Pink gives girls permission: Exploring the roles of explicit gender labels and gender-typed colors on preschool children's toy preferences ☆

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A B S T R A C T

Children engage in gender-typed toy play to a greater extent than in non-gender-typed toy play leading to different developmental trajectories for boys and girls. The present studies examine the characteristics of toys and how they differentially affect boys' and girls' interests, stereotypes, and judgments of the toys. In Study 1, children ($N = 73$, $M_{age} = 4.01$) were presented with masculine and feminine toys that were decorated with masculine and feminine colors. Results indicated that boys were more interested in masculine toys than in feminine toys. Girls were significantly less interested in masculine toys with masculine colors than in all other combinations. Children's perceptions of others' interests also followed a similar pattern. In Study 2, children ($N = 42$, $M_{age} = 3.84$) were presented with novel items labeled as "for boys" and "for girls" and decorated in masculine and feminine colors. Among girls, both explicit labels and color of novel toys impacted interests. Children's predictions of others' interests also reflected this pattern.

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Gender differentiation occurs throughout the lifespan within a wide variety of domains including activities, careers, cognitive abilities, traits, and behaviors (Blakemore, Berenbaum, & Liben, 2009). Examining gender differentiation of young children's toy play is particularly important because (a) toy play is a fundamental aspect of young children's daily experience and (b) the type of toy play in which children engage may shape their cognitive abilities and social development (Cherney, Kelly-Vance, Glover, Ruane, & Ryalls, 2003; Martin, Eisenbud, & Rose, 1995).

Children begin selecting gender-typed toys as toddlers and may show a visual preference for gender-typed toys even earlier (Alexander, Wilcox, & Woods, 2009; Caldera, Huston, & O'Brien, 1989; Jadva, Hines, & Golombok, 2010; Poulin-Dubois & Serbin, 2006). Although many factors may shape toy interests, gender differentiation of toy preferences may be a result of explicit verbal labeling ("That's a boy's toy" or "That's a girl's toy") or implicit labeling (e.g., labeling by masculine and feminine colors, toy type, or other toy features). Recently there has been a dramatic increase in the intentional marketing of toys only to one gender or the other primarily through the use of toy color (Sweet, 2013), a trend that has received considerable attention in the popular press in publications such as Orenstein's (2011) book *Cinderella Ate My Daughter: Dispatches from the Front Lines of the New Girlie-Girl Culture* and articles in *Time*, *Forbes*, and *The New York Times*. This trend is concerning because it may be detrimental to boys' and girls' social and cognitive development in that if children choose or are offered almost exclusively gender-specific toys, they may only be able to build skills and competencies associated with such toys.

When children are given a choice of a variety of gender-typed and non-gender-typed toys, children (especially boys) often choose toys based on gender associations (Wood, Desmarais, & Gugula, 2002). Notably, gender-typed toy preferences among children are one of the largest gender differences in the developmental psychology ($d = 2.0$, Cherney & London, 2006; Servin, Gohlin, & Berlin, 1999). Toys traditionally associated with boys are more likely to include sports equipment, tools, and vehicles whereas toys traditionally associated with girls were more likely to include dolls, fictional characters, and furniture, among other items (Pomerleau, Bolduc, Malcuit, & Cossette, 1990). Blakemore and Centers (2005) found that masculine toys were more likely to be rated by adults as "violent, competitive, exciting, and somewhat dangerous" than were feminine toys and feminine toys were more likely to be rated as linked to "physical attractiveness, nurturance, and domestic skill" than were masculine toys (p. 619).

One way children acquire knowledge about the gender-typing of toys is through explicit gender labels provided by socializing agents such as

parents, family members, peers as well as stores and corporations who often advertise items in a gender specific way. These labels significantly affect children's interest in toys such that toys that are labeled as "appropriate" for one's gender will be incorporated into one's own-gender schema, which leads to greater interest (Martin, Ruble, & Szkrybalo, 2002). Toys that are labeled for the other gender will be incorporated into one's other-gender schema and ultimately avoided (Martin et al., 1995). Due to the various gender associations and other associations incorporated in children's beliefs about familiar toys, it is important to adopt a methodology that uses novel items that are free of gender associations to experimentally test these pathways.

In studies with novel items introduced to the children as "toys," numerous researchers have found that preschool children were more interested in items labeled as for their gender than items labeled as for the other gender (Bradbard, Martin, Endsley, & Halverson, 1986; Eaton, von Bargen, & Keats, 1981; Weisgram, 2014). Even the gender of a child modeling interest in a novel item can affect children's interests (Shutts, Banaji, & Spelke, 2010). In their work, Martin et al. (1995) describe a "hot potato effect" among preschool children in which they avoid even attractive toys if they find the toy is considered appropriate for the other gender. Although it is clear that explicitly labeling toys affects children's interests, when children are not provided with explicit labels they may search for features of a toy that would aid in gender classification.

In addition to toy type and explicit gender labels, color is one of the primary features that children use to assimilate toys into their gender schemas. Blues and primary colors have been associated with boys (i.e., masculine colors) and pink, purples, and pastels have been associated with girls (i.e., feminine colors) since the 1940s (see Paoletti, 2012, for a historical review of color associations). In their work, LoBue and DeLoache (2011) demonstrated that around age 2 1/2 girls develop a strong preference for pink items and boys begin to actively avoid pink items. Because of children's color preferences, toy and clothing manufacturers have increased their gender-specific marketing efforts often by producing the same products in two formats—one with masculine colors and one with feminine colors thus encouraging parents who have children of both genders to buy one of each color scheme (Sweet, 2013). The combination of color attraction and avoidance by girls and boys and gender-specific marketing using masculine and feminine colors has led to color becoming an implicit gender label such that young children may believe that any item with pink is "for girls" and any item with an absence of pink is "for boys" as suggested by Orenstein's work (Orenstein, 2011).

The role of color has been demonstrated to have significant effects on individuals' stereotypes and toy choices starting in childhood. Researchers have shown that animals that are depicted with pink or purple clothing are more likely to be identified by children as female than male (Henshaw, Kelly, & Gratton, 1992; Picariello, Greenberg, & Pillemer, 1990). Picariello et al. note that individuals use "color as a proxy for sex when making sexual identifications" (p. 1454). Research also suggests that children make toy choices for male and female peers along stereotypic color lines with 90% of items chosen for a female target peer including the color pink (compared to less than 10% of items for a male peer) and 48% of the items chosen for a male target peer including the color blue (compared to less than 5% of items for a female peer; Cunningham & Macrae, 2011). When presenting children with gender-neutral toys and ambiguous toys (i.e., toys with both masculine and feminine characteristics such as a pink airplane) and asking children to categorize them by gender, color was the most cited reason for gender classification (Cherney & Dempsey, 2010).

Evidence for a direct effect of gender-typed colors on children's interest in toys is mixed. In studies such as the one conducted by LoBue and DeLoache (2011), when all available items are identical except for color, colors certainly affect interest. Also, color has been shown to shape interest in gender neutral toys (Cherney, Harper, & Winter, 2006). However, some research suggests that the gender-typing of the toy may eclipse the importance of the toy's gender-typed colors. In research by Karniol (2011), children were asked to select coloring books with masculine or feminine characters that were depicted with masculine or feminine colors. Despite the color of the coloring book, children chose books based on the character with boys choosing the masculine character more than did girls and girls choosing the feminine character more than did boys. Cherney et al. (2006) note that color may only play a role in selecting toys that are not strongly masculine or feminine.

Gender schema theory provides a theoretical framework that explains the cognitive processes behind these judgments and gender-typed interests (Martin & Halverson, 1981; Martin et al., 2002). In this model, Martin and colleagues posit that children develop two types of cognitive schemas related to gender: (a) an ingroup/outgroup schema and (b) an own gender schema. Children develop and use an ingroup/outgroup schema to categorize and organize items in their environment as "for them" or "not for them," respectively, based on what culture has deemed appropriate for each gender. From this perspective, children view toys as belonging to discrete gender categories—a task they may be able to do as early as 24 months of age (Levy, 1999)—and are intrinsically motivated to search for cues to aid in their gender categorization (Martin & Ruble, 2004). Lobel and Menashri (1993) argue that the rigidness of gender norms leads children to make decisions along gender lines rather than to consider other dimensions. It is in making these links to gender categories that stereotypes about who should play with which toys are formed (Bigler & Liben, 2007). Gender-typing of toys, explicit labels, and gender-typed colors are cues that children may use to classify toys and form stereotypes about which gender should play with them.

A second central aspect of this theory is the formation of the own-gender schema. Martin and Halverson (1981) proposed that children pay special attention to items that are deemed by society as appropriate for their gender—they learn more about such items, engage with these items more frequently, and identify with these items more. For example, because construction vehicles likely belong to a child's masculine gender schema, a young boy is more likely than a young girl to engage with toy construction vehicles (e.g., play with them, ask for them as a desired toy, show greater interest in them), learn more about them (i.e., front end loaders, back hoes, concrete pouring trucks), and desire occupations that emphasize these vehicles (i.e., construction worker). Although there are many aspects of toys that a child can use when categorizing toys according to gender, we posit that gender-typing, explicit verbal labels, and gender-typed colors are central to this process.

The present studies

It is clear from gender schema theory and research evidence on children's toy play and interests that toy type, labels and colors are instrumental in toy choice and in the creation and maintaining of stereotypes about what toys are acceptable for girls and boys. However, the literature is unclear about the relative contribution of the three factors and their impacts on children's play interests and stereotypes. Thus, the present studies investigated the role of gender-typing of toys, explicit labels, and gender-typed colors on children's interests in and judgments of toys using familiar and novel toys.

There are many applied and theoretical implications of the research presented here. One important implication for this study is the marketing of toys. The toys with which children play can serve to create experiences and environments in which physical, social, and cognitive development occur and thus marketing is not only about making money, but also about marketing environments and experiences to children. Because the variables under examination may have a direct impact on gender stereotypes that are formed by children and the experiences they have, the increasing use of explicit gender labels and color labels to market toys may also be serving to increase children's gender stereotypes and exacerbate gender differences in many areas of

development. This research also has implications for gender schema theory. Although research and scholarly work on gender schema theory has considered the role of toy type and explicit gender labels in incorporating toys into children's gender schemas, the role of gender-typed colors in young children's gender schemas, interests, and stereotypes has not been considered in concert with these variables.

In Study 1, we examined the effects of toy type and color on children's interests and stereotypes. Specifically, we presented preschool children with masculine and feminine toys that were displayed in either masculine colors or feminine colors. In Study 2, we examined the effects of masculine and feminine toy color and explicit gender labels on preschool children's interest in novel "toys." Interest, stereotypes, and judgments of peers' interest in the stimuli were assessed in both studies (Martin et al., 1995; Weisgram, 2014). We examined the relations among these constructs using a preschool-age population because of the importance of toy play in young children and because of the high level of gender-typed toy play among this age group (Golombok, Rust, Zervoulis, Golding, & Hines, 2012).

Study 1

In Study 1, we examined children's interest and judgments of toys that vary on two important characteristics: toy type and toy color. In this experiment, we presented children with masculine toys and feminine toys that were manipulated to have a predominantly masculine color scheme or a predominantly feminine color scheme. We predicted that children would be most interested in gender-typed toys with gender-typed colors and least interested in cross-gender-typed toys with cross-gender-typed colors. We were particularly interested in the contrast that would occur when gender-typed toys were paired with cross-gender-typed colors (e.g., a pink monster truck). We predicted that toy type would influence children's interest to a greater extent than toy color, particularly among boys who endorse stereotypes to a greater extent than girls (Liben & Bigler, 2002). We also predicted that feminine colors would have a stronger effect on children's interests than masculine colors given preschool girls' preference for pink and preschool boys' avoidance of pink (LoBue & DeLoache, 2011).

Personal endorsement of gender stereotypes was also assessed by asking children "who should play with [each toy]?" We predicted that toy type would influence stereotypes with children assigning masculine toys to "only boys" and feminine toys to "only girls." We also believed that toy color would result in a stereotypical categorization of pink and purple toys as for "only girls." We propose that predictions of other boys' and girls' interests would follow a similar pattern with children predicting that other boys would be more interested in masculine toys and toys with masculine colors and that other girls would be more interested in feminine toys and toys with feminine colors.

Method

Participants

Participants included 73 children (38 boys, 35 girls) ranging in age from 3 to 5 years (M = 4.01, SD = 0.83; 23 3-year-olds, 28 4-year-olds, 22 5-year-olds). Participants were predominantly European American (n = 62) with children of African American (n = 6), Latino American (n = 3), Asian American (n = 1), and Unknown (n = 1) descent also participating. Children were recruited from preschools and day care centers in the Midwest and the South. Every child who participated had the written consent of a parent or guardian and also agreed verbally to participate.

Materials

We used sixteen different toys as stimuli for this study. We included four types of masculine toys: a fighter jet, a motorcycle, a construction

vehicle, and a monster truck—all representative of the category "Strongly Masculine Toys" in Blakemore and Centers's (2005) ratings of popular and familiar children's toys. We purchased two of each toy, and kept half of the toys their original color and altered the other half of the toys to have feminine colors by hand-painting each with pink and purple non-toxic acrylic paint. We also included four types of feminine toys: a baby doll, a fairy wand, a tea set, and a pony—all items representative of the category "Strongly Feminine Toys" in Blakemore and Centers's ratings. We purchased two of each toy, and kept half of the feminine toys their original color and altered three of the toys (tea set, pony, fairy wand) by hand-painting each with black, blue, and red acrylic paint. Next, we added sports stickers to the fairy wand after painting it. To fully change the color scheme of the pony, we also replaced the pink mane and tail with black hair. Rather than painting the baby doll, we replaced the pink romper with a similar custom made camouflage fleece romper and the pink hat with a camouflage bandana.

Procedures

Children were seated at a table and were presented one of two sets of toys by either a male or a female experimenter. Each set contained eight toys: (a) two masculine toys with masculine colors, (b) two masculine toys with feminine colors, (c) two feminine toys with masculine colors, and (d) two feminine toys with feminine colors. Children were presented with the toy and allowed to manipulate it for 30 s. Then the toy was placed in view of the child, but out of his or her reach. The child was then asked to rate their interest in the toy, their stereotype endorsement, and their judgments of the toy. These responses were recorded on paper by the experimenter.

Measures

Interest was assessed on a 3-point scale by asking "How much do you like this toy?" with response options of Not at all (1), A little (2), or A lot (3). With each response option a schematic face was presented on a note card with a frowning face corresponding to the experimenter's option of "Not at all," a face with a small smile corresponding to the experimenter's option of "A little," and a face with a large smile corresponding to the experimenter's option of "A lot." A child could, thus, respond by either saying the response option or pointing to the corresponding card that represents their choice. The gender stereotype of each toy was assessed by asking "Who should play with this toy?" with response options of "Only boys," "Only girls," and "Both boys and girls." Each response option was accompanied by a note card depicting either two male symbols representative of those found on restroom signs internationally, two female symbols, or one male and one female (see Hilliard & Liben, 2010). Again, children could respond verbally or by pointing to a symbol. Finally, following Martin et al. (1995), perceptions of others' interests were assessed by asking "How much would other boys like this toy?" and "How much would other girls like this toy?" with response options of Not at all (1), A little (2), or A lot (3) and the corresponding schematic faces and verbal or manual responding options.

Results

Overview of analyses

First, for the personal interest and perception of others' interest items, an average was taken of the ratings of the two toys with similar characteristics (e.g., masculine toy type with masculine colors) to investigate the role of gender-type of toy and toy color across the individual toys. Second, the variation in children's personal interest based on gender-type of toy and toy color was examined using a repeated-measures analysis. Third, gender stereotypes of the toys were examined

using chi-square analyses due to the categorical nature of children's stereotypes and corresponding gender schemata. Finally, the variation in children's predictions of other boys' and girls' interests was examined using a repeated-measures analysis.

Personal interest

To investigate personal interest, a 2 (gender: boy, girl) × 3 (age: 3, 4, 5) × 4 (condition: masculine toy/masculine color, masculine toy/feminine color, feminine toy/masculine color, feminine toy/feminine color) ANOVA was performed with condition as a repeated-measures variable. Results indicated a significant interaction between gender and condition, $F(3, 198) = 12.09$, $p < .001$, $\eta_p^2 = .16$. Among boys and girls, a significant effect of condition was found, $F(3, 111) = 13.81$, $p < .001$, $\eta_p^2 = .27$ and $F(3, 105) = 3.33$, $p = .05$, $\eta_p^2 = .09$, respectively. Among boys, pairwise comparisons indicated that interest was significantly greater for masculine toys (regardless of color) than for feminine toys (regardless of color). Among girls, pairwise comparisons indicated that interest was significantly lower for masculine toys with masculine colors than for all other toy-type/color combinations (which did not differ from one another). See Fig. 1.

A significant interaction between age and condition was also present, $F(6, 198) = 2.28$, $p = .04$, $\eta_p^2 = .07$. Among 4-year-olds (but not 3-year-olds or 5-year-olds), there was a significant effect of condition, $F(3, 78) = 5.13$, $p < .05$, $\eta_p^2 = .17$. Pairwise comparisons indicated that 4-year-olds were, on average, more interested in the two masculine toys (which did not differ from each other) than in the two feminine toys (which did not differ from each other).

Gender stereotypes

We were particularly interested in the stereotypes children form about the toys in terms of categorizing toys as "only for boys," "only for girls," or for "both boys and girls" as an indication of their incorporation into masculine and feminine gender schemas. To investigate children's stereotypes for masculine and feminine toys in masculine and feminine colors, a 2 (toy color) × 3 (response option) contingency was examined for each toy individually. For almost all toys, a significant relation was indicated. See Table 1 for frequencies and chi-square values. To further investigate the responses to each toy, a χ^2 goodness of fit was conducted for each toy as presented in each color. The data indicate that for two of the four feminine toys in feminine colors (tea set, fairy wand), children were more likely to indicate that the toy was only for girls than only for boys or for both boys and girls. One feminine toy presented in masculine colors (fairy wand) was more often said to be for both boys and girls than only for boys or only for girls. For two of the masculine toys in feminine colors (monster truck, construction tractor), children were more likely to say that the toy was only for girls or

for both boys and girls and less likely to say the toy was only for boys. For one masculine toy in masculine colors (fighter jet), children were more likely to say that the toy was only for boys or for both boys and girls than to say the toy was only for girls. Responses for other toys with other characteristics were not significant.

Perceptions of other children's interest

For children's perceptions of other boys' and girls' interests, a 2 (gender: boy, girl) × 3 (age: 3, 4, 5) × 4 (condition: masculine toy/masculine color, masculine toy/feminine color, feminine toy/masculine color, feminine toy/feminine color) repeated-measures ANOVA was performed for each dependent variable with condition as a repeated measures variable. A significant interaction between age and condition was found, $F(6, 198) = 2.74$, $p = .01$, $\eta_p^2 = .07$. Among 4-year-olds and 5-year-olds, and 5 year olds, a significant effect of condition was found, $F(3, 78) = 12.72$, $p < .001$, $\eta_p^2 = .33$ and $F(3, 63) = 18.21$, $p < .001$, $\eta_p^2 = .46$, respectively. Pairwise comparisons indicated that among both 4- and 5-year-olds masculine toys with masculine colors were perceived to be of greater interest than all other toy type–toy color combinations. In addition, feminine toys with feminine colors were perceived to be of less interest than all other toy type–toy color combinations. Masculine toys with feminine colors and feminine toys with masculine colors were moderate in perceived interest but did not differ significantly from one another.

For perceptions of girls' interests, a significant interaction between age and condition was found, $F(6, 198) = 3.15$, $p = .01$, $\eta_p^2 = .09$. Among 3-year-olds, pairwise comparisons indicated that children perceived feminine toys (which did not differ from one another) to be of greater interest to other girls than masculine toys (which did not differ from one another). Among 5-year-olds, pairwise comparisons indicated that children predicted that other girls would have lower interest in the masculine toys with masculine colors than all other toy type/toy color combinations (which did not differ from one another). See Table 2 for means and standard deviations.

Discussion

The purpose of this study was to examine the relative contribution of gender-typing of toys and color labels on children's interests, stereotypes, and judgments of familiar gender-typed toys. Children were presented with masculine or feminine toys that were manipulated to have either masculine or feminine colors. They were then asked to indicate their own interest level; whether the toy was "only for boys," "only for girls," or for "both boys and girls;" and the perceived interest level of other boys and other girls.

Children's personal interest in toys was influenced by both the gender-typing of the toy and the color label (Cherney et al., 2006; Karniol, 2011; LoBue & DeLoache, 2011). These findings combined demonstrate the importance of both factors in shaping young children's interests. It seems that pink gave girls permission to interact with a masculine toy. Masculine colors did not have as large of an impact on boys' choices perhaps because they are reluctant to crossover to engaging in girls' activities regardless of the color. The interaction with age in which 4-year-olds were more interested in masculine toys than in feminine toys could be due to the greater number of boys ($n = 15$) than girls ($n = 12$) in that age group.

In examining children's stereotypes about the toys presented to them, we again found that color labels play an important role. Specifically, when feminine toys were presented in feminine colors, children were generally more likely to indicate that the toys were "only for girls" than "only for boys" or for "both boys and girls." One of the feminine toys presented in masculine colors (the fairy wand adorned with blue paint and sports stickers) was strongly associated with "both boys and girls." Interestingly, masculine toys presented in feminine colors were often categorized as "only for girls" and for "both boys
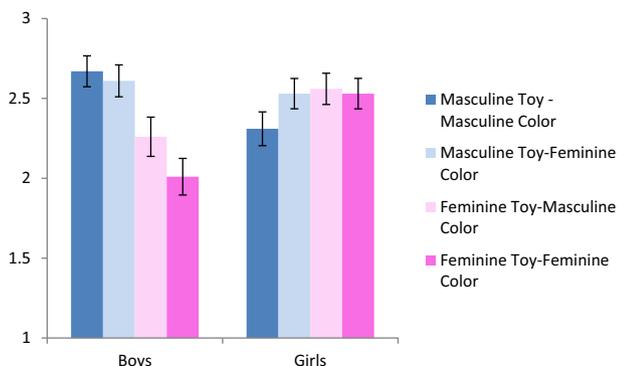

Fig. 1. Children's personal interest in familiar toys in Study 1: Means and standard errors.

Table 1
Study 1: Children's stereotypes of feminine and masculine toys ($N = 72$).

Toy	Masculine colors				Feminine colors				
	Only boys	Only girls	Both	χ^2	Only boys	Only girls	Both	χ^2	Omnibus χ^2
Feminine toys									
Doll	9	12	9	0.60	11	13	18	1.86	1.28
Tea set	13	9	19	3.71	5	15	10	5.62*	6.30*
Pony	5	12	13	3.80	17	12	13	1.00	4.68†
Fairy wand	9	8	25	13.00*	6	17	7	7.40*	12.31*
Masculine toys									
Monster truck	11	6	13	2.71	7	16	19	5.57†	4.69†
Construction	9	16	17	2.36	6	15	9	6.65*	1.13
Fighter jet	14	7	21	7.00*	5	12	13	3.80	6.52*
Motorcycle	13	7	10	1.80	12	12	18	1.71	1.37

Note. Numbers indicate the number of children (both boys and girls) responding that the toy is appropriate for either "only boys," "only girls," or "both boys and girls." The omnibus χ^2 is the result of the 2 (color) × 3 (response option) contingency. To further investigate the responses to each toy in feminine and masculine colors, a χ^2 goodness of fit was conducted for each toy as presented in each color.
†$p < .10$, *$p < .05$.

and girls." These findings indicated that children are often using feminine colors (pink specifically) as a sign that the toy is for girls as Orenstein (2011) suggests.

For children's perceptions of other children's interests, both toy type and toy color were also important. Children's predictions of other boys' interests indicated that masculine characteristics increased children's perceptions of boys' interest and that feminine characteristics decreased children's perceptions of other boys' interest. These results also suggest that both factors may be important in the development of children's gender schemata. Perceptions of girls' interests paralleled girls' personal interests, especially among older participants, in that girls were perceived to be more interested in feminine toys than in masculine toys overall, but were also perceived to be interested in masculine toys with feminine colors. The parallels between children's perceptions of other boys' and other girls' interests and boys' and girls' personal interests indicate that children are accurate perceivers of others' interests and that the relations among constructs are robust.

Overall, our research is consistent with the literature that suggests that gender-typing of toys and color labels are important factors contributing to children's gender-typed toy play. However, our research extends the existing literature by examining the direct interaction between these two constructs—including pitting the gender-typing of the toy against the color label. The results indicate that although the gender-typing of toys is a strong factor impacting children's interest, toys typically considered by children as appropriate for the other gender may seem more appealing to children if presented in a gender-typed color.

One interesting point raised by this research is what determines the gender-typing of the toy. Given that the gender-typing of the toy is relatively more important than the color of the toy among this age group, it is interesting to consider the factors that may have contributed to the gender-typing of the toy in the first place. We suspect that the explicit

labels that are given to toys (e.g., "that's a girl's toy") play a role in influencing children's interests and their stereotypes surrounding the toy. Study 2 will investigate the role of this construct in conjunction with the color labels given to novel items for which children do not have established stereotypes.

Study 2

In Study 2, we examined the role of explicit gender labels and toy color on children's interests and judgments of novel toys. Specifically, children were presented with a novel item and were told that the item is either "for boys" or "for girls." As in Study 1, the toys were manipulated to have either masculine colors or feminine colors. We predicted that the explicit gender labels would affect interest such that boys would be more interested in toys that are labeled as "for boys" and girls would be more interested in toys that are labeled as "for girls" (Martin et al., 1995). We also predicted, based on our findings from Study 1, that girls would be more interested in toys with feminine colors than masculine colors and the reverse pattern would be present for boys. Specifically, we predicted that boys would be most interested in toys labeled as "for boys" that were blue and least interested in toys labeled as "for girls" that were pink. The reverse pattern was expected for girls.

In terms of gender stereotypes, we predicted that both the explicit label and color would affect children's endorsement. Specifically, we predicted that when a toy was labeled for one gender, the children would be more likely to endorse the stereotype that the toy was only for the stated gender. Also, we posited that when the toys were painted with feminine colors, children would be more likely to say that they were for "only girls." We predicted that the judgments of other boys' and girls' interests would follow a similar pattern with children predicting that boys would be more interested in toys labeled as "for boys" than "for girls" and girls would be more interested in toys labeled

Table 2
Study 1: Means and standard deviations for children's predicted interests of others.

	Masculine toys		Feminine toys	
	Blue	Pink	Blue	Pink
Other boys' predicted interest (combined)	2.57 (.59)[a]	2.30 (.71)[b]	2.12 (.67)[c]	1.78 (.69)[d]
3-year-olds ($n = 23$)	2.35 (.71)[a]	2.37 (.80)[a]	2.20 (.67)[a]	2.07 (.61)[a]
4-year-olds ($n = 27$)	2.56 (.59)[a]	2.16 (.77)[b]	1.96 (.71)[b]	1.59 (.72)[c]
5-year-olds ($n = 22$)	2.82 (.34)[a]	2.48 (.45)[b]	2.23 (.59)[b]	1.70 (.64)[c]
Other girls' predicted interest (combined)	1.96 (.64)[a]	2.28 (.67)[b]	2.36 (.73)[b]	2.42 (.61)[b]
3-year-olds ($n = 23$)	1.98 (.75)[a]	2.13 (.66)[a]	2.41 (.56)[b]	2.35 (.76)[b]
4-year-olds ($n = 27$)	2.22 (.67)[a]	2.43 (.66)[a]	2.44 (.66)[a]	2.20 (.50)[a]
5-year-olds ($n = 22$)	1.93 (.58)[a]	2.45 (.46)[b]	2.48 (.66)[b]	2.68 (.39)[b]

Note. Scores range from 1 (low) to 3 (high). Superscripts indicate significant differences at the $\alpha = .05$ level. There was no significant condition × gender interaction for either analysis.

as "for girls" than "for boys." Also, children would predict that girls would be more interested and boys would be less interested in toys depicted with feminine colors than masculine colors.

Method

Participants

Participants included 42 preschool children (15 girls, 27 boys) ranging in age from 3 to 5 ($M = 3.84$, $SD = 0.56$). Participants were predominantly European American ($n = 36$) with 2 African American participants, 2 Hispanic American participants, and 2 participants of unknown race. Participants were recruited from day care centers in the Midwest and South. All participants and their parents consented to participation.

Materials

Participants were presented with 4 novel items selected to be unfamiliar to children from research by Martin et al. (1995): a shoe shaper, a nut cracker, a melon baller, and a garlic press. These items were labeled for children as a shaper, a nutcracker, a wonder baller, and a dabble press, respectively (see Martin et al., 1995). Each item was painted with non-toxic acrylic paint in a masculine color (i.e., blue) or a feminine color (i.e., pink).

Procedure

The procedure followed was similar to Study 1. Children were presented with each toy by a male or a female experimenter and allowed to examine it for 30 s. Each child received one of the items described above. Two of the items were presented in masculine colors and two of the items were presented in feminine colors—completely counterbalanced across children (i.e., some children saw a nutcracker in pink whereas others saw a nutcracker in blue). Children were given an explicit label for the toy being told either "This is a toy for girls" or "This is a toy for boys" also counterbalanced across participants. Thus, each child saw one toy in each color-explicit label combination. The toy was then placed in front of the child and children were asked the same four questions and response options as in Study 1 assessing children's interest, gender stereotypes, and perceptions of other boys' and girls' interests.

Results

Data analysis for Study 2 was similar to Study 1. The variation in children's personal interest and children's perceptions of other children's interests based on explicit labels and toy color was examined using a repeated-measures analysis. Gender stereotypes of the toys were examined using chi-square analyses. Preliminary analyses found no effects of age on the results and thus age was not included in further analyses.

Personal interest

To investigate children's personal interest in the novel toys, a 2 (gender: male, female) × 4 (condition: "for boys"/masculine color, "for boys"/feminine color, "for girls"/masculine color, "for girls"/ feminine color) repeated measures ANOVA was performed with condition as a repeated measures variable. Results indicated a significant interaction between gender and condition, $F(3, 120) = 13.16$, $p < .001$, $\eta_p^2 = .25$. Among girls, but not boys, a significant main effect of condition was found, $F(3, 42) = 16.19$, $p < .001$, $\eta_p^2 = .54$. Pairwise comparisons found that girls were significantly less interested in toys labeled as "for boys" than in toys labeled as "for girls." In addition, girls were significantly more interested in toys labeled as "for boys"
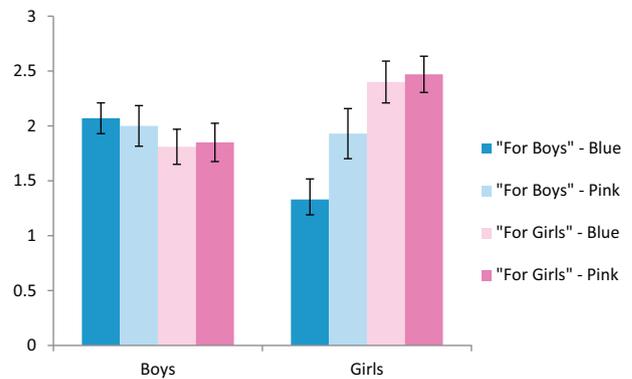

Fig. 2. Children's personal interest in novel toys in Study 2: Means and standard errors.

that were pink than in toys labeled as "for boys" that were blue. Toys that were labeled as "for boys" and pink were significantly less interesting than both pink and blue toys labeled as "for girls" (which did not differ from one another). See Fig. 2.

Gender stereotypes

To investigate gender stereotypes for each explicit label and toy color combination, a chi-square analysis was conducted. Results indicated a significant chi-square value for each combination except for when toys were "for girls" and blue—there was a relatively equal distribution of responses for this color-label combination. An examination of the responses of children indicated that toy label had a powerful effect on the stereotypes when children chose either "only for boys" or "only for girls." Thus, for children who form stereotypes about toys, the label given was important. Many children, however, responded "both boys and girls" for all items. See Table 3 for frequencies and chi-square values.

Perceptions of other children's interests

To investigate children's perceptions of other boys' and other girls' interests, separate 2 (gender: male, female) × 4 (condition: "for boys"/masculine color, "for boys"/feminine color, "for girls"/masculine color, "for girls"/feminine color) repeated measures ANOVAs were performed with condition as a repeated measures variable. For perceptions of other boys' interests, a significant main effect of condition was found, $F(3, 120) = 3.09$, $p = .03$, $\eta_p^2 = .07$. Pairwise comparisons indicated that toys that were labeled as "for girls" were predicted to be of lower interest than toys that were labeled as "for boys" regardless of the color of the toys.

For perceptions of other girls' interests, significant effect of condition was also found, $F(3, 120) = 3.45$, $p = .02$, $\eta_p^2 = .08$. Pairwise comparisons indicate that children predict girls' interest in toys that are labeled as "for boys" and are blue would be significantly lower than both pink and blue toys labeled as "for girls" (which did not differ from one another). Toys that were labeled as "for boys" and were pink were not significantly different from other toys but rather fell between the low level of interest in toys that were "for boys" and blue and the high level of

Table 3
Study 2: Children's stereotypes of novel toys.

"Who should play with this toy?"	Only boys	Only girls	Both	χ^2
For boys—blue	18	2	22	16.00*
For boys—pink	13	4	25	15.85*
For girls—blue	9	15	18	3.00
For girls—pink	7	12	23	9.57*

Note. Numbers indicate the number of children ($N = 42$) responding that the toy is appropriate for either "only boys," "only girls," or "both boys and girls."
*$p < .05$.

Table 4
Study 2: Means and standard deviations for children's predicted interests of others.

	Labeled "for boys"		Labeled "for girls"	
	Blue	Pink	Blue	Pink
Other boys' predicted interest	1.90 (1.05)[a]	2.10 (.96)[a]	1.83 (.93)[b]	1.69 (.81)[b]
Other girls' predicted interest	1.70 (.61)[a]	1.59 (.80)[ab]	1.81 (.79)[b]	1.85 (.81)[b]

Note. Scores range from 1 (low) to 3 (high). Scores range from 1 (low) to 3 (high). Superscripts indicate significant differences at the $\alpha = .05$ level. $N = 42$ for both analyses in this within-subjects design. There was no significant condition × gender interaction for either analysis.

interest in toys of both colors that were labeled as "for girls." See Table 4 for means and standard deviations.

Discussion

The purpose of Study 2 was to examine the relative contributions of explicit verbal gender labels and color gender labels on children's interest, stereotypes, and judgments of novel items. Novel items were used to eliminate the possibility that children have preformed stereotypes about the items. Children were shown four objects painted with masculine or feminine colors and told that the objects were either "for boys" or "for girls." Children's personal interest, stereotypes, and judgments of other girls' and boys' interests were assessed.

We first examined the impact of explicit verbal labels and implicit color labels on children's personal interest in the items. Consistent with Martin et al. (1995) and gender schema theory (Martin & Halverson, 1981), our results indicated that girls' interests were significantly impacted by the verbal label given—toys that were labeled as "for girls" were rated as more interesting than toys that were labeled as "for boys." Color also affected girls' personal interests. As in Study 1, the color pink did seem to give girls permission to explore masculine toys. This indicates that pink may signify that it is allowable for girls to show interest in counter-stereotypic toys and activities.

Next, we examined children's prescriptive stereotypes about who should play with each of the items. Here, results again indicated that the explicit labels had an impact on children. For children who indicated that the item was "only for boys" or "only for girls," their categorization of the item most often reflected the verbal label given by the experimenter. However, some children chose "both boys and girls" indicating that (a) the items may be perceived as gender neutral or (b) many children in this sample could be considered gender aschematic and have a low rate of overall gender stereotype endorsement (Liben & Bigler, 2002; Martin & Dinella, 2012; Weisgram, 2014).

Lastly, we examined children's perceptions of other boys' and other girls' interests. The findings here somewhat paralleled the results of the analysis of boys' and girls' personal interests. In predicting boys' interests, explicit verbal labels were important with children predicting greater levels of interest in toys labeled as "for boys" than in toys labeled as "for girls" as consistent with Martin et al. (1995) and gender schema theory (Martin & Halverson, 1981). Predictions of girls' interests were a bit more complex. For the prediction of girls' interests, explicit verbal labels were impactful and children predicted that other girls would be slightly more interested in toys labeled as "for boys" when they were pink than in toys labeled as "for boys" when they were blue. This pattern also indicates that pink may give girls permission to cross gender lines and engage with toys traditionally associated with the "other sex" schema they have developed.

One limitation of this study was that a "gender neutral" item was not presented—an item that was labeled as for "both boys and girls" and thus the effects of color labels on a novel, gender neutral item were not assessed. However, overall, these results extend the previous literature in important ways by investigating the roles of explicit verbal labels and color labels simultaneously. Taken together, the results indicate

that explicit labels have a powerful effect on children's judgments, but that color may be important particularly for girls' interests.

General discussion

Gender-typed toy play is pervasive among young children and constitutes a large part of their daily experiences. However, researchers are concerned that the gender differences in toy interests and toy play may be linked to gender differentiation of cognitive abilities, career interests, social interactions, behavioral tendencies, and many aspects of their physical and psychological development. In these studies, we investigated the factors that differentially impact young boys' and girls' interests in and stereotypes of toys.

Previous research suggested that children are more interested in gender-typed toys than in toys that are not gender-typed (Wood et al., 2002). Our work is consistent with this notion. In Study 1, we examined familiar toys that were already designated by society as gender-typed: (a) masculine toys (e.g., fighter jet, construction toy, monster truck, motorcycle) and (b) feminine toys (e.g., tea set, pony, fairy wand, baby doll). In Study 2, we also manipulated children's gender-typed associations with novel items by labeling them as "for boys" or "for girls." Both studies demonstrated that these gender-typed associations played a powerful role in children's interests, stereotypes, and judgments of other's interest. Children were more interested in familiar toys that were associated with their gender and novel toys that were labeled as for their gender than in toys not associated with or labeled as for their gender. Predictions of other boys' and girls' interests generally paralleled the personal interests of boys and girls. Children's stereotypes in Study 1 also seemed to be impacted by the gender-typing of the toy and the explicit labels given in Study 2 were clearly driving children's stereotypes among those who gave stereotypical (and not egalitarian) responses.

In our work, we found that color was a particularly salient construct among girls. Previous research also suggests that young children have a preference for objects in gender-typed colors (LoBue & DeLoache, 2011). Our research importantly extends all previous work by experimentally investigating the interaction of gender-typed colors with gender-typing of the toy and gender labels. In both studies, it was clear that the color of the toys had little effect on boys' interests and children's perceptions of boys' interests. It may be that regardless of the color of the toys, boys will not cross the gender barrier into girls' domains (Kane, 2006; Twenge, 2001). However, feminine colors significantly increased girls' personal interest and children's perceptions of girls' interest in masculine toys or toys labeled as for boys as well as increasing the likelihood that these items will be categorized as "for girls." As we noted earlier, it is as if pink gives girls permission to venture in to the masculine toy domain by increasing their sense of belonging with those items.

This finding is particularly interesting in light of the recent production and marketing of toys that aim to increase girls' interest in counter-stereotypical toys and activities. For example, the Lego Corporation has recently introduced their Lego Friends collection including pink and purple bricks in an effort to bring girls into the Lego brand with their CEO saying "We want to reach the other 50 percent of the world's children" (Wieners, 2011). Our research suggests that this

strategy may be successful in getting girls to play with traditionally masculine toys and in some ways we feel positively about girls' feeling a greater sense of belonging with toys that emphasize science and spatial skills. However, it is still to be determined if this strategy is good for boys and girls. Having separate toys labeled by color for boys and girls may actually increase stereotypes and the perception of differences rather than bringing boys and girls together (Bigler, 1995). Additionally, pink toys may activate girls' stereotypes about femininity which may prohibit important constructing of masculine skills even while interacting with a masculine toy. Indeed, being exposed to a more gender stereotyped physical environment (measured by room décor and toys) is associated with less gender role flexibility in children (Sutfin, Fulcher, Bowles, & Patterson, 2008) and thus this "separate-but-equal" marketing strategy may serve to thwart many scholars' and feminists' efforts to reduce gender stereotypes among children.

Where girls may only need a subtle invitation by way of feminine colors to choose a toy, boys may require more explicit and non-ambiguous cues. We did not find that boys were more interested in feminine toys when depicted with masculine colors. Toy companies have not attempted to market dolls and domestic toys to boys, in fact there is evidence that boy toys have become more masculine and aggressive (Pope, Olivardia, Gruber, & Borowiecki, 1999). Perhaps girls are more receptive to pink colored masculine toys because they have seen some before and because gender roles for girls seem to be less rigid than those for boys. Future studies should examine ways to give boys permission to interact with more feminine toys so they can reap the cognitive and social skills that come with engaging in feminine activities.

There are a number of strengths and limitations to the research presented here. One strength of the study is that we included preschool-aged children as part of our sample. Due to the extensive time preschool-age children spend in toy-based play and the beginning of gender stereotype formation (Martin & Dinella, 2002), studying this age group garners many benefits. However, because stereotype formation and color preferences are just beginning, it may be worthwhile to extend this study to include older children—perhaps young elementary school children due to the peak of gender stereotype endorsement (Martin & Dinella, 2002). In addition, the homogeneous sample used here did not allow us to fully explore how race and ethnicity would interact with these gender constructs. Research by Ruble and colleagues has recently begun to examine gender role development within different racial and ethnic groups (Halim, Ruble, Tamis-LeMonda, & Shrout, 2013; Leavell, Tamis-LeMonda, Ruble, Zosuls, & Cabrera, 2012) and future research should also examine these factors in children's gender-typed toy interests.

Another limitation of the research presented here is the type of stimuli chosen for each study. Although the masculine items for Study 1 were all considered to be "Strongly Masculine" by Blakemore and Centers (2005), they are limited in that they were all vehicles (and included wheels) which may make them different from other masculine items. In addition, there was a lack of gender-neutral stimuli included in both studies. In their work, Cherney et al. (2006) suggest that the role of color in children's interests may be greater among gender neutral or ambiguous stimuli. Future research may extend this work by including gender neutral familiar items that are manipulated to have feminine colors or masculine colors. In addition, testing novel items that are labeled as "for both boys and girls" and manipulated to have feminine or masculine colors alongside items labeled as "for boys" and "for girls" may further investigate the role of labels and colors on children's preferences and stereotypes. Future research should also investigate other variables beyond labels and colors that contribute to toys becoming gender-typed in children's eyes.

As noted earlier, this work has many applications for developmental psychology and other fields. First, this work extends Martin and Halverson's (1981) gender schema theory by illuminating the role of labels, toy types, and colors in children's incorporation of items into

gender schemas and the development of personal interests as well. Second, this work has applications for parents, educators, scholars, and activists who aim to reduce or eliminate gender stereotyping among children. One aspect of this work is that gender labels have a powerful effect on children's stereotypes and personal interests. Thus, campaigns to reduce the functional use of gender in toy stores, such as the successful "Let Toys be Toys" campaign that advocated removing gender labels from toy stores in the UK, may also serve to reduce children's stereotypes about toys and increase cross-gender-typed interests (Bigler, 1995; Let Toys Be Toys, 2014). Although reducing gender labeling across the board may be ideal, it may be unrealistic in the current marketing climate unless vast changes are made. Another aspect of our work is that the color pink may draw girls' into cross-gender-typed domains by implicitly labeling the items as appropriate for girls and giving them a sense of belonging with the toys. These color labels may serve as an additional type of functional use of gender and serve to increase stereotypes, but may also promote cross-gender-type play. We urge psychologists and sociologists to continue to explore these variables and their impact on children's interests and stereotype development.

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