Sex Roles
https://doi.org/10.1007/s11199-024-01520-y

ORIGINAL ARTICLE

Gender-Typing of Children's Sports Toys Persists: A Mixed-Methods Investigation

Jen McGovern[1] · **Lisa M. Dinella**[2]

Accepted: 16 September 2024

Abstract

Developmental psychologists have studied how toys shape gender schemas but have not focused exclusively on sport toys. Given persistent gender gaps in sport participation, it is important to understand how gendered meanings about sport are communicated and perceived through all kinds of play. This mixed methods research examined such meanings attached to sport toys using a content analysis and a survey. In Study 1, a content and descriptive analysis of toy listings ($N = 107$) on retail websites revealed that most toy names lacked explicit gender labels. However, toys were more likely to display masculine color schemes and boys outnumbered girls 2-to-1 in photographs of children playing with the toys. Boys were also depicted as more actively engaged, especially with highly physical sports. In Study 2, a correlational analysis of survey responses from 530 participants indicated that adults primarily viewed sport toys as masculine, though they saw dolls, aesthetic toys, and pink toys as appropriate for girls. Aggressive sport toys were linked to boys even when they were pink, indicating limits to the impact of implicit gender markers. Together, both studies show that sports toys are still viewed as (mostly) for boys and suggest that these messages may communicate gender stereotypes about sport. Evidence-based recommendations for toy sellers regarding toy color and gender representation are included, as is advice for toy purchasers who want to encourage gender inclusive play and flexible gender schemas.

Keywords Sports · Toys · Gender roles · Stereotyped attitude · Child development

There are numerous physical, emotional, and social health benefits associated with childhood sport participation (Eime et al., 2013; Janssen & LeBlanc, 2010). Girls' sports participation in the United States (US) has increased dramatically since the 1972 passage of Title IX. Women's elite sport participation has also increased worldwide, with the 2024 Paris Olympics being the first to have equal representation of men and women athletes (Bowman, 2024). Despite this progress, women athletes in many nations receive fewer resources and opportunities (Bowman, 2024) and in the U.S., girls still participate less often, start sport later, and drop out sooner than boys do (Aspen Institute, 2015; Staurowsky et al., 2022). Children receive messages about the gendered nature of sport from an early age. Some of these messages may come from the male-dominated sport media (Cooky et al., 2021) while other signals come from gendered toy accessibility and play (Boe & Woods, 2018; Dinella & Weisgram, 2018; Fisher-Thompson, 1993; Leaper, 2000; Weisgram & Dinella, 2018). Given that many children are first exposed to sport through informal play, it is important to understand the ways that toys shape early gendered perceptions about sports. By combining psychological and sociological insights, the present study investigates how retail toy listings signify gendered ideas about sport toys and how adults (common providers and purchasers of toys for children) perceive gendered messages about these toys. This understanding is a necessary first step to knowing how sports toys can impact children's interest and engagement in sport.

✉ Jen McGovern
jmcgover@monmouth.edu

[1] Department of Political Science and Sociology, Monmouth University, 400 Cedar Avenue, West Long Branch, NJ 07764, USA

[2] Department of Psychology, Monmouth University, West Long Branch, NJ, USA

Published online: 01 October 2024

Gendered Messages About Sport

Sport-focused toys are embedded in a larger story about who should play sports and what sports they should play (Brake, 2010; Cahn, 2015; Schultz, 2014). The earliest forms of competitive sport were violent, aggressive, and restricted to men. Women were considered too fragile to engage in activities that heavily taxed their bodies; both women and men questioned the femininity of muscular, competitive women. The only sports sanctioned for women were non-competitive and individually-orientated activities such as golf or figure skating. As gender norms shifted in society, sport also changed (Braddock-II et al., 2005; Staurowsky et al., 2022). Women were gradually welcomed more into team sports and competitive pursuits, but they still participate less than men and are still more closely associated with certain sports (Chalabaev et al., 2013; Hardin & Greer, 2009). While perceptions can vary somewhat across cultures, aggressive sports such as rugby, ice hockey, and boxing are heavily associated with men and boys. Women are expected to excel in activities that emphasize aesthetic beauty and grace, such as gymnastics and diving. Further, longitudinal studies show that women only make up about 5% of televised sports coverage (Cooky et al., 2021). Women are featured less often on sport magazine covers and are often shown posed, rather than engaging in sport (Martin & McDonald, 2012). Men athletes also outnumber women athletes in commercials; these ads are also more likely to show men actively participating in sports (Rasmussen et al., 2021). Men are also portrayed as more physically active than women in adult wilderness magazines (McNiel et al., 2012), children's sports magazines (Armentrout et al., 2014), and popular television shows (Gietzen et al., 2017). Many children's sport books suggest individual and artistic sports are more appropriate for girls (Coletti et al., 2021). Physical education textbooks are more likely to show women engaging in fitness related activities while men are pictured outdoors playing competitive sports (Táboas-pais & Rey-cao, 2012).

These cultural threads construct the idea that men are still perceived as overall 'better' at sport, especially in activities that emphasize physicality and power. This imbalance in media depictions matters because individuals are more likely to rate same- gender athletes as inspirational role models (Midgley et al., 2021). Furthermore, the type of image matters. In one study, young girls preferred images of sportswomen in athletic settings and engaged in activities to posed images of the same athletes (Krane et al., 2011). These findings suggest both who is portrayed and how they are portrayed can influence media viewers. Yet, though researchers have observed masculine dominance across various types of sport media, there are no studies about how toys (and their advertisements) might reinforce or counteract gendered stereotypes about physical activity. In one study of toy commercials, Kahlenberg and Hein (2010) observed 27 television commercials for toy sports equipment. They found that 63% of those commercials featured only boys as actors, 7.4% featured only girls, and the remaining 29.6% included boys and girls playing together. This preliminary finding suggests that sport toys are more likely to feature boys as role models. Sport-related toys can help children sharpen motor skills while trying out new activities in gendered ways (Buszard et al., 2016, 2020).

Sports Toys and Gender Schemas

Adults and children recognize the gender stereotypes associated with toys (Blakemore & Centers, 2005; Dinella et al., 2017) with children expressing an affinity for toys typed as congruent with the gender group to which they identify. Children's reactions to gender-typed toys can be explained via the tenets of gender schema theory (Bem, 1981, 1983; Martin & Halverson, 1981). Children use information from the world around them to build cognitive categorization systems, called schemas, and gender is one of the most prominent types of schemas (Martin & Cook, 2018). A tenet of gender schema theory is that as children are constructing their gender schemas, they are processing incoming information about the world through these schemas and using them to guide their behaviors (Dinella, 2015; Martin & Dinella, 2002).

There are two types of gender schemas – superordinate and own-sex schemas (Dinella, 2015; Martin & Halverson, 1981). Superordinate schemas are used to broadly categorize people, objects, and traits into gendered groupings that have historically been binary in nature. Thus, the criterion for these two categories consist of what children believe is 'for girls' or 'for boys' (Bem, 1981; Martin & Cook, 2018; Martin & Halverson, 1981). Children use superordinate schemas to decide what is gender appropriate or to predict people's preferences. For instance, if a child decided that boxing is 'for boys,' incorporating that information into their superordinate schema would result in decisions that girls will not enjoy boxing. Own-sex schemas are narrower categorization sets that children use to make decisions about what is congruent with their own gender (Martin & Halverson, 1981). For example, a child who identifies as a boy may decide that baseball is 'for him' because baseball is 'for boys.' Thus, this boy's own-sex gender schema could lead him to become a baseball fan. A child who identifies as a girl who makes the same decision that baseball is 'for boys' would likely not engage with baseball and may even actively reject it because it is not 'for her.'

Gender schemas become well defined at an early age and develop rapidly from ages two to five years old (Martin & Halverson, 1981). Notably, this development happens before most children watch or participate in organized sports. Strict adherence to gender schemas may be a normative part of developing gender identity (Martin & Dinella, 2012); some flexibility in one's superordinate and own-sex schemas to incorporate personal likes and dislikes tend to appear around seven years of age (Trautner et al., 2005). Children's gender schemas, however, are actively created and are unique to the play and learning environments that surround them during early developmental stages. Many cultures around the world are designed along rigid gender lines, thus informing individuals' inflexible, schematic views; gender rigidity is especially prevalent for boys and men (Signorella et al., 1993). However, empirical evidence indicates it is possible for people to create more inclusive gender schemas (Bem, 1983) and for children to categorize things as being for all genders given the information available and modeled around them (Martin & Cook, 2018; Martin & Dinella, 2012). Such efforts towards congruence between gender stereotypes and behaviors are rooted in children's desire for in-group acceptance. The process of identifying with a group leads to the development and internalization of strong group norms (e.g., Mullin & Hogg, 1999; Turner et al., 1987). Thus, levels of exposure to gender stereotyped group norms in children's early play and learning environments are important (see (Dinella & Weisgram, 2018; Weisgram & Dinella, 2018) for a review of causes, correlates and consequences of gender stereotyped play environments).

