ways. We focused on children in middle childhood. During these ages, English children increase their understanding of gender schemas (Hill & Tenenbaum, 2022). Children may also perceive boys as more active than girls. For example, children's descriptive gender stereotypes of boys more than girls focused on activities (e.g., sports) (Miller, 2025). In contrast, children were more likely to describe girls than boys in terms of their appearance. Thus, how children engage with gender during middle childhood merits greater understanding to understand the sources of this knowledge. Moreover, relations between parents' and children's gender stereotypes are stronger in middle childhood than early childhood suggesting that parents continue to influence children beyond preschool. Study 1 used content analyses to identify the ways in which activities differ in magazines aimed at girls compared with those aimed at boys, and whether these are consistent with gender stereotypes. Study 2 examined whether gendered materials could influence mother-child conversations regardless of child gender.

Study 1

Study 1 was a content analysis of the activities in magazines targeting children in middle childhood. Although we had originally wanted to include neutral magazines, there were no neutral magazines targeting school-aged children. Based on previous research suggesting that media, toys, and children's magazines follow gender stereotypes (Spinner et al., 2023; Ward & Grower, 2020) and our reading of magazines, we expected that magazines targeting girls would have more activities with quizzes, cooking, and writing compared to magazines targeting boys (hypothesis 1). In contrast, our second hypothesis was that magazines targeting boys would contain more activities focused on education, visual skills, and hand–eye coordination than magazines targeting girls, following Spinner et al. (2023), who found more educational activities in boys' than in girls' magazines. Finally, based on the stereotype that women are more emotional than men (Barrett & Bliss-Moreau, 2009), we also expected more emotion words in magazine activities targeting girls than boys (hypothesis 3).

Method

Magazine Selection

Six magazine brands were selected based on the most popular selling children's brands (*ABC Market Summary Report January-July 2015*, 2015). This selection included three magazine titles targeted at girls: *Go Girl, Girl Talk, and Lego Friends*, and three magazine brands targeted at boys: *Pokémon, Toxic, and Lego Ninjago* (as classified by Newsstand, 2020). The magazines targeted primary school age children. There were six issues of each magazine (total n = 36). We coded all activity pages (n = 202 from the girls' magazines; n =159 from the boys' magazines). Magazines were published between April 2019 and December 2019.

Coding Development and Training

The first and last author established the coding manual with category definitions and examples. Inductive categories were formulated by reviewing a sample of the first two issues of each magazine brand.

Coding Scheme

Activity types. We first coded whether a page included an activity or not. Pages could include more than one activity, but each activity only received one code. Next, we coded for the presence of six mutually exclusive activity types: quizzes, cooking, writing, educational, activities involving visual skills, and hand-eye co-ordination games. A quiz was defined as answering questions to find out more about oneself or obtain a description of oneself. Cooking included activities involving making food, baking, and recipes. Writing activities were defined as any task involving writing, such as writing about dreams for the future or a story. Educational activities included mazes, puzzles, word searches, or brain teasers. Games involving visual skills included activities such as spot the difference, search and find, as well as spotting the odd one out. Finally, hand-eye co-ordination games included activities such as target training and using a disc launcher. Each type of activity was coded as 1= yes (present on page) or 0 = no (absent from page). Codes were not mutually exclusive.

Emotion words. We coded each instance of an emotion word, which included fear, dread, happy, excitement, sad, love, worry, and general emotion/feelings based on research (Cervantes & Callanan, 1998). We totalled the number of emotion words on each page.

Reliability Analysis

There were two women coders, the fourth author and an undergraduate psychology student. The coders discussed the coding scheme. The second coder was not aware of the study purpose. Following Bakeman and Quera (1997), coders practiced separately and compared their answers. To test inter-rater reliability, both coders independently coded the activity pages in the first two issues of each magazine, which was 33% of the sample (n =12 issues). Cohen's kappas ranged between good (κ = .73) and perfect (κ = 1.00) across the categories (Bakeman and Gottman, 1997). Any disagreements were resolved through discussion. The fourth author coded the remaining sample.

Results

Overview of Analyses

The data were binary and the number of activity pages varied across the magazines, so we carried out a chi-square test for each type of activity and the use of emotion words separately. We controlled for multiple tests by using α = .007 (.05 divided by 7 tests).

Activity Types

As expected, magazines targeted at girls had significantly more activities involving quizzes (34%, *N*= 69 out of 202) compared to those targeted at boys (*3%, N= 5* out of 159), χ^2 (1, *N* = 361) = 52.51, *p* < .001, *φ = .38.* Second, girls' magazines included significantly more cooking activities (6.4%, *N*= 13) than boys' magazines that did not feature cooking, χ^2 (1, *N* =0) = 10.62, *p* = .001, *φ = .17.* Third, there were significantly more activities involving writing in the girls' magazines (10%, *N*= 20) compared to boys' magazines (1%, *N*= 2), χ^2 (1, *N* = 361) = 11.61, *p* = .001, *φ = .18.*

In contrast, magazines targeted at boys had significantly more educational activities (42%, *N*= 66) compared to magazines targeting girls (16%, *N*= 33), χ^2 (1, *N* = 361) = 28.33, *p* < .001, *φ = .28.* Second, boys' magazines had significantly more visual skills activities (30%, *N*= 47) than the girls' magazines (16%, *N*= 32), χ^2 (1, *N* = 361) = 9.79, *p* = .002, *φ* = .17. Finally, there were significantly more activities involving hand-eye co-ordination in the boys' magazines (5%, *N*= 8), compared to the girls' magazines, which did not include any, *p* =. 001, *φ* = .17. Fisher's exact test was used because more than 20% of the cells had an expected count fewer than 5 (Yates et al., 1999).

Emotion words. As expected, magazine pages targeting girls included significantly more emotion words (45%, *N*= 91) compared to those targeting boys (16%, *N*= 26), χ^2 (1, *N* = 361) = 33.45, *p* < .001, *φ = .30.*

Discussion

Our findings confirm past research that children's media is strongly gendered, with different activities in magazines targeting girls compared to boys. By following gender schemas (Bem, 1981) and using gender stereotypic images and messaging, the front covers of magazines may draw parents and children to purchase magazine targeting their gender (Spinner et al., 2023). Once opened, these magazines include very different views of girls and boys, which may contribute to binary views of gender. These perspectives on gender may be considered manuals for how to produce gender in everyday interactions by demonstrating the culture's idealisation of gender (West & Zimmerman, 1987). The magazines may support children in appropriating gender schemas (Bem, 1981) through the repetition of these beliefs over time (Gerbner, 1998).

The way in which the magazines examined in this study uphold gender stereotypes may lead to different outcomes based on children's gender. For example, the magazines targeting girls had more emotion, quizzes, and writing content. Girls tend to use more emotion words in pairs (Tenenbaum et al., 2011) and outperform boys in writing (Reilly et al., 2019). In contrast, boys' magazines highlighted educational activities, visual skills, and hand-eye coordination. Men outperform women on mental rotation tasks (Hegarty, 2018), which may be related to greater engagement with these types of activities.

Whether the activity pages in magazines lead to gender differences in behavior is unknown and merits investigation. Research has shown that toys may influence children's behavioral repertoire and, in particular, gendered behaviors. For example, mothers' reports of their child viewing superheroes predicted future aggression, such as weapon play, in girls and boys (Coyne et al., 2014). To examine

feminine-stereotyped behavior (i.e., comforting an infant), Li and Wong (2016) conducted a lab study designed to replicate children's typical choices. Children's selection of more masculine toys and fewer feminine toys mediated the effect of gender on children's strategies to comfort an infant. Thus, gender differences disappeared after accounting for toy selection. Toys may even influence children's academic skills. For example, parental reports of the frequency of children's spatial play were related to children's spatial skills (Jirout & Newcombe, 2015). Boys tended to outperform girls in many spatial activities (Lauer et al., 2019) possibly because of greater practice (Liben et al., 2018). Thus, evidence from toys suggests that they may influence children's behavior, which might have implications for children's social and cognitive development.

Study 2

Building on Study 1, we extended the research to examine how mothers and children engage in conversations when completing the most popular activities in magazines targeting girls and boys. Although this has never been tested, research on children's toys, and the interactions they inspire, provides some clues as to how magazine activities may also shape parent-child interactions in gender conforming ways. Similar to magazines, toys often explicitly target either girls or boys (Weisgram & Dinella, 2018), and teach different skills based on the gender identity of the children they target (Liben et al., 2018). Tools (Vygotsky, 1980), such as gendered toys, can influence how parents interact with girls and boys (Leaper & Gleason, 1996; Tenenbaum et al., 2002). Parents tended to use more guiding speech during masculine-stereotyped toy play than during feminine-stereotyped play. Moreover, parents asked more questions when playing with feminine-stereotyped than masculine-stereotyped toys (Tenenbaum & Leaper, 1997). Media also may influence the active participation of mothers and children in enacting gendered ways of being. Yet research has not looked at how mothers' and children's talk may differ based on the gender stereotypy of media. Nor has it looked at how emotion may vary with activity, central to socio-emotional development.

How parents talk to children in middle childhood may influence their learning. For example, the more emotion labels mothers used with 4- to 6-year-olds influenced children's emotion understanding 6 months later (Aznar & Tenenbaum, 2013). Moreover, mothers' science explanations about magnets to 9-year-old children predicted their scientific literacy when children were 11 years (Tenenbaum et al., 2005). For this reason, we focused on children between 6 and 9 years.

In Study 2, mothers and children completed two of the most popular magazine page types in magazines for girls (quiz, writing) and for boys (wordsearch, puzzle) found in the magazines. We expected that when completing activities featured in magazines targeting girls rather than boys, there would be high levels of feminine-stereotyped behaviors (i.e., emotion talk, introspection) regardless of child gender. When completing activities targeting boys rather than girls, we expected that mother would use high levels of masculine-stereotyped behaviors (i.e., task-oriented talk) regardless of child gender. We expected that dyads with daughters would use a higher number of feminine-stereotyped (and lower number of masculine-stereotyped) behaviors than dyads with sons. Conversely, we expected that dyads

with sons would use a higher number of masculine-stereotyped (and lower number of feminine-stereotyped) behaviors than dyads with daughters.

Method

Participants

Participants included 97 children (56 girls, 41 boys; *M* = 7 years, 7 months, *SD* = 8.55 months, range = 5 years, 11 months to 9 years, 2 months). There was no difference in age between girls and boys, $F < 1$. Parents reported children as White (72, 80%), Mixed Ethnicity (12, 13.3%), Asian (2, 2.2%), Black (2, 2.2%), Chinese (1, 1.1%), or other (1, 1.1%). Seven did not report ethnicity. Mothers were 40.65 years old (*SD* = 4.29, range =29 to 48) on average. Mothers were mostly educated to university level (80 of 96 reporting, 82.4%). We pre-registered 98 parents based on .80 power to detect a medium effect size of .25 at the standard .05 alpha error probability with a correlation between measures of .55 on a 2 (Children gender) x 2 (Stereotype of pages: masculine, feminine) mixed-design ANOVA. One family did not follow instructions and only completed three pages rather than five so they were dropped, which left us with a sample size of 97.

Materials

The materials consisted of four pages selected from three magazines, and a fifth page found online to serve as a warm-up task. For the warm-up task, mothers and children needed to spot five differences between two images of the same pumpkin. Because of experimenter error, this task was not consistently recorded, so it was not coded. The other four pages included two feminine-stereotyped tasks taken from *Girl Talk* and two masculine-stereotyped tasks from *Lego Ninjago.* One feminine-stereotyped task (quiz) instructed mothers and children to select which five of eight cupcake flavours (e.g., rainbow sprinkles) they liked the most to find out what they were like (e.g., “You love the taste of fruity treats…”), and a task (writing) in which readers were instructed to fill the page with “dreamy words, doodles, or patterns”. One masculine-stereotyped task (wordsearch) instructed readers to find words (e.g., fire station, prison) in a typical word search activity. The second (puzzle) asked the reader to match three sections (head, torso, legs) of four minifigures together to create entire matching minifigures. We classified the activities as feminine- and masculine-stereotyped based the findings from Study 1. We did not change the colour of the pages.

Procedure

After receiving ethical clearance from the Universities of blinded (FHMS 20-21 048 EGA), we pre-registered the research at https://osf.io/39qh5/metadata/osf. Mothers were contacted via word-of-mouth, social media and advertisements, parenting groups, and a parenting database at the university. We told mothers that we were interested in how they did activities with their children. Mothers contacted the researcher who emailed an information sheet and consent form. After mothers returned consent forms, we posted the magazine pages to the mothers and arranged time to conduct the recording.

Magazine page order was randomised with the exception that the warm-up task (spot-the-difference) was always first. Before starting the task, we asked children individually if they were willing to participate and explained that they did not have to participate even if their mother provided consent. After child assent, mothers and children were asked to complete the pages in the order they were received while we recorded the interaction over Microsoft Teams. They were asked to spend at least 5 minutes per page. The researcher turned their camera and microphone off so that the families would act more naturally. Children received a £10 voucher to thank them.

Coding

Transcripts were generated automatically by Teams and then checked by research assistants who segmented speech into utterances based on intonation. We coded mothers' and children's utterances into five types of talk based on prior research and our reading of the transcripts. Only the first three types occurred with enough frequency for statistical analyses. Thus, help seeking and anti-help seeking were omitted from analyses. First, we coded transcripts for mothers' and children's use of emotion words—words referring to either a specific affective state (e.g., happy, confused), or process (e.g., to have fun, to dislike) based on prior research (Aznar & Tenenbaum, 2013). In this study, emotion words were not further classified as explanations or labels. Words that included behaviours (e.g., smiling, crying) and non-affect meanings of words (e.g., "like" to indicate comparison) were not coded. Second, we coded instances of introspection when children or parents described themselves or each other (e.g., *I'm white chocolate*), or asked about the other person (*That's not you, is it?; Do you think that sounds like you?*), even if reading from the pages. This category was derived inductively by reading transcripts. Third, we coded task-oriented talk, which included instances where the mother or child talked directly about the task to move it forward, such as reading the instructions or discussing ways to complete the task. We developed this category by combining informing and directive speech (Leaper et al., 1998) as well our readings of the transcripts. It covered both strategies and hints or suggestions. Strategies involved comments that help plan, organise, or make the task more effective, such as proposing methods for searching or grouping items (e.g., *I'm going to pick three letters that I should search for and then…; So, what words do you think go with "Dream Big"?)* Hints and suggestions involved offering help or clues to solve the problem, including reminders, cues, or guiding questions (e.g., *What colour's your head and your body?; The double E's can be easier to see)*. Overall, this category captured any talk focused on how to approach or complete the task, rather than unrelated conversation. Fourth, we coded help-seeking behavior on the part of the child based on Thompson et al., (2012). This type of talk needed to be a specific request for help or guidance, rather than a general question (*Can you help me?; How we supposed to do this?; Where do I stop?*). Finally, we coded any instances where the parent countered help-seeking from the child and encouraged them to work independently (e.g., *I'm not going to help you, find a few for yourself; Come on, you don't need my help, they're easy*). This category was derived inductively by reading transcripts. Two coders separately coded 20 transcripts (21% of the data) with 6,914 utterances and achieved a kappa of .80. Disagreements were resolved through discussion and then the transcripts were split for coding.

Results

Our analyses differ from our pre-registration in a few ways. First, we had originally planned to collapse the feminine- and masculine-stereotyped activities. However, there were significant differences within the feminine- and masculine-stereotyped activities, so we looked at the four activity pages separately. The Supplementary Materials display these differences. Second, the data compromising the total number of speech codes per activity, showed violations of skewness and kurtosis. Numerous transformations did not improve normality, so we conducted non-parametric tests. The results of the ANOVA models, which follow the same patterns, can be found in the Supplementary Materials.

Because of the non-normality of the data, we conducted non-parametric tests. For the three types of talk (emotion, introspection, task-oriented), we conducted three separate Friedman's tests followed by six Wilcoxon signed-rank follow-up tests to determine where the differences in talk occurred with a protected *p* of .008 (.05 divided by 6 tests). We repeated this procedure separately for mothers and children. Table 1 displays the means.

Mothers' Talk

We first focused on mothers' talk. The Friedman's test indicated significant differences in mothers' use of emotion words across the activities, χ^2 (3, N = 97) = 123.70, $p < .001$. To understand these differences, we used Wilcoxon signed tests. Mothers did not differ in their use of emotion words in the quiz and writing activities, $Z = -0.53$, $p = .595$, $r = .05$. However, they used more emotion words during the writing than the wordsearch, $Z = -6.11$, $p < .001$, $r = .62$, and puzzle activities, $Z = -7.21$, $p < .001$, $r = .73$. In addition, mothers used more emotion words during the quiz than the wordsearch, $Z = -5.68$, $p < .001$, $r = .58$, and puzzle activities, $Z = -7.19$, $p < .001$, $r = .73$. Finally, mothers used more emotion words during the wordsearch than the puzzle activity, $Z = -3.29$, $p < .001$, $r = .33$. In sum, mothers used more emotion words during the two feminine-stereotyped tasks followed by the wordsearch and then the puzzle activity. Mothers' greater use of emotion in the feminine-stereotyped activities supports the hypothesis that mothers would use more emotion talk during the feminine-stereotyped than masculine-stereotyped activities. All statistically significant effect sizes are large except for the difference between the two masculine-stereotyped activities, which was medium.

Second, we conducted a Friedman's test that indicated significant differences in mothers' use of introspective words across the activities, χ^2 (3, N = 97) = 195.31, $p < .001$. Mothers used more introspection during the quiz than the writing, $Z = -6.95$, $p < .001$, $r = .71$, the word search, $Z = -8.17$, $p < .001$, $r = .83$, and the puzzle activities, $Z = -8.38$, $p < .001$, $r = .85$. Similarly, mothers used more introspection talk during the writing activity than during the puzzle activity, $Z = -6.83$, $p < .001$, $r = .69$ or word search activity, $Z = -5.66$, $p < .001$, $r = .57$. Finally, mothers used more introspection talk during the word search than puzzle activity, $Z = -3.25$, $p = .001$, $r = .33$ Mothers' greater use of introspection in the feminine-stereotyped tasks supports the hypothesis that mothers would use more introspection talk

during the feminine-stereotyped than masculine-stereotyped activities. All effect sizes are large except for the difference between the two masculine-stereotyped activities, which was medium.

Third, there were significant differences in mothers' use of task-oriented talk, χ^2 (3, N = 97) = 84.13, p < .001. Specifically, mothers used more task-oriented talk during the word search than during the puzzle, Z = −5.42, p < .001, r = .55, writing, Z = −5.38, p < .001, r = .55, and quiz activities, Z = −7.42, p < .001, r = .75. However, there were no significant differences between the writing and puzzle, Z = −1.59, p = .111, r = .16, or the writing and quiz activities, Z = −2.33, p = .020, r = .24. These statistics partially support the hypothesis that there would be more task-oriented talk during the word search than during the other tasks.

Children's Talk

Next, we looked at children's talk. First, the Friedman's test indicated significant differences in children's use of emotion words across the activities, χ^2 (3, N = 97) = 83.00, p < .001. Children used the same amount of emotion words during the writing as during the quiz activity, Z = −2.55, p = .01, r = .26. Children used more emotion words during the quiz than during the wordsearch, Z = −5.40, p < .001, r = .55, or puzzle activities, Z = −6.63, p < .001, r = .67. Children also used more emotion words during the writing than during the wordsearch, Z = −4.14, p < .001, r = .42, or puzzle activities, Z = −5.54, p < .001, r = .56. Finally, children used the same amount of emotion words during the wordsearch as during the puzzle activity, Z = −1.46, p = .14, r = .15. Children's greater use of emotion in the feminine-stereotyped activities supports the hypothesis that children would use more emotion talk during the feminine-stereotyped than masculine-stereotyped activities.

Second, we conducted a Friedman's test that indicated significant differences in children's use of introspective words across the activities, χ^2 (3, N = 97) = 162.05, p < .001. The difference between all tasks was significantly different. Children used more introspection talk during the quiz than during the writing, Z = −6.44, p < .001, r = .65, wordsearch, Z = −7.79, p < .001, r = .79, or puzzle activities, Z = −8.07, p < .001, r = .82. They also used more introspection talk during the writing than during the wordsearch, Z = −4.25, p < .001, r = .43, or puzzle activities, Z = −5.22, p < .001, r = .53. Finally, children used more introspection talk during the wordsearch than during the puzzle activity, Z = −2.95, p = .003, r = .30. Thus, children used the most introspective talk during the quiz activity, followed by the writing activity, followed by the word search activity, and then the puzzle activity, which supports the hypothesis.

Third, there were significant differences in children's use of task-oriented talk, χ^2 (3, N = 97) = 64.52, p < .001. Children used the most task-oriented talk during the wordsearch than during the puzzle, Z = −3.53, p < .001, r = .36, writing, Z = −5.22, p < .001, r = .53, or quiz activities, Z = −7.33, p < .001, r = .74. Children used more task-oriented talk during the puzzle task than during the quiz, Z = −6.06, p < .001, r = .62, or writing activities, Z = −2.68, p = .007, r = .27. Children did not differ in their use of task-oriented talk during the writing and quiz activities, Z = −2.55, p = .011, r = .26. These findings confirm our hypotheses

for children in that children used more task-oriented talk in the two-masculine stereotyped activities than in the feminine-stereotyped activities.

Gender Differences in Talk

To examine whether there were gender differences in children's or mothers' talk during each of the activities, we conducted 24 Mann-Whitney tests with a protected alpha of .002. None of the p-values were close to statistically significant. The Supplementary Materials display all the Mann-Whitney analyses.

Discussion

Study 2 examined mother-child talk while engaging with feminine- and masculine-stereotyped media. The findings support the hypotheses that mothers and children would engage in more feminine-stereotyped talk (emotion, introspection) when engaging in feminine-stereotyped activities than when engaging in masculine-stereotyped activities. Conversely, mothers and children engaged in more masculine-stereotyped talk (task-oriented) when engaging in masculine-stereotyped activities than when engaging in feminine-stereotyped activities. The findings support theories (Wertsch, 1991) that suggest that cultural tools can influence the ways that mothers and children converse.

Our findings align with past research on toys showing that mothers and children are attuned to gender cues. Simple packaging differences can influence play in mothers and children. For example, Coyle and Liben (2020) examined mother's behaviors when provided a STEM toy either packaged for girls or boys. When the toy was packaged for boys, mothers spent more time preparing how to build before interacting with their child than when the same toy was packaged for girls (Coyle & Liben, 2020). However, studies had not extended beyond toys to examine how conversations vary during activities with magazines. Studies had also not looked at how mothers and children might use socio-emotional talk during media activities. Our findings suggest that such activities provide children with opportunities to practice becoming gendered actors in their social worlds. The large effect sizes in mothers' and children's talk between the feminine- and masculine-stereotyped activities indicate that activities allowed for relatively little overlap in gendered talk.

Our work also indicates that the activities in which people are engaged play more of a role than the gender of the individuals in the situation. This finding does not follow some research on mother-child interaction. When playing with the STEM toys, no matter how packaged, mothers spent more time reading with girls and more time building with boys (Coyle & Liben, 2020). However, in a study focused on emotion talk, the activity accounted for greater gendered behavior between friends than the gender of pairs (Anderson & Leaper, 1998). There may be unique aspects of socio-emotional talk that make its effects more dependent on situational factors than on child gender. Perhaps activity influences behavior to a greater extent than child gender, which is why a meta-analysis found no differences in mothers' emotion talk to sons and daughters (Aznar & Tenenbaum, 2020).

General discussion

The current research extends prior research on gender stereotypes in children's media in two ways. First, this research provides the first examination of the activities in magazines targeting school-aged children. The research uncovered gender stereotypic content in these activities. Second, this was the first research study to examine how mothers and children engage with this type of media. By systematically examining how these tools influence everyday conversations between mothers and children, this study demonstrates that these tools structure mother-child conversations and teach children gender-appropriate behaviours. Activity pages from the magazines led to differences in current behavior and might affect children's future behavior.

Integrating theoretical perspectives can contribute to an understanding of the ways in which magazines may reflect and contribute to ideas about gender appropriate behaviors. From a sociocultural perspective, children's magazines can be viewed as cultural tools that influence children's folk theories via content directly consumed by children, and through interactions with caregivers shaped by the magazine activities. The repetition of themes and stereotypes in the media lead viewers to appropriate beliefs from media content (Gerbner, 1998). The portrayals uncovered in these magazines provide information for children who slowly elaborate their conventional schemas about gender throughout middle childhood (Hill & Tenenbaum, 2022). Media may be one way that children learn appropriate scripts for behavior (West & Zimmerman, 1987). This type of media may support children in developing ideas about how to express themselves as gendered actors (West & Zimmerman, 1987). This study demonstrates how processes related to the appropriation of gender may occur in mundane situations. Endorsing gender stereotypes is related to mental health concerns in adolescent boys (Aguinaldo et al., 2024), being less likely to pursue cross-gender-stereotyped occupations in girls and boys (Weisgram et al., 2010), including STEM in girls (Starr & Simpkins, 2021), and other outcomes.

We found activity differences based on the target audience in the content analyses that led to differences in the ensuing conversations. Magazines for school-aged children target girls or boys rather than both girls and boys through obvious cues (Spinner et al., 2023). As a result, there is little gender overlap in who buys these magazines so that girls and boys are given different opportunities for practice. We found activity differences based on the target audience in the content analyses that led to differences in the ensuing conversations. Magazines for school-aged children typically target either girls or boys based on visual cues (Spinner et al., 2023). As a result, there is little gender overlap in who purchases these magazines, giving girls and boys different opportunities for conversational practice. Activities in magazines targeting girls elicited higher levels of emotion and introspection talk, whereas pages from magazines targeting boys elicited more task-oriented talk.

Both forms of interaction are developmentally valuable. Emotion and introspection talk support affective social competence (Halberstadt et al., 2001), whereas task-oriented talk models agency and problem-solving (Hsu et al., 2021; Sczesny et al., 2018). Children need opportunities to practice both. However, when these experiences are segregated by gender, children may receive uneven practice. For example,

the emphasis on introspection in girls' magazines may contribute to higher rates of co-rumination and problem disclosure among girls (Borowski & Rose, 2021; Rose, 2002), linked to depression and anxiety (Rose, 2021). At the same time, greater opportunities for emotion talk may contribute to girls' greater use of emotion words (Tenenbaum et al., 2011) and later gender differences in emotional intelligence (Cabello et al., 2016), despite few early differences in emotion understanding (Fidalgo et al., 2018). Thus, the concern is not that emotion-focused or task-focused activities are inherently beneficial or harmful, but that gendered media may limit children's opportunities to develop the full range of these skills.

Practice Implications

Although magazine distributors may argue that their magazines merely reflect societal stereotypes or children's interests, our findings suggest that these magazines have the potential to influence mother-child conversations and both mothers' and children's behaviors. We suggest that magazines should thus present content that will lead to conversations involving emotion, introspection, and agency in both types of magazines. Across different types of media, strongly gendered media may have negative effects on young people (Ward & Grower, 2020). In teaching different skills to different genders, media may fail to support children to develop a range different skills regardless of their gender. Rather than targeting boys or girls, developers of media should try to target all children, no matter their gender to support all children's development.

Limitations and Future Directions

One limitation of the current research is that we only included mothers. Mothers tend to be engaged in more childcare than fathers with particularly acute differences during the COVID-19 pandemic (Sevilla & Smith, 2020) when these data were collected. For this reason, we focused on mothers. Nevertheless, future research should examine how fathers and children interact with each other, especially because fathers can be more likely than mothers to uphold gender stereotypes in interaction with their children (Endendijk et al., 2014). Our research also looked at gender as a binary construct. Research needs to examine mother-child talk in children who are non-binary. Nonetheless, our findings suggest that the gender stereotype of the activity influences behavior more than children's binary gender category. Third, the activities found more frequently in magazines targeting girls were more open-ended that the activities targeting boys, which may also influence conversations.

Conclusion

In sum, these studies suggest that media not only displays gender differences but also contributes to enacted gender differences in everyday behaviors in children. Because parents and content creators may perceive these messages as benign reflections of society, they may not understand that these messages can influence children's everyday interactions. Content creators and parents need to be made aware of the subtle messages that can influence current and future behavior in parents and children. Such awareness may change the types of messages communicated so that all children, regardless of gender, can develop a broad range of skills, competences, and abilities.

Declarations

Author Contribution

Conceptualization: HT, LS, and LCData curation: HTFormal analysis: HT and LJInvestigation: HT, KC, LJ, and JRMethodology: HT, LS, and LCProject administration: HT, LC, KC, LJ, and JRSupervision: HT and LCWriting – original draft: HTWriting – review & editing: HT, LC, KC, LJ, and JRAll authors reviewed the manuscript.

Acknowledgement

We would like to thank Rebecca Dole, Cheri Cheung, Amy Wright, Indigo Whitaker Veryward, and Callum Davies for help with transcription and coding.

Data Availability

We pre-registered the research at https://osf.io/39qh5/metadata/osf where all data and syntax have been uploaded.

References

1. *ABC Market Summary Report January-July 2015*. (2015). https://www.abc.org.uk/data/reports-and-analysis
2. Aguinaldo, E. R., Ward, L. M., Papp, L. J., Grower, P., & Rowley, S. (2024). Where boys learn to be men: Associations between media use and male adolescents' gender beliefs and well-being. *Psychology of Men & Masculinities*. https://doi.org/10.1037/men0000510
3. Anderson, K. J., & Leaper, C. (1998). Emotion talk between same-and mixed-gender friends: Form and function. *Journal of Language and Social Psychology*, *17*(4), 419-448. https://doi.org/10.1177/0261927X980174001
4. 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. https://doi.org/10.1207/s1532785xmep0602_1
5. Aznar, A., & Tenenbaum, H. R. (2013). Spanish parents' emotion talk and their children's understanding of emotion. *Frontiers in Psychology*, *4*, Article 670. https://doi.org/10.3389/fpsyg.2013.00670
6. Aznar, A., & Tenenbaum, H. R. (2020). Gender comparisons in mother-child emotion talk: A meta-analysis. *Sex Roles*, *82*(3), 155-162. https://doi.org/10.1007/s11199-019-01042-y
7. Barrett, L. F., & Bliss-Moreau, E. (2009). She's emotional. He's having a bad day: Attributional explanations for emotion stereotypes. *Emotion*, *9*(5), 649.

8. Bakeman, R., & Gottman, J. M. (1997). Observing interaction: An introduction to sequential analysis. Cambridge University Press.
9. Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, *88*(4), 354-364. https://doi.org/10.1037/0033-295X.88.4.354
10. Berry, T., & Wilkins, J. (2017). The gendered portrayal of inanimate characters in children's books. *Journal of Children's Literature*, *43*(2), 4-15.
11. Borowski, S. K., & Rose, A. J. (2021). Boys' and Girls' Interactions With Same-Gender Friends and Other-Gender Friends: A Focus on Problem Disclosures. *Journal of Research on Adolescence*. https://doi.org/10.1111/jora.12681
12. Brugeilles, C., Cromer, I., Cromer, S., & Obadia, Y. (2002). Male and female characters in illustrated children's books or. *Population*, *57*(2), 237-267.
13. Cabello, R., Sorrel, M. A., Fernández-Pinto, I., Extremera, N., & Fernández-Berrocal, P. (2016). Age and gender differences in ability emotional intelligence in adults: A cross-sectional study. *Developmental Psychology*, *52*(9), 1486-1492. http://dx.doi.org/10.1037/dev0000191
14. Cervantes, C. A., & Callanan, M. A. (1998). Labels and explanations in mother–child emotion talk: Age and gender differentiation. *Developmental Psychology*, 88-98. https://doi.org/10.1037/0012-1649.34.1.88
15. Coyle, E. F., & Liben, L. S. (2020). Gendered packaging of a STEM toy influences children's play, mechanical learning, and mothers' play guidance. *Child Development*, *91*(1), 43-62. **https://doi.org/10.1111/cdev.13139**
16. Coyne, S. M., Linder, J. R., Rasmussen, E. E., Nelson, D. A., & Collier, K. M. (2014). It'sa bird! It'sa plane! It'sa gender stereotype!: Longitudinal associations between superhero viewing and gender stereotyped play. *Sex Roles*, *70*(9), 416-430. DOI 10.1007/s11199-014-0374-8
17. Endendijk, J. J., Groeneveld, M. G., Van der Pol, L. D., Van Berkel, S. R., Hallers-Haalboom, E. T., Mesman, J., & Bakermans-Kranenburg, M. J. (2014). Boys don't play with dolls: Mothers' and fathers' gender talk during picture book reading. *Parenting*, *14*(3-4), 141-161. https://doi.org/10.1080/15295192.2014.972753
18. Fidalgo, A. M., Tenenbaum, H. R., & Aznar, A. (2018). Are there gender differences in emotion comprehension? Analysis of the test of emotion comprehension. *Journal of Child and Family Studies*, *27*(4), 1065-1074. https://doi.org/10.1007/s10826-017-0956-5
19. Fulcher, M., & Coyle, E. F. (2018). Working at play: Gender-typed play and children's visions of future work and family roles. In E. S. Weisgram & L. M. Dinella (Eds.), *Gender typing of children's toys: How early play experiences impact development* (pp. 257–286). American Psychological Association. https://doi.org/10.1037/0000077-012
20. Gerbner, G. (1998). Cultivation analysis: An overview. *Mass Communication and Society*, *1*(3-4), 175-194. https://doi.org/10.1080/15205436.1998.9677855
21. Halberstadt, A. G., Denham, S. A., & Dunsmore, J. C. (2001). Affective social competence. *Social Development*, *10*(1), 79-119. https://doi.org/10.1111/1467-9507.00150

22. 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), 757-765. https://doi.org/10.1007/s11199-006-9128-6
23. Hata, M. (2014). Preschool girls and the media: How magazines describe and depict gender norms. *International Journal of Early Childhood*, *46*(3), 373-389. https://doi.org/10.1007/s13158-014-0123-8
24. Hegarty, M. (2018). Ability and sex differences in spatial thinking: What does the mental rotation test really measure? *Psychonomic Bulletin & Review*, *25*(3), 1212-1219. https://doi.org/10.3758/s13423-017-1347-z
25. Hill, D. B., & Tenenbaum, H. R. (2022). Children's physical gender schemas: Acquisition and features. *Sex Roles*, *87*(7), 406-418. https://doi.org/10.1007/s11199-022-01325-x
26. Hsu, N., Badura, K. L., Newman, D. A., & Speach, M. E. P. (2021). Gender,"masculinity," and "femininity": A meta-analytic review of gender differences in agency and communion. *Psychological Bulletin*, *147*(10), 987-1011. https://doi.org/10.1037/bul0000343
27. Jirout, J. J., & Newcombe, N. S. (2015). Building blocks for developing spatial skills: Evidence from a large, representative US sample. *Psychological Science*, *26*(3), 302-310. https://doi.org/10.1177/09567976145633
28. Lauer, J. E., Yhang, E., & Lourenco, S. F. (2019). The development of gender differences in spatial reasoning: A meta-analytic review. *Psychological Bulletin*, *145*(6), 537 –565. https://doi.org/10.1037/bul0000191.
29. 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. https://doi.org/10.1037/0012-1649.34.1.3
30. Leaper, C. (2015). Gender and social-cognitive development. In *Handbook of Child Psychology and Developmental Science: Cognitive Processes, Vol. 2, 7th ed.* (pp. 806-853). John Wiley & Sons, Inc. https://doi.org/10.1002/9781118963418.childpsy219
31. Leaper, C., & Gleason, J. B. (1996). The relationship of play activity and gender to parent and child sex-typed communication. *International Journal of Behavioral Development*, *19*(4), 689-703. https://doi.org/10.1177/016502549601900401
32. Leman, P. J., & Tenenbaum, H. R. (2011). Practising gender: Children's relationships and the development of gendered behavior and beliefs. *British Journal of Developmental Psychology*, *29*(2), 153-157. https://doi.org/10.1111/j.2044-835X.2011.02032.x
33. 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), 399-410. https://doi.org/10.1007/s11199-016-0580-7
34. Liben, L. S., Schroeder, K. M., Borriello, G. A., & Weisgram, E. S. (2018). Cognitive consequences of gendered toy play. In *Gender Typing of Children's toys: How Early Play Experiences Impact Development.* (pp. 213-255). American Psychological Association. https://doi.org/10.1037/0000077-011

35. Martin, C. L., & Halverson Jr, C. F. (1981). A schematic processing model of sex typing and stereotyping in children. *Child Development*, 1119-1134. https://doi.org/10.2307/1129498
36. McGovern, J., & Dinella, L. M. (2024). Gender-Typing of Children's Sports Toys Persists: A Mixed-Methods Investigation. *Sex Roles*, *90*(11), 1633-1652. https://doi.org/10.1007/s11199-024-01520-y
37. Miller, C. F. (2025). Children's Accessible Gender Stereotypes About What Girls and Boys Approach, Avoid, and How They Are Similar and Different. *Sex Roles*, *91*(12), 79. https://doi.org/10.1007/s11199-025-01629-8
38. 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), 78-91. https://doi.org/10.1007/s11199-015-0558-x
39. Newstand (n.d.). Retrieved from https://www.newsstand.co.uk/109-primary-girls-magazines/2151-subscribe-to-girl-talk-magazine-subscription.aspx on 12 March 2026.
40. Oppliger, P. A. (2007). Effects of gender stereotyping on socialization. *Mass Media Effects Research: Advances through Meta-Analysis*, 199-214.
41. Pompper, D., & Merskin, D. (2020). The more things change? Social identity representations in "50 of the best kids' books published in the last 25 years". *The Journal of Popular Culture*, *53*(5), 1135-1159.
42. Potter, W. J. (2014). A critical analysis of cultivation theory. *Journal of communication*, *64*(6), 1015-1036. https://doi.org/10.1111/jcom.12128
43. Pownall, M., & Heflick, N. (2023). Mr. Active and little miss passive? The transmission and existence of gender stereotypes in children's books. *Sex Roles*, *89*(11), 758-773. https://doi.org/10.1007/s11199-023-01409-2
44. Reich, S. M., Black, R. W., & Foliaki, T. (2018). Constructing difference: LEGO® set narratives promote stereotypic gender roles and play. *Sex Roles*, *79*(5-6), 285-298. https://doi.org/10.1007/s11199-017-0868-2
45. Reilly, D., Neumann, D. L., & Andrews, G. (2019). Gender differences in reading and writing achievement: Evidence from the National Assessment of Educational Progress (NAEP). *American Psychologist*, *74*(4), 445-458. https://doi.org/10.1037/amp0000356
46. Rogoff, B. (1990). *Apprenticeship in Thinking: Cognitive Development in Social Context*. Oxford University Press.
47. Rogoff, B., Dahl, A., & Callanan, M. (2018). The importance of understanding children's lived experience. *Developmental Review*, *50*, 5-15. https://doi.org/10.1016/j.dr.2018.05.006
48. Rose, A. J. (2002). Co–rumination in the friendships of girls and boys. *Child Development*, *73*(6), 1830-1843. https://doi.org/10.1111/1467-8624.00509
49. Rose, A. J. (2021). The Costs and Benefits of Co-Rumination. *Child Development Perspectives*, *15*(3), 176-181. https://doi.org/10.1111/cdep.12419
50. Sczesny, S., Nater, C., & Eagly, A. H. (2018). Agency and communion: Their implications for gender stereotypes and gender identities. In A. Abele and B. Wojciszke (Eds.), *Agency and Communion in*

Social Psychology (pp. 103-116). Routledge.

51. Sevilla, A., & Smith, S. (2020). Baby steps: The gender division of childcare during the COVID-19 pandemic. *Oxford Review of Economic Policy*, *36*(Supplement_1), S169-S186. https://doi.org/10.1093/oxrep/graa027
52. Sovič, A., & Hus, V. (2015). Gender stereotype analysis of the textbooks for young learners. *Procedia-Social and Behavioral Sciences*, *186*, 495-501. https://doi.org/10.1016/j.sbspro.2015.04.080
53. Spinner, L., Cameron, L., & Tenenbaum, H. R. (2023). Gender stereotypes in young children's magazines. *Mass Communication and Society*, *26*(1), 147-170. https://doi.org/10.1080/15205436.2022.2052902
54. Starr, C. R., & Simpkins, S. D. (2021). High school students' math and science gender stereotypes: relations with their STEM outcomes and socializers' stereotypes. *Social Psychology of Education*, *24*(1), 273-298. https://doi.org/10.1007/s11218-021-09611-4.
55. Statista. (2019). *Children's magazines ranked by sales volume in the United Kingdom (UK) 2018*. Retrieved from https://www.statista.com/statistics/321625/children-s-magazines-ranked-by-sales-volume-uk-2013/
56. Tenenbaum, H. R., Callanan, M. A., Alba-Speyer, C., & Sandoval, L. (2002). The role of educational background, activity, and past experiences in Mexican-descent families' science conversations. *Hispanic Journal of Behavioral Sciences*, *24*(2), 225-248. https://doi.org/10.1177/07399863020240020
57. Tenenbaum, H. R., Ford, S., & Alkhedairy, B. (2011). Telling stories: Gender differences in peers' emotion talk and communication style. *British Journal of Developmental Psychology*, *29*(4), 707-721. https://doi.org/10.1348/2044-835x.002003
58. Tenenbaum, H. R., & Leaper, C. (2002). Are Parents' Gender Schemas Related to their Children's Gender-Related Cognitions?: A Meta Analysis. *Developmental Psychology, 38*, 615-630.
59. Tenenbaum, H. R., & Leaper, C. (1997). Mothers' and fathers' questions to their child in Mexican-descent families: Moderators of cognitive demand during play. *Hispanic Journal of Behavioral Sciences*, *19*(3), 318-332. https://doi.org/10.1177/07399863970193005
60. Tenenbaum, H. R., Snow, C. E., Roach, K. A., & Kurland, B. (2005). Talking and reading science: Longitudinal data on sex differences in mother–child conversations in low-income families. *Journal of Applied Developmental Psychology*, *26*(1), 1-19. https://doi.org/10.1016/j.appdev.2004.10.004
61. Thompson, R. B., Cothran, T., & McCall, D. (2012). Gender and age effects interact in preschoolers' help-seeking: Evidence for differential responses to changes in task difficulty. *Journal of Child Language*, *39*(5), 1107-1120. https://doi.org/10.1017/S030500091100047X
62. Vygotsky, L. S. (1980). *Mind in society: The development of higher psychological processes*. Harvard University Press.
63. Walsh, A., & Leaper, C. (2020). A Content Analysis of Gender Representations in Preschool Children's Television. *Mass Communication and Society*, *23*(3), 331–355. https://doi.org/10.1080/15205436.2019.1664593

64. Zeman, J., Perry-Parrish, C., & Cassano, M. (2010). Parent-child discussions of anger and sadness: The importance of parent and child gender during middle childhood. *New Directions for Child and Adolescent Development.*, *2010*(128), 65–83. https://doi.org/10.1002/cd.269
65. Ward, L. M., & Grower, P. (2020). Media and the development of gender role stereotypes. *Annual Review of Developmental Psychology*, *2*(1), 177-199. https://doi.org/10.1146/annurev-devpsych-051120-010630
66. Weisgram, E. S., Bigler, R. S., & Liben, L. S. (2010). Gender, values, and occupational interests among children, adolescents, and adults. *Child Development*, *81*(3), 778-796. https://doi.org/10.1111/j.1467-8624.2010.01433.x
67. Wertsch, J. V. (1991). *Voices of the mind: Sociocultural approach to mediated action*. Harvard University Press.
68. West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender & Society*, *1*(2), 125-151. https://doi.org/10.1177/0891243287001002002
69. Wickens, C. M., Walther, C. S., & Werderich, D. E. (2025). Gender representation in Scouting handbooks. *Gender and Education*, 1-18. https://doi.org/10.1080/09540253.2025.2544529
70. Yates, D., Moore, D., & McCabe, G. (1999). *The Practice of Statistics*. Freeman.

Tables

Table 1 *Means and Standard Deviations for Talk by Task*

	Masculine-Stereotyped		Feminine-Stereotyped	
	Word Search	Puzzle	Quiz	Writing
Maternal Talk				
Emotion	$.40_{a}$ (.87)	$.07_{b}$ (.33)	1.91_{b} (2.14)	2.15_{b} (2.48)
Introspection	$.56_{c}$ (1.29)	$.15_{d}$ (.39)	6.42_{a} (4.36)	2.28_{b} (3.13)
Task-oriented	45.09_{a} (31.20)	30.65_{b} (18.62)	22.07_{c} (12.92)	$28.88_{b,c}$ (27.84)
Child Talk				
Emotion	$.34_{a}$ (.83)	$.12_{a}$ (.36)	1.57_{b} (2.13)	1.21_{b} (1.99)
Introspection	$.39_{c}$ (.72)	$.12_{d}$ (.41)	3.91_{a} (3.35)	1.27_{b} (2.30)
Task-oriented	29.96_{a} (23.28)	22.99_{b} (15.62)	14.05_{c} (8.73)	19.98_{c} (20.47)

Note. Subscripts in rows indicate where tests are significantly different from each other at $p < .008$.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- SupplementaryAnalyses.docx