Gendered stereotypes about toys are socially constructed, but these gender labels have a real impact on children's attention and engagement. Experiments show that children prefer playing with toys when they are modeled by same-gender peers (Shutts et al., 2010; Spinner et al., 2018). Furthermore, children who view images of counter-stereotypical play, such as boys playing with dolls, are more likely to believe that those toys are appropriate for all genders (Pike & Jennings, 2005; Spinner et al., 2018). An innovative study illustrated this concept by giving children obscure household objects (e.g., shoe stretchers and garlic presses) under the guise that the objects were novel toys. Children expressed interest in engaging with a novel toy more often when they believed the toy was liked by children whose gender was the same as theirs (Martin et al., 1995). It is plausible that gender labeling sports toys would have similar impact, with children engaging with sports toys labeled as congruent with their gender group and ignoring sports toys with gender labels incongruent with their gender.

Children encounter explicit and implicit messages about gender and toys via socializing agents such as media, family, and peers. While media has the potential to reinforce or deconstruct traditional gender stereotypes (Ward & Grower, 2020), many media messages replicate gendered stereotypes about toys. For example, research shows that that boys and girls were pictured equally in Nickelodeon toy commercials, but boys were much more likely to be shown with action figures and construction toys, while girls were more likely depicted with dolls, plush animals, and pastel-colored toys (Kahlenberg & Hein, 2010). Parents also play important roles as purchasers of children's toys and as social influencers of play (Fisher-Thompson, 1993; Leaper, 2000; Lopes et al., 2024). In interviews with adults leaving toy stores, Fisher-Thompson (1993) learned that parents tended to purchase sex-typed toys over cross-type toys, especially when they were shopping for boys. Other studies confirm that many parents consider manufacturers' gender recommendations when purchasing toys (Richards et al., 2020). Young people may incorporate the messages they receive from media, parents, and peers into their gender schemas, which in turn can limit their future play behaviors.

Gendered Meanings Attached to Toys

Though sport-toys have not been closely examined, scholars have demonstrated that toy names, labels, and colors all play a key role in signifying gendered meanings and thus informing our social relationships and behaviors in the form of what we desire and what we give and receive as gifts (Dinella & Weisgram, 2018; Gurrieri et al., 2022; Kirkham, 1996). The association of toys with binary gender categories is pervasive and has consequences for children's cognitive, social, emotional and behavioral development (Weisgram & Dinella, 2018).

Adults in the U.S. hold relatively rigid gender schematic beliefs about toys whereby certain toys are considered more suitable for girls (e.g., toys associated with attractiveness, appearance, and encouraging nurturing actions) and other toys more suitable for boys (e.g., toys associated with aggression, active exploration, and competition; Blakemore & Centers, 2005; Cherney, 2018). A large body of research supports that toys gender-typed as masculine versus feminine teach different types of skills (Leaper & Bigler, 2018). For example, gender-typed feminine dolls and domestic-play toys support listening and collaborative conversation. Moreover, doll play requires memory and imagination, and often includes children practicing nurturance. In contrast, gender-typed masculine toys, such as blocks and puzzles, often promote spatial skills which are foundational for later mathematics and science learning (Cherney, 2018). Gender development researchers raise concerns that the rigid gender-schematic nature of toys potentially sets children down different learning paths, leading children to hone

different skill sets based on their gender rather than their abilities or unencumbered interests, and reinforces a gender-binary based set of expectations for children's interests, peer groups, and behaviors (Dinella et al., 2017; Weisgram & Dinella, 2018). Thus, how sports toys are gender-typed, particularly given that some sports toys have been gender-typed as for boys in past research (Blakemore & Centers, 2005), is important as it is clear that the gender-typing of toys is related to children's skill and interest development.

Color Conveys Gender

Media depictions and toy characteristics can contribute to gender schemas, but colors also build gendered ideas, with pink marked as 'for girls' and blue used to represent boys (Paoletti, 1987). These socially constructed gendered color schemes are pervasive and are ever-present in many children's lives (Davis et al., 2021). In fact, Netherlands' birth announcements for boys are more likely to feature blue while similar girls' birth announcements are colored pink (Endendijk, 2022) setting the color schemes in place even before a child is born. Importantly, their use substantially impacts people's preferences, cognitions and behaviors. As early as 2.5 years old, girls in the U.S. show a strong preference for pink objects while boys tend to avoid pink (LoBue & DeLoache, 2011; Weisgram et al., 2014). Similar preferences are confirmed for children in China (Yeung & Wong, 2018) the United Kingdom (Wong & Hines, 2015), Iran (Mohebbi, 2014), Switzerland (Jonauskaite et al., 2019), Canada (Chiu et al., 2006), and Australia (Davis et al., 2021). Similarly, when asked to place images into hypothetical children's bedrooms, adult participants consistently associated pink objects with girls' bedrooms and linked blue objects to boys' rooms (Cunningham & Macrae, 2011), illustrating the association between gendered colors and cognitions.

Children use these gender-typed colors to guide decision-making. In one experiment, girls were more likely to paint illustrations with pink while boys avoided using the same color (Navarro et al., 2014). In another experiment, researchers created two sets of identical toys except that half were blue and the other half were pink. Children's desire to play with the toys aligned with the color stereotypes even more so than the existing gender stereotype of the toy. For example, girls desired to play with 'boys' toys' such as trucks as much as 'girls' toys' such as dolls, but only when the toys were painted pink (Weisgram et al., 2014). Studies also show that when implicit gender labeling of toys via color is removed (e.g., by painting toys a neutral white), children's toy choices become more diverse and less rigidly gender schematic (Dinella et al., 2017). Pink and blue versions of sports toys would raise the same concerns and perpetuate the message that children's gender should be a criterion for the sports they explore and those they ignore. Because gender-typed color-coding of objects influences people's interests and perceptions, it should be considered when trying to understand the gendered nature of sports-toys.

Current Research

It is clear from existing research that toy play is gendered, and that sport is presented as a masculine domain, but there is a dearth of research that examines how sport-toys are gender-typed within that domain. The current research expands existing scholarship that identifies the limiting nature of gender-typed toys by closely studying sport-toys. It is imperative to establish whether gender-typed associations exist for different types of sport toys as a first step in understanding whether gendered aspects of sport toys may be limiting children's interests, skill development, and sport engagement. First, we conducted a content analysis to observe what gendered messages, if any, are disseminated about sport toys through major online toy retailer websites. The analysis was mainly descriptive in nature with a goal of learning if gendered messages related to toy names, descriptions, and images. We followed previous gender content analyses (Ward & Grower, 2020) in examining representation (how many boys and girls were depicted) and respect (how those boys and girls were depicted, such as how active children were and which sports they were playing).

In addition, although the focus and scope of the current investigation is on gender trends related to sports toys, we recognize that applying an intersectionality framework to the current study could reveal important preliminary findings about how gender and racial stereotypes may be present in sport toy advertisements. Though sport media scholars have noted that women of color are often underrepresented and that Black women are portrayed in ways that counter traditional femininity (Coakley, 2020; Cooky & Rauscher, 2016; Douglas, 2005), there is very limited research on how play can reproduce racial systems of power (Clark & Clark, 1950; MacNevin & Berman, 2017; Sturdivant, 2021). Thus, to encourage future research on toys aimed explicitly on how gender intersects with race within sport toy manufacturing and marketing, we conducted exploratory analyses on gender and race-based trends in sport toy catalogs.

Following the content analysis, we conducted a survey to investigate how adults associated gender stereotypes with sport toys. Given the exploratory nature of the intersectional dimension of the content analysis, the questionnaire focused solely on gender. Based on existing theory and literature, the survey explored four separate hypotheses:

Hypothesis 1 Sport related toys would be more likely to be perceived as masculine-typed than as feminine-typed.

Hypothesis 2 Toys associated with aggression and power sports would be more likely to be masculine gender-typed while toys associated with aesthetic sports would be more likely to be feminine-typed. Other sports will fall somewhere in between.

Hypothesis 3 Toys designed for action and motor play (e.g., bicycles, soccer balls) would be more likely to be masculine-typed than toys designed for symbolic play (e.g., dolls, tabletop games).

Hypothesis 4 Participants who view the toys in grayscale would rate toys more neutrally than participants who view the toys in full color.

Study 1 Method

Sample

The content analysis utilized a non-experimental observation of sport toys selected from the top three toy retailers in the United States (Amazon.com, Walmart.com, and Target.com) between January and March 2022 (Statista Research Department, 2024). Given the fluid nature of the Internet, it can be difficult to define the population (Neuendorf, 2011), therefore we focused on selecting a sample of toys that might replicate a consumer's experience of shopping online. To generate a list of toys, undergraduate research assistants first used the website menus and navigation features to locate any items specifically listed under a "sport toy" category. In addition, they performed targeted searches for toys related to specific sports by entering search terms such as "basketball toys." We considered something a sport *toy* if it was designed for children's use in casual play settings (as opposed to child-size sport equipment that would be used in a formal, organized sport setting). For example, a small baseball bat that might be sold in a sporting goods store would be excluded; while a plastic baseball bat sold in a toy store would be included. The search initially resulted in 144 toys, which included both miniature sports equipment and toy sport figures, such as Soccer Barbie. Given the different nature of these toys, the research team decided to eliminate the sport figures from the sample and to focus the analysis solely on miniature toy equipment that simulated gross motor skills used for the sport. Ultimately, this resulted in a sample of 107 unique toys.

Procedure

Three primary research assistants (RAs) worked with two principal investigators (PIs) to compile and code the images of the sport toys. All five researchers identified as women and lived in the US. The two PIs identified as White, while the RAs identified as Black, Hispanic, and Asian Indian. RAs collected screen shots of all sport toys featured in the sample of online sales listings. Many of these advertisements featured images from the toy packaging as well as additional photos of children playing with the toys. RAs separately coded both the toys and the children in the image with the toys for key variables using a coding system previously pilot tested with a different group of RAs. The current RAs were first given a sample of 10 toys and instructed on how to code the content. Following this initial round of coding, the research team met to discuss and clarify the coding process. First, each child in the image was explicitly labeled so that RAs knew exactly which units to code. Next, the PIs added guiding images to the textual codebook to assist in the coding process (e.g., sample photos that clearly depicted images that represented each code). Though some researchers argue that such examples can be limiting, others contend that these images can increase reliability (Neuendorf, 2011). Once these changes were incorporated into a final codebook, RAs were re-trained on all codes and instructed to code all 107 toy listings.

Coding of Variables

Sport Type

Our sample consisted of toys ($N = 107$) from ten different sports, which were grouped into five sport type categories: (a) Target Sports (Archery $n = 9$; Bowling $n = 8$; Golf $n = 14$); (b) Power and Aggression Team Sports (American Football $n = 6$; Ice Hockey $n = 6$); (c) Low Contact Team Sports (Baseball/Softball $n = 13$; Basketball $n = 12$; Soccer $n = 7$; d) Strength and Dominance Sports (Boxing/Martial Arts $n = 9$); e) Other (Tennis/Racket Sports $n = 9$ and multisport toys $n = 15$). We did not feature toys from aesthetic sports or action sports as those toys were not considered miniature sports equipment.

Explicit Gender Labels

Toys were assessed on whether they were recommended for a specific sex or gender. Thus, the toy name (the title of the toy) and the toy description (the summary describing the product and how it was used) were separate variables measuring explicit gender labels. Toy names and toy descriptions were coded separately using the following categories:

(a) Boy-Specific–explicitly uses only boys or related terms (e.g., little guy) or masculine pronouns; (b) Girl-Specific–explicitly uses only girls or related terms (e.g., princess) or feminine pronouns; (c) Gender Neutral–explicitly uses gender neutral terms (e.g., kids, children) and does not use gendered pronouns; (d) No Label–does not use any of the above language.

Toy Color Scheme

Cross-cultural research confirms that pink and pastel colors are largely considered to be feminine (Davis et al., 2021; Jung & Griber, 2019), and that dark colors (especially in the blue, blue-black and lime green hues (Jung & Griber, 2019) are deemed masculine (Davis et al., 2021; Weisgram et al., 2014; Yeung & Wong, 2018). Primary color toys (Auster & Mansbach, 2012), especially bright yellow and green (Yeung & Wong, 2018) are considered to be gender neutral. On this basis, we created three-color categories for masculine, feminine, or neutral. RAs were given several color swatches as examples from each category before coding. After the first round of coding, the initial three categories were expanded to include the two additional "leaning" categories listed below. These categories included color schemes that featured neutral hues, but also featured some of the gendered color schemes. All toys were recoded into one of the following five toy color categories: (a) Feminine Color Schemes–pinks, purples, pastels; (b) Neutral, Leans Feminine Color Scheme-pastels mixed with primary colors and bright rainbows; (c) Neutral Color Schemes–primary colors, bright rainbows, black/white/grayscale; (d) Neutral, Leans Masculine Color Schemes- blue palette, reds, blacks, lime green mixed with primary colors and bright rainbows; (e) Masculine Color Schemes–blue palette, reds, blacks, lime green.

Gender of Child with the Toy

The research team recognizes that gender is complex and cannot be easily categorized using a binary system (Wade & Ferree, 2023); however, we attempted to code the child with the toy within the photos based on gender presentation. The team used gender-typed features such as hair and clothing to categorize children as boys or girls. For example, a child with long hair who was wearing pink would be categorized as a girl while a child with short hair and a blue t-shirt would be categorized as a boy. A category of unsure was reserved for children whose gender presentation was not clearly identifiable from the photograph or who presented outside the binary. For example, this category included a child whose hat obscured their face and hair.

Race of Child with the Toy

Though race is also complex and not easily categorized (Desmond & Emirbayer, 2020), we assigned children to one of four racial groups based on the phenotypical appearance presented in the photos. While this may not align with how the children themselves identified, the goal was to categorize the children into how they might be perceived by someone else who viewed the images. The research team used skin color, as well as facial features like hair and eyes, to make these classifications: (a) White or Light skinned–pale skin and European features, might be considered White or White passing; (b) Dark or Brown skinned–darker skin tones with African or Indigenous features, might be classified as a racial minority in the U.S., such as Black, Native American, Latinx, or Multi-Racial; (c) Asian–variety of skin tones with features common in the Asian continent, such as epicanthic folds around eyelids; (d) Unsure–children who could not be classified into one of the above three groups.

Child Active Engagement with Toy

Adapting the activity scale from Martin and McDonald's (2012) detailed operational definitions of active and passive athletes, we classified the children in the photos in terms of their active engagement with the toy along on a 5-point scale ranging from no active engagement with the toy to full active engagement with the toy. The specific scale points were as follows: 1 (child is posed holding the toy outside of the playing environment and is not using the toy as intended for the sport); 2 (child is touching the equipment and is located in the playing environment but is not actively engaged with the toys or the game); 3 (child is pictured with the equipment in the playing environment, but passively engaged with the toys or the game by waiting their turn or taking a break from playing; 4 (child is in the playing environment engaging in actions required for the sport, but shown paused in the middle of the action); 5 (child is in the playing environment depicted fully in motion completing actions required for the sport).

Coding Reliability

We used Krippendorff's α (kalpha) to assess interrater reliability for multiple coders assessing both nominal and ordinal level variable (Hayes & Krippendorff, 2007). The suggested threshold for nominal data is 0.80; however, values of 0.667 suggest moderate agreement (Neuendorf, 2011). Research assistants showed strong agreement for gender of child with the toy ($\alpha = 0.93$) and modest agreement for race of child with the toy ($\alpha = 0.73$) and explicit gender labels of toy names ($\alpha = 0.74$). The kalpha for explicit gender labels

of toy descriptions was low (α = 0.31). The disagreement primarily arose from whether a product description met the criteria for "Gender neutral" or "no label" therefore, we only briefly report on this variable.

Initial agreement for toy color schemes (α = 0.52) and child active engagement with toy (α = 0.58) were slightly below the threshold. Investigation into the lack of robust reliability indicated that color scheme discrepancies occurred when RAs perceived toy color as belonging "in between" the three initial color schemes of masculine, feminine, and neutral. Hence, we added the two "leaning" categories to the codebook for color schemes; one between masculine and neutral and the other between neutral and feminine. We then took all toys where students disagreed on the color and reassessed using the new five-category color scheme. The team discussed each toy and came to a collective agreement with the PIs serving as tiebreakers as needed, resulting in 100% agreement (α = 1.0).

Discrepancies in the active engagement codes were resolved by calculating an average of the three scores from the RAs. For example, if all three RAs assigned the value of "4," then the child was assigned a "4". If two RAs assigned a 4 and the third RA assigned a 5, then the child was coded as 4.33. If the values assigned by the three RAs varied by more than one scale point (e.g., two RAs assigned a 4 and the third RA assigned a 2), the active engagement code was discussed and decided upon as a team, with the PIs serving as tiebreakers if needed.

For the analysis, a PI first examined gender typing of toys themselves by calculating univariate statistics to demonstrate the frequency of toy color schemes and explicit gender labels for toy names, and toy descriptions. Then, they examined the representation of children in the toy listing. Crosstabs were calculated to observe whether images of children varied by child gender and toy color and t-tests were conducted to compare the active engagement with the toy between boys and girls.

Study 1 Results and Discussion

Frequency of Gender-Typing of Toys

Most sports toy names (98.2%) did not refer explicitly to gender. In fact, 71.0% ($n = 76$) of toy names did not have explicit labels and an additional 27.1% ($n = 29$) of toy names utilized gender-neutral terms such as "kids." Only one toy name (0.9%) used girl-specific language and only one name (0.9%) used boy specific language. Toy descriptions also lacked explicit references to gender. Though coders disagreed on whether descriptive language was aimed at "all genders" or "no gender," they agreed that only seven out of the 107 (6.5%) toy descriptions were overtly geared towards either boys or girls. For example, a pink bow and arrow set was described as "the perfect gift for *girls* to enjoy."

Fifty-seven of the 107 toys (53.3%) used primary or other neutral color schemes. Of the remaining 50 toys, 40 (37.4%) had masculine ($n = 15$) or masculine leaning ($n = 25$) color schemes, and only 10 (9.3%) used feminine ($n = 5$) or feminine leaning ($n = 5$) color schemes.

Representation of Children in Toy Listings

A total of 315 children were pictured playing with the toys. Only a third of the pictures ($n = 102$) featured girls while two thirds of the pictures featured boys ($n = 212$). One child was categorized with the unsure label. The mean child active engagement was 4.00 ($SD = 1.28$) indicating that most children were actively playing with the toys. However, boys ($M = 4.13$, $SD = 1.16$) averaged significantly higher active engagement than girls ($M = 3.72$, $SD = 1.44$), $t(314) = -2.52$, $p = .013$ (one-tailed).

The number of boys and girls pictured playing with a toy varied based on the toy color scheme. The results displayed in Table 1, were statistically significant, X^2 (4, $N = 315$) = 48.10, $p < .001$. Toys with neutral color schemes were still dominated by pictures of boys at a 2 to 1 ratio. Toys with feminine color schemes were more likely to feature girls, while toys with masculine color schemes were likely to feature boys. Of the 16 children featured with feminine color schemed toys, only one was a boy (who was observing girls play).

The number of boys and girls pictured playing with a toy also varied significantly by sport type, X^2 (4, $N = 315$) = 13.65, $p < .008$ (Table 2). Low-contact team sports, racket sports, and multisport sets featured boys about two-thirds of the time while depicting girls about one-third of the time. Slightly higher percentages of girls were pictured in non-contact, individual target style sports. A much lower percentage of girls were included in toys associated

Table 1 Percentage of children depicted by toy color scheme ($n = 314$)

Gender	Color Scheme					
	Feminine	Leans Feminine	Neutral	Leans Masculine	Masculine	Total
Girls	100.0%	83.3%	38.1%	14.6%	11.1%	32.5%
Boys	0.0%	16.7%	61.9%	85.4%	88.9%	67.5%
n	10	6	189	82	27	314

Note. $Chi^2 = 48.10$, $p < .001$. Children whose gender was coded as unsure were excluded from this analysis

with strength and dominance. These relationships appeared to be closely linked to levels of physical contact required by the sport type.

Several patterns were uncovered when examining the data with an intersectional lens. More White and light-skinned children (77.5%, $n=244$) were pictured in toy advertisements than all children of color (18.4%, $n=58$); coders were unsure about the race of the remaining 13 children (4.1%). When race and gender were simultaneously considered, the gender ratio shifted. There were two boys for every White girl; however, dark-skinned and Black children were depicted more evenly across gender binary groups [boys (52.1%, $n=25$), girls (45.8%, $n=22$), unsure (2.1%, $n=1$)]. Furthermore, active engagement of dark-skinned and Black girls' ($M=4.27$, $SD=1.02$) was equivalent with all boys in the sample. Racially stereotyped sport-specific engagement trends were identified. While there were only 48 Black or dark-skinned children in the sample of 315 (15%), they were overrepresented in basketball (16 of 40 children, 40%) and football (11 of 36 children, 30.5%). Asian children were seldom depicted at all (3.2% of all children, $n=10$). Of those ten children, seven were shown either playing tennis or golf.

In summary, this descriptive analysis shows that toys are not marked with gendered names or labels, but sport toys are still masculinized because images are dominated by boys, who were also shown as more actively engaged than girls. Girls were more likely to be present when playing with feminine colored toys or participating in more passive sport activities. Preliminary analyses indicate the importance of future work focusing on the intersection of gender and race regarding children's sport toys, with concerning trends existing regarding inequity in representation, sport-specific stereotypes, and stereotypical depictions of child active engagement.

Table 2 Percentage of children pictured by gender and sport, ($n=314$)

Gender			
Sport With Examples	*n*	Girls	Boys
Target Sports *Archery*, *Bowling*, *Golf*	72	43.1%	56.9%
Power and Aggression Team Sports *Football*, *Ice Hockey*	35	17.1%	82.9%
Low Contact Team Sports *Baseball*, *Softball*, *Soccer*, *Basketball*	78	34.6%	65.4%
Strength and Dominance Sports *Boxing*, *Martial Arts*	40	15.0%	85.0%
Other *Racket Sports*, *Multisport Sets*	89	36.0%	64.0%
n		102	212

Note. $Chi^2 = 13.65$, $p = .008$. Children whose gender was coded as unsure were excluded from this analysis

Study 2

Though Study 1 strongly suggests that miniature toy equipment is associated with boys, a content analysis cannot reveal how adults or children perceive those toys. Therefore, we conducted a second study modeled after Blakemore and Centers' (2005) foundational research on gender-typed toys and attached a sport module to create a larger study about adult perceptions of children's toys. Because we were interested in many types of sports, a research team of students and faculty created a comprehensive list of sports, including but not limited to the sports featured in Study 1. As noted above, we tested four hypotheses: (1) Sport toys would be more likely to be perceived as masculine-typed than as feminine-typed; (2) Toys associated with aggression and power sports would be more likely to be masculine gender-typed while toys associated with aesthetic sports would be more likely to be feminine-typed. Other sports would fall somewhere in between; (3) Toys designed for action and motor play (e.g., bicycles, soccer balls) would be more likely to be masculine-typed than toys designed for symbolic play (e.g., dolls, tabletop games); (4) Participants who view the toys in grayscale would rate toys more neutrally than participants who view the toys in full color.

Method

Participants

A total of 530 participants completed a survey and met the requirement of appropriately completing the open-ended items designed to identify inattention or self-misrepresentation noted below. Most participants (84.1%, $n=446$) had children; 77.4% ($n=410$) of participants had children under 18 during the time they took the survey; 56.0% ($n=297$) of survey participants identified as men, 43.5% ($n=230$) identified as women, and 0.6% ($n=3$) identified outside this binary. Most respondents were between 25 and 44 years old (75.5%, $n=400$) and also identified as White (80.2%, $n=425$).

Materials and Measures

Selection and Rating of Sports Toy Images

To begin, team members searched the Internet for children's toys associated with each sport. Like in Study 1, we defined a toy as something that was used in a casual play setting. Unlike Study 1, we expanded our sample by including miniature equipment as well as dolls, ride-on toys, and tabletop games. We did not include the same images from Study 1

for several reasons. First, the Study 1 images featured children playing with toys and we were interested in adults' perceptions of the toys, independent of who was playing with them. In addition, the survey format of Study 2 allowed us to include a more inclusive list of sports and different types of toys that were not featured in Study 1.

The research team downloaded pictures from retail websites and Google Images and included the photos in a database. All images included only the toy; no children or adults were pictured using the toy. When available, multiple-colored versions of the same toy were included in the database. For example, a brand of toy ice skates had a version marketed towards boys (black and orange) and another aimed at girls (pink and turquoise). A primary investigator chose images from the database that represented a broad range of sports and a variety of color-designs. Prior to finalizing the choice of each toy image for inclusion in the study, the images chosen for each toy were presented to a small group of undergraduate students who were asked to confirm that the toys were good visual representations and could be considered as archetypal examples.

The images of the selected sport-toy images were inserted into an online Qualtrics questionnaire along with additional toys that were part of the larger study. The full study included 228 total toys, and 119 of them were sport toys. To reduce respondent fatigue, the 228 total toys were divided into four sets. The principal investigators attempted to distribute masculine, feminine, and neutral toys evenly across the sets based on the original Blakemore and Centers (2005) research as well as on a pilot study conducted by the student research team. Each set of toys was then duplicated; the images in the second set were converted to grayscale. This resulted in a total of eight sets of toys: four featuring color images and four featuring the same images in black and white. Participants either saw 57 color images of toys or 57 grayscale images. Of those 57 images, 30 were sport toys.

Similar to Blakemore and Centers (2005), participants responded to a series of demographic questions. They were then randomly assigned one of the eight toys sets and asked to evaluate whether the toys were more appropriate for girls, boys, or both. To complete this task, they were shown the image of the toy along with a 9-point scale, which was identical to that used by Blakemore and Centers (1 = *toy is only for girls*; 5 = *toy is for both boys and girls*; and 9 = *toy is only for boys*). Our research team also added the option for the participants to select "I do not know" if they were unfamiliar with a toy(s). Very few participants selected this option; therefore, we do not include the missing data in our tables or analysis.

Procedure

We used Amazon's Mechanical Turk (MTurk), to recruit a large-scale, heterogenous sample of responders (Porter et al., 2019). The study design was approved by our university's Institutional Review Board. We employed best practices outlined by Aguinis et al. (2021) to increase the validity of the research conclusions that could be drawn from the data provided by participants. First, we confirmed that the population of online participants aligned with the intended goals of the study; indeed, adults willing to become online responders via Amazon's MTurk aligns with our intended sample of adults who may have everyday knowledge of toys that might be sold or purchased online. Second, we predetermined the qualifications of our participant pool to include only adult participants that had general knowledge of children's toys and who were proficient in English (given our survey was only available in this language). Participants were required to confirm that they met and agreed to these conditions in a prescreening prior to being presented with the online survey. Third, we followed the recommendation of oversampling by at least 30% to compensate for any participant attrition or need to remove responses due to failure to pass an included inattention test (the qualitative, open-ended question described in Step 5). Fourth, we determined that total rate of payment to be $1.40 USD (based on the current average pay rate per minute for similar studies on MTurk, multiplied by the average amount of time pilot participants took to complete the survey) as to not under or over incentivize participants, thus gaining a typical sample. We included this information in the informed consent form prior to the study being initiated. Fifth, in addition to the prescreening process, we included a qualitative, open-ended question ('What was your favorite toy as a child?') to address concerns of responder inattention, self-misrepresentation (such as lack of English proficiency), and vulnerability to robot responders known as 'bots.' Sixth, we included carefully worded descriptions of what the task would require a responder to do, including how long the survey should take and the topic of the questions that would be asked, while not revealing directions of hypotheses as to reduce social desirability bias.

In response to the best practices regarding implementation (seventh to ninth steps), we conducted a pilot test with a small number of participants to check the feasibility of participant responses and implemented the data collection in moderate sized batches so we could monitor responses, screen data, and address any concerns with respondent data or from participants in a timely fashion and prior to all data being collected. This process allowed us to note the need for an open-ended question to be presented early in the survey to confirm responders were English proficient. Finally,

Table 3a Study 2 Example sports included in sport type categories

Sport Type	Example Sports
Aesthetic Sports	Figure Skating, Dance, Gymnastics
Action Sports	Skiing, Snowboarding, Skateboarding
Target Sports	Archery, Golf, Bowling
Power and Aggression Team Sports	Ice Hockey, American Football, Lacrosse
Low Contact Team Sports	Basketball, Soccer, Volleyball
Strength and Dominance Sports	Boxing, Wrestling, Weightlifting
Other	Fishing, Cycling, Running, Tennis

Table 3b Study 2 example toys included in toy type classification

Toy Type Classification	Example Toys
Miniature Toy Equipment	behind the door basketball hoop, toy punching bag, cheerleading pom-poms, plastic bowling ball and pins
Dolls and Action Figures	American girl cheerleader doll, Surfing Ken (Barbie doll), snowboarding action figure, Lego baseball figurines
Table Top Games	air hockey game, Foosball table, baseball pinball machine, arcade basketball game
Outdoor Action Toys	Big Wheels bike, toy roller skates, Razr scooter, foam boogie board
Other	swing set, ballerina tutu, remote control stock racing car, trampoline

the detailed nature of this description being included in the manuscript meets the tenth recommendation for best practices, thus communicating the importance of designing, implementing and monitoring data collection via an online participant pool such as MTurk.

Following the completion of the survey, the lead investigators calculated a mean toy evaluation for each of the 119 full color sport toys in the data set and followed the scheme by Blakemore and Centers (2005) to create five gender-related categories of toys: strongly masculine (> 7.0); moderately masculine (5.6–7.0); neutral (4.5–5.5); moderately feminine (3.0–4.4); and strongly feminine (< 3.0). The mean evaluation scores were utilized to create a separate dataset with toys as the main unit of analysis. The mean for the 119 toys presented in grayscale were also calculated and added to the dataset. In total, there are 238 toys means presented in Table 4.

To test Hypothesis 2 that the gender-typed nature of a sport toy is associated with sport type of the toy, we also created a new variable with seven different sport types to represent the range of fitness and sport activities (Table 3a). This variable grouped toys by the sport with which they were associated. The sport types used were based on the five sport categories standardized by Hardin and Greer (2009) but modified to account for team versus individual sports within their categories, resulting in a total of seven categories. Given the recent increase in popularity of women's basketball (Feinberg, 2024), we removed basketball from the list of men's only sports. The mean rating for all toys in each sport type category was used in the analysis.

Finally, to test Hypothesis 3 that the gender-typed nature of a sport toy is associated with the kind of toy it is (e.g., motor play, symbolic play), we added a variable to sort toys based on the nature of the toy. Each toy was also sorted into one of five classifications: miniature toy equipment, dolls and action figures, tabletop games, outdoor action toys, and other toys. Examples of some toys in each category are listed in Table 3b. The mean rating for all toys in each sport classification was used in the analysis.

Study 2 Results and Discussion

Hypothesis 1 – Sport Toys are Associated with Masculinity

The first hypothesis was that due to the association of sports and masculinity, sport related toys are more likely to be to be perceived as masculine-typed than as feminine-typed.

To test Hypothesis 1, we calculated the overall mean sport-toy rating and counted the number of toys that fell into each gender-typed category (i.e., strongly masculine (> 7.0); moderately masculine (5.6–7.0); neutral (4.5–5.5); moderately feminine (3.0–4.4); and strongly feminine (< 3.0)0. When viewing the toys in color, the overall average was 5.86 ($SD = 1.13$), which would fall in the moderately masculine category. The color and grayscale mean for each toy are available in the Table 4. Of the 119 sport toys, only 15 (12.6%) were classified as feminine and only two of those (a tutu and a gymnast Barbie) were classified as strongly feminine. An additional 20 toys (16.8%) were assessed as gender-neutral; this category included many pink-hued toys as well as other items such as badminton rackets and a toy fishing set. The remaining 84 toys (70.6%) had an average rating of moderately or strongly masculine. These scores support Hypothesis 1; sport-related toys are more likely to be masculine-typed than feminine-typed.

Hypothesis 2 - Sport Type Influences Gendered Perceptions of Toys

We anticipated that the type of sport associated with a sport toy would influence gendered perceptions of toys (e.g., aggression and power sports, aesthetic sports). Specifically, Hypothesis 2 stated that toys associated with aggression and power sports will be more likely to be masculine gender-typed while toys associated with aesthetic sports will be more likely to be feminine-typed. Other sports will fall somewhere in between. Again, perceptions of how gender-typed the toys were was assessed using the 7 point scale

Table 4 Individual Toy Means

Category	Color Version			Grayscale Version			Difference (Grayscale - Color)		
	M	*SD*	*n*	*M*	*SD*	*n*	Amount / Sig		Category Shift
Strongly Feminine Toys (< 3.0)									
Ballerina Tutu	2.75	2.56	55	3.29	2.71	63	0.54		Mod. Fem
Artistic Gymnast Barbie	2.89	2.40	54	4.21	2.91	63	1.32	**	Mod. Fem
Moderately Feminine Toys (3.0-4.4)									
Surfing Barbie	3.07	2.58	67	4.10	2.68	59	1.03	**	
American Girl Cheerleader	3.23	2.58	74	3.97	2.94	75	0.74		
American Girl Field Hockey	3.25	2.69	67	4.51	2.68	59	1.26	**	Neutral
Barbie Bicycle	3.47	2.69	55	4.81	2.52	62	1.34	**	Neutral
American Girl Surfer	3.51	2.68	45	4.15	2.91	88	0.64		
Rhythmic Gymnast Barbie	3.52	2.68	46	4.01	3.11	88	0.49		
Women's Track Figurine	3.80	2.58	75	5.45	2.58	73	1.65	***	Neutral
Pink Snowboard	3.80	2.67	55	6.31	1.74	62	2.51	***	Mod. Masc.
Rainbow Cheer Poms	4.02	2.56	65	5.29	2.41	56	1.27	**	Neutral
Soccer Barbie	4.03	2.85	76	4.47	2.95	75	0.44		Neutral
Pink Training Bike	4.05	2.51	65	5.68	1.58	59	1.63		Mod. Masc.
Gymnastics Batons	4.11	2.62	75	4.82	2.46	73	0.71	*	Neutral
Pink Roller-skates	4.20	2.49	75	6.59	1.95	75	2.39	***	Mod. Masc.
Neutral Toys (4.5–5.5)									
Pink Skate Board	4.56	2.56	55	6.16	1.46	62	1.60	***	Mod. Masc.
Figure Skates	4.63	2.70	46	6.40	1.63	62	1.77	*	Mod. Masc.
Female Skiing Figurine	4.66	2.61	44	5.20	2.54	89	0.54		
Pink Gymnastics Mat	4.67	2.25	67	5.98	1.54	56	1.31	*	Mod. Masc.
Unicorn Bowling	4.67	2.60	46	5.58	2.16	89	0.91	**	
Pink Archery Set	4.71	2.22	55	6.48	1.58	63	1.77	***	Mod. Masc.
Boogie Board with Flowers	4.89	2.54	74	6.06	1.86	69	1.17	***	Mod. Masc.
Pink Ice Hockey Skate	4.91	2.20	54	5.51	2.39	89	0.60	***	
Black Cheer Poms	4.92	2.29	53	5.19	2.71	62	0.27		
Gymnastics Ribbons	5.00	2.19	73	5.51	2.27	70	0.51		
Pink Golf Caddy Set	5.00	2.34	66	6.64	1.54	58	1.64	***	Mod. Masc.
Pink Kayak	5.04	2.09	67	6.10	1.37	58	1.06	***	Mod. Masc.
Pink Badminton Set	5.22	2.26	46	5.98	1.69	89	0.76	**	Mod. Masc.
Pink Toddler TeeBall Set	5.31	2.16	67	6.37	1.71	59	1.06	**	Mod. Masc.
Backyard Swing set	5.37	1.68	65	6.07	1.45	59	0.70	**	Mod. Masc.
Miniature Trampoline	5.40	1.50	55	5.90	1.60	63	0.50	*	Mod. Masc.
Toy Fishing Set	5.40	1.55	54	6.05	1.76	63	0.65	*	Mod. Masc.
Badminton Rackets	5.44	1.53	66	5.88	1.59	59	0.44		Mod. Masc.
Toy Horse on Stick	5.45	1.87	65	5.48	1.72	58	0.03		
Toddler Multi-Sport Playset (A)	5.50	1.68	54	6.24	1.49	62	0.74	**	Mod. Masc.
Moderately Masculine Toys (5.6-7.0)									
Bowling Set	5.63	1.39	67	6.16	1.42	58	0.53	**	
Large Backyard Trampoline	5.67	1.33	67	6.00	1.49	59	0.33		
Female Biathlon Figurine	5.69	2.26	74	5.63	2.24	75	-0.06		
Tennis Set	5.69	1.68	55	5.94	1.72	62	0.25		
Pink Basketball Hoop	5.70	2.46	43	6.57	1.74	89	0.87	*	
Tricycle	5.75	1.71	55	5.94	1.44	63	0.19		
Snorkel Equipment	5.82	1.82	44	6.22	1.90	89	0.40		
Pink Punching Bag	5.84	2.69	55	6.82	1.90	62	0.98	*	
Rainbow Gymnastics Mat	5.84	1.44	70	6.03	1.62	73	0.19		
Zoo Animal Croquet Set	5.84	1.67	45	6.29	1.96	87	0.45		
Arcade Style Basketball Game	5.87	1.88	46	6.64	1.72	85	0.77	*	
Pink Multisport Equipment Set	5.87	2.27	46	6.79	1.79	87	0.92	**	
Miniature Table Tennis	5.89	1.58	46	6.22	1.51	87	0.33		
Inflatable Boxing "Bop Bag"	5.91	1.48	66	6.64	1.54	59	0.73	**	
Snow Scooter	5.93	1.85	44	6.35	1.78	83	0.42		

Table 5 (continued)

Category	Color Version			Grayscale Version			Difference (Grayscale - Color)		
	M	*SD*	*n*	*M*	*SD*	*n*	Amount / Sig		Category Shift
Rainbow Colored Velcro Catch	5.94	1.74	54	6.25	1.62	73	0.31		
Big Wheels Bike	5.98	1.67	46	5.98	1.67	46	0.00		
Surfing Ken	5.98	2.71	55	6.84	2.24	63	0.86	*	
Outdoor Volleyball Net	5.98	1.61	65	6.53	1.73	59	0.55	*	
Pool Basketball Set	5.99	1.48	67	6.29	1.51	58	0.30		
Orange River Raft	6.00	1.91	54	6.13	1.40	63	0.13		
Blue Archery Set	6.04	1.55	75	6.28	1.69	75	0.24		
Pink Football	6.04	2.39	46	7.10	1.92	89	1.06	**	Strong Masc.
Pink Cricket Set	6.05	2.40	74	7.32	1.76	73	1.27		Strong Masc.
Toddler Multi-Sport Playset (B)	6.08	1.50	66	6.42	1.52	59	0.34		
Primary Color TeeBall Set	6.09	1.72	46	6.81	1.66	88	0.72	*	
Classic RAZR scooter	6.11	1.69	74	6.23	1.58	73	0.12		
Air Hockey Game	6.12	1.51	67	6.17	1.34	58	0.05		
Monster Face Volleyball	6.15	1.46	46	6.53	1.73	59	0.38		
Boogie Board with Shark Images	6.16	2.10	45	6.40	1.87	88	0.24		
Classic Wooden Croquet Set	6.18	1.53	76	7.00	1.78	72	0.82		
Baby Weightlifting Toy	6.19	1.70	74	6.64	1.77	73	0.45		
Gymnastics Board Game	6.20	1.76	46	6.08	1.83	89	-0.12		
Blue Roller-skates	6.21	1.88	66	6.08	1.64	59	-0.13		
Soccer Target Game	6.21	1.80	66	6.57	1.61	58	0.36		
Blue Skateboard	6.24	1.67	66	6.27	1.51	59	0.03		
Lacrosse Sticks	6.24	1.64	45	6.43	1.76	87	0.19		
Fishing Vest and Rod	6.25	1.87	75	6.59	1.90	73	0.34		
Blue Golf Caddy Set	6.26	1.76	53	6.68	1.48	63	0.42		
Bubble Hockey Table Game	6.27	1.47	75	6.35	1.64	74	0.08		
Pool Water Polo Game	6.27	1.84	55	6.44	1.79	63	0.17		
Pink Air Rifle (BB Gun)	6.28	2.27	43	7.29	1.69	89	1.01	**	Strong Masc.
Pool Volleyball Game	6.29	1.72	75	6.62	1.71	74	0.33		
Blue Golf Tee	6.30	1.65	74	6.44	1.78	75	0.14		
Hockey Sticks and Net	6.34	1.54	65	6.75	1.46	59	0.41		
Foam Fencing Sword	6.38	1.69	73	6.72	1.80	74	0.34		
Blue Surfboard	6.43	1.56	74	6.84	1.70	74	0.41		
Over the Door Basketball Hoop	6.47	1.71	74	6.77	1.68	74	0.30		
Foam Weightlifting Equipment	6.51	2.05	45	6.94	1.77	87	0.43		
Toy Basketball Hoop	6.57	1.81	54	6.19	1.47	62	-0.38		
Male Biathlon Figurine	6.59	1.90	54	6.68	1.81	62	0.09		
Foam Weightlifting Bench	6.63	1.93	54	7.00	1.78	62	0.37		
Table Top Skateboard	6.63	1.76	46	6.60	1.75	87	-0.03		
Blue Cricket Set	6.64	1.74	55	7.16	1.68	63	0.52	*	Strong Masc.
Table Top Football Game	6.67	1.79	54	6.44	1.54	63	-0.23		
Foosball Table	6.67	1.78	45	6.72	1.76	89	0.05		
Wiffleball and Bat	6.67	1.98	45	7.06	1.63	89	0.39		Strong Masc.
Blue Toddler T Ball Set	6.70	1.70	54	7.10	1.51	63	0.40		Strong Masc.
Velcro Catch Game	6.76	1.81	74	6.25	1.62	73	-0.51	*	
Yellow NERF style football	6.76	1.99	55	6.94	1.73	62	0.18		
Wooden Table Baseball Game	6.84	1.71	45	6.82	1.67	87	-0.02		
LEGO Baseball Field and Players	6.87	1.82	55	6.90	1.47	63	0.03		
Black and Orange Hockey Skate	6.94	1.64	65	6.56	1.62	59	-0.38		
Male Skiing Figurine	6.97	1.56	67	6.78	1.56	58	-0.19		
Male Snowboarding Figuring	6.97	1.73	67	7.14	1.59	58	0.17		Strong Masc.
Remote Control Car	6.99	1.85	67	6.97	1.62	58	-0.02		
Strongly Masculine Toys (> 7.0)									
Plastic Hockey Figurines	7.00	1.88	45	7.09	1.84	89	0.09		

Table 5 (continued)

Category	Color Version			Grayscale Version			Difference (Grayscale - Color)		
	M	*SD*	*n*	*M*	*SD*	*n*	Amount / Sig		Category Shift
Mini Soccer Goal	7.02	1.76	46	6.61	1.78	88	-0.41		Mod. Masc.
Blue Swimming Pool Football	7.03	1.83	74	7.15	1.73	73	0.12		
Flag Football Set	7.07	1.61	75	6.80	1.79	74	-0.27		Mod. Masc.
Robot Boxing Game	7.08	1.58	75	7.19	1.61	74	0.11		
Male Track Sprinter Figurine	7.13	1.92	54	7.39	1.33	61	0.26		
Wrestling Toy Ring	7.13	1.83	46	7.41	1.67	87	0.28		
Boxing Punch Bag and Gloves	7.17	1.59	66	6.67	1.63	58	-0.50	*	Mod. Masc.
Remote Control NASCAR	7.20	1.59	75	6.81	1.71	75	-0.39		Mod. Masc.
Sports Cards	7.22	1.64	55	7.14	1.68	63	-0.08		
Plastic Baseball Figurines	7.23	1.92	44	7.30	1.73	88	0.07		
Red Boxing Punch Bag	7.25	1.63	75	7.32	1.88	72	0.07		
Toy Fencing Swords	7.34	1.56	74	7.29	1.69	89	-0.05		
Brown Air Rifle (BB Gun)	7.42	1.57	66	7.05	1.61	58	-0.37		
Classic Leather Football	7.52	1.55	67	7.03	1.70	59	-0.49	*	
NASCAR Racing Suit	7.62	1.62	66	7.07	1.39	59	-0.55	*	
Wrestling Toy Figurine	7.66	1.66	73	7.45	1.85	75	-0.21		
Wrestling Champion Belt	7.75	1.56	75	7.31	1.85	74	-0.44		

Note. *$p < .05$, **$p < .01$. ***$p < .001$

(strongly masculine (> 7.0); moderately masculine (5.6–7.0); neutral (4.5–5.5); moderately feminine (3.0–4.4); and strongly feminine (< 3.0)).

When the average perceived masculine/feminine score for each sport type was calculated, five sport types were ranked as moderately masculine: Strength and Dominance Sports ($M = 6.83$, $SD = 0.63$), Power and Aggression Team Sports ($M = 6.32$, $SD = 0.63$), and Low Contact Team Sports ($M = 6.23$, $SD = 0.90$) had the highest mean scores. Target Sports ($M = 5.84$, $SD = 0.81$) and Other Sports ($M = 5.95$, $SD = 0.88$) were also ranked as moderately masculine although with slightly lower mean scores. Toys associated with action sports ($M = 5.41$, $SD = 1.22$) were rated more neutrally. Only aesthetic sports ($M = 4.32$, $SD = 1.10$) were rated as feminine. A one-way ANOVA comparing the perceived masculine/feminine mean scores by sport type ($F(7,111) = 8.67$, $p < .001$) found that aesthetic sports had a significantly lower mean (i.e. more feminine score) than all other sport types. The only other significant difference was between action sports and strength and dominance sports; the lower average scores of action sports toys suggest those toys were perceived more neutrally when compared to the higher, more masculine ratings of strength and dominance sports. These findings, displayed in Table 4, provide support for Hypothesis 2, with a few exceptions. We anticipated power and aggression team sports would would be perceived as more masculine than low contact team sports, yet they were statistically similar. Unexpectedly, action sports were rated neutrally.

Hypothesis 3 – Toy Type Influences Gendered Perceptions of Toys

We anticipated that the type of play a toy was designed to encourage (e.g., motor play, symbolic play) would influence the gendered perceptions of the toy. Specifically, Hypothesis 3 stated that toys designed for action and motor play are more likely to be masculine-typed than toys designed for symbolic play. Again, perceptions of how gender-typed the toys were was assessed using the 7 point scale (strongly masculine (> 7.0); moderately masculine (5.6–7.0); neutral (4.5–5.5); moderately feminine (3.0–4.4); and strongly feminine (< 3.0)).

When examining this hypothesis, we ran a one-way ANOVA, $F(4,114) = 5.84$, $p < .001$, comparing the perceived masculine/feminine mean scores for the five toy type classifications. As shown in Table 5, the average mean for doll and action figures presented in color was 5.05 ($SD = 1.71$) suggesting that these items were rated neutrally. However, this was the lowest mean among the five categories, indicating that other toy types were perceived as more masculine. The mean score for dolls and action figures was significantly lower than the means for miniature toy equipment, table-top games, and other toys, but it did not significantly differ from outdoor action toys ($M = 5.37$, $SD = 0.97$). Both dolls and outdoor action toys were perceived as neutral toys while the higher scores of other toy types suggested that perceptions of those toys were slightly more masculine. This partially supported our hypothesis as we expected that passive toys would be perceived as the least masculine and

Table 5 Toy Means by Sport Type and Toy classification

Variable		Color		Grayscale		t-test (Color vs. Grayscale)		
Sport Type	*n*	*M*	*SD*	*M*	*SD*	Difference	t	*p*
Aesthetic	12	4.32	1.10	4.99	0.93	0.68	5.09	< .001
Action	24	5.41	1.22	6.06	0.79	0.65	3.99	< .001
Target	11	5.84	0.81	6.54	0.48	0.69	3.60	.002
Power and Aggression Team	10	6.33	0.60	6.62	0.33	0.29	1.63	.096
Low Contact Team	28	6.23	0.90	6.56	0.68	0.33	3.54	< .001
Strength and Dominance	13	6.83	0.63	7.05	0.31	0.22	1.59	.069
Other	21	5.95	0.88	6.29	0.53	0.35	3.52	.001
Toy Classification								
Dolls and Action Figures	20	5.05	1.71	5.68	1.32	0.62	4.07	< .001
Miniature Toy Equipment	59	6.09	0.73	6.52	0.50	0.43	6.54	< .001
Table Top Games	11	6.46	0.41	6.56	0.34	0.09	1.16	.270
Outdoor Action Toys	17	5.37	0.97	6.13	0.47	0.76	4.17	< .001
Other	12	6.23	1.15	6.34	1.14	0.10	0.87	.200

thus have the lowest means, but this only held true for dolls and action figures and not for tabletop games.

Hypothesis 4

The final hypothesis stated that without color cues, participants' toy ratings would shift. Specifically, participants who view the toys in grayscale will rate toys more neutrally than participants who view the toys in full color.

To examine this, we looked at two things. First, we used independent sample t-tests to compare respondents' scores on the color-version and grayscale toy images. Then we looked at whether the toy shifted gender categories when viewed in grayscale. Thirty-nine toys had a significantly different score when viewed in grayscale. Twenty-four toys had both a significant t-test result and a gender-typed category shift. Only one of those toys, a boxing punching bag, became less masculine when viewed in grayscale. The 23 other toys were ranked as more masculine without implicit color cues. Of the 24 toys that significantly changed gender-typed categories, 13 were pink items. When stripped of pink color, the items were read as more appropriate for boys. Some of the biggest changes were action sports items (roller-skates, bicycle, snowboard) that went from moderately feminine to moderately masculine without color cues. The grayscale scores, gender-category shifts, and t-test results are all included in Table 4.

Examining this information together, Hypothesis 4 was not supported. We expected all toys would be rated more neutrally when color was excluded; however, we found that without the symbolism of color, toys were *more* likely to be ranked as masculine. In fact, when viewed in grayscale, only 5% ($n = 6$) of all toys were rated as feminine (compared to 12.6% [$n = 15$] of the exact same toys that were viewed in full color) and the overall mean toy score was 6.30. This is still moderately masculine, but further right on the scale.

This finding caused us to reexamine the results of Hypothesis 2 and 3 based on whether participants viewed color or grayscale toys. We used a t-test to examine whether the average sport type means changed based on how the toys were viewed. Most sport categories had significantly higher means (i.e., more masculine) when viewed in grayscale. The exceptions were Power and Aggression Team Sports and Strength and Dominance Sports, which already had very high means, indicating the most masculine perceptions. This suggests that even without color cues, those physical, aggressive sports resist feminine gender-typing. For example, without color, a pink American football ($M = 7.10$, $SD = 1.92$) looked similar to a brown leather ($M = 7.03$, $SD = 1.70$), blue cloth ($M = 7.15$, $SD = 1.73$), and yellow foam ball ($M = 6.94$, $SD = 1.73$). When viewed in full color, all four balls retained a masculine rating whether they were brown leather ($M = 7.52$, $SD = 1.55$), blue cloth ($M = 7.03$, $SD = 1.83$), or yellow foam ($M = 6.76$, $SD = 1.99$). Even the pink ball ($M = 6.04$, $SD = 2.39$) was considered moderately masculine. For most sport types, sport-toys are viewed as more appropriate for boys when color is removed. However, color does not seem to change the perceptions of toys that are already viewed as the most masculine-typed.

When examining toy-classification, dolls and action figures, miniature toy equipment, and outdoor action toys were all perceived as significantly more masculine when viewed in grayscale. Tabletop games and Other toys were perceived about the same, regardless of color cues. When viewed in color, both outdoor action toys and dolls were viewed neutrally. However, grayscale means showed that all five toy categories were coded as moderately masculine, with only dolls and action figures ($M = 5.68$, $SD = 1.32$) coming close to the neutral category. Similar to the action sports category, perceptions of outdoor action toys seemed very dependent on color.

Overall, this hypothesis was partially supported. We expected that removing color would result in toys being perceived as more gender-neutral but grayscale toys were perceived as more masculine. The data suggest that adding color, specifically adding pink, feminizes some toys. However, masculine sport categories seemed resistant to color shifts.

General Discussion

Toys are designed for leisure but are also a source of gender-role socialization and an early site for building gender role schemas. Because adults are commonly the purchasers and providers of toys for children, this multi-study, mixed methodological research examined how sport toys are advertised to and perceived by adults. Data clearly show that sport toys are marketed with implicit gendered messages and that adults hold gendered expectations of many sport toys. These findings point towards the role toys play in constructing sport-related gender schemas and establish an important baseline for continuing the study of sport-related toys.

Sport Toys Convey Gendered Messages

The content analysis demonstrated that even though toy names are not explicitly gendered, implicit messages are common. About half of the observed toys were depicted in gender-neutral colors, but the remaining toys were more likely to feature masculine color schemes than feminine color schemes. Product images reinforced sport as a masculine domain by showing boys more often overall, especially when playing aggressive sports. Images also depicted boys as more actively engaged than girls. This may perpetuate stereotypes about who can and should engage in sports, and if purchasing is influenced by these marketing trends, children's exposure to sports toys may be limited in ways that impact their interest and abilities.

Gender schemas develop rapidly between the ages of two and five. Children's gender schemas act as filters and subsequently impact their attention, interest and behaviors (Martin & Dinella, 2012). During this time, most children cannot read but they can recognize colors and images, implicit labels which guide their toy interests (Dinella et al., 2017; Weisgram et al., 2014). Because the images collected in this study were featured on websites and toy packaging, children who saw such images may be led to believe that sports were "for boys". It is plausible that the internalization of toy companies' messages about the gender appropriateness of sports toys may limit the toys they ask adults to purchase for them and those with which they choose to play. Adults may also be swayed by the toys' colors and images when deciding which toys to purchase for the children. Sports toys and associated marketing are laden with multiple indicators that sports are (mostly) for boys. These messages are likely to contribute to building sport-related gender schemas long before children can participate in or consume organized sports.

Preliminary analyses indicate the importance of future work focusing on the intersection of gender and race regarding children's sport toys, with concerning trends existing regarding inequity in representation, sport-specific stereotypes, and stereotypical depictions of child active engagement. Although these exploratory findings are preliminary, they do indicate the importance of research that uses an intersectionality framework to understand how the marketing and creation of toys may be shaping adults' purchasing decisions, thus impacting children's sports toy engagement.

Study 2 confirms that sport-toys are still largely perceived by adults as appropriate for boys. Though this effect can be moderated by the sport type, toy-classification, or color, adults see sport-related toys as more acceptable for boys. Opportunities for women in sport have expanded over time so it was surprising that adults rated so many toys as moderately to strongly masculine. This suggests that adults may obtain sport-related toys for their sons but not for their daughters, which can influence the types of skills children can build as well as the types of activities they grow to enjoy throughout the life course. Girls across the world engage in less physical activity than boys do (Aspen Institute, 2015; Whiting et al., 2020; Yeung & Johnston, 2019); it is possible that these patterns begin with early opportunities for play and leisure.

Though many toys lacked explicit gender labeling, only the target sport toys came close to showing equal numbers of boys and girls playing with those toys. Furthermore, it is notable that adult survey respondents only perceived a select few toys as gender-neutral. This finding suggests that most sport-related activities are polarized by gender. Such physical pursuits can be enjoyed by girls or by boys, but not by both. Such perceptions may limit the opportunities for children of all genders to play together in cooperative settings (Hanish et al., 2023; Martin et al., 2022). This is problematic, given that mixed-gender play has been empirically confirmed to relate to increased prosocial behavior and reduced aggression (Xiao et al., 2022). Moreover, gender researchers posit that increased gender segregated play creates gender-typed spheres of influence, contributing to gender-typed socialization over time.

Sport Type, Color, and Active Engagement Further Communicate Gendered Ideas

Photographs of boys were more prominent in *all* sports, but the disparities were greatest in contact sports: football, hockey,

and boxing/martial arts. The disproportionate number of boys shown playing these sports implies that men are more suited to sports that feature strength and aggression. Girls were featured more prominently (but still unequally) in individual pursuits, like bowling, where there is minimal physical contact with an opponent. In this way, these toys are still sending the long-established message that women are ill-suited for intense bodily contact. The messages sent in the toy listings aligned with survey respondent perceptions. For example, sports like dance and gymnastics were more closely associated with girls and women. This supports previous research suggesting sport can be appropriate for women when it is associated with grace, beauty, and aesthetics (Hardin & Greer, 2009). Any sport participation will increase girls' physical activity, but previous scholars have noted the link between sexual objectification and these aesthetic sports (Moradi & Huang, 2008). The close association of women with these specific sports reinforces a particular concerning narrative about femininity- one where women focus primarily on style, artistry, and displaying their bodies for others (American Psychological Association, 2008; Levin & Kilbourne, 2009). If adults are giving children toys from gender-typed sport categories, they may be actively encouraging children to develop different sets of skills and reinforcing socially constructed gender roles. Our findings reinforce gender schemas that view men as more physical and aggressive than women.

The message of male physicality is further engrained when observing the differences between the active engagement of boys and girls in the marketing of sports toys. On average, boys were likely to be pictured actively engaged than girls were, reinforcing the idea that boys are more physically active and symbolizing that girls and women have historically and continue to be restricted from sport participation within patriarchal systems. This is the same message that researchers have noted in sport magazines, commercials, textbooks, and television shows (Gietzen et al., 2017; Martin & McDonald, 2012; McNiel et al., 2012; Rasmussen et al., 2021; Táboas-pais & Rey-cao, 2012). Even when toy labels lack explicit gender signaling, these ideas contribute to gender schemas that ultimately shape activity preference.

Implicit gender signaling was also communicated via color. Girls may determine a sport is "for them" if the toy is pink. Some may see this as a solution to getting more girls into sports; however, this may also push boys to reject the very same toys. Weisgram et al.'s (2014) research team cautioned that creating implicitly gender-colored versions of all toys increases the need for families to have multiple versions of the same toy and reinforces false binary messages about gender. It may also lead to decreases in mixed-gender play groups. While our research does not directly measure children's understanding of colored sport toys, we learned that color had a big influence on adults' perceptions. When adults viewed certain items in a grayscale pattern, they ranked the toys as moderately masculine. However, when they viewed the exact same item in color, they were perceived as either moderately feminine or neutral. This pattern applied to a wide range of children's items such as ice skates, snowboards, gym mats, surfboards, golf clubs, and badminton rackets. This finding suggest that to some extent, "pink gives girls permission" (Weisgram et al., 2014) to engage in physical activity. The color symbolism may encourage adults to give a wider range of toys to girls, thus allowing girls to engage in previously prohibited activities. Changing objects from pink to grayscale was powerful for outdoor action toys and action sports. This may explain why action sports were largely perceived as neutral activities—their ratings depended on the toy color.

One of the most interesting findings was that there seemed to be a limit to the permissiveness of pink. While color altered adults' perceptions of some toys, toys associated with strength and power were largely perceived as for boys, even when they were painted pink. This suggests that some physical pursuits cannot be "pinkified," especially when the object is deeply entrenched in masculine gender norms. Objects that remained masculine, even when displayed in pink, include punching bags, cricket sets, and air rifles. Even when those sport toys are designed in a way to appeal to girls, adults did not find them appropriate. The actual meaning of an object carried more power than the color, design and label did. These findings echo previous research, such as when Weisgram et al.'s (2014) research team altered the gender-typed color of children's toys and changing the color of feminine toys to blue was not impactful enough to change boys' interests in strongly feminine typed toys such as tea-sets and dolls.

Limitations and Future Research Directions

Several limitations arose when conducting both studies. The list of sports depicted in the content analysis was limited compared to the toys shown in the survey, excluding some types of toys, such as sports figurines, from the content analysis. Also, some sports have minimal equipment needs and thus do not translate well into the toy market, so we cannot draw conclusions regarding gender-typing of those sports. The list of sports featured in the survey were more expansive; however, we only asked adults about their perceptions of children's toys. We do not know how these perceptions might translate into everyday parenting choices. We also do not know how children perceive and play with these toys, or sports toys' impact on children's physical skills and sport enjoyment. Moreover, attention should be paid to developmental trends in gender schema formation and in children's resulting play and sport participation.

Future research could further examine how the observed patterns change with respect to different populations. While we collected data on survey respondents' gender and age, we did not have enough statistical power to examine whether those factors played a significant role in toy perceptions. Furthermore, given IRB restrictions and privacy concerns, we do not know where our survey participants hail from and we cannot unpack the nuances of shifting cultural norms, which is important because sport carries different gendered meanings in different places (Coakley, 2020). In addition, toy use and play patterns differ based on contextual factors such as cultural traditions and resource availability (Whiting & Edwards, 1992). Because our research team was based in the U.S., we do not have a sense of the availability of sports toys or accompanying advertisements might vary throughout the world.

Though our research team was racially diverse, all the coders identified as women. Coders may have shaped their perceptions of the content analysis images. Though our RAs showed strong agreement with respect to coding the main variable of gender, there were less agreement on other variables; the toy description variable was dismissed due to reliability concerns. Future research should work to refine codes and coder training.

Finally, future research on toys should also aim to focus more explicitly on how gender intersects with race to inform ideas about toys. We conducted preliminary intersectionality analyses within the current content analysis that indicate three trends that should be honored as the primary focus of future study. Researchers can examine the representation of different racial groups in toy advertisements, the association of racial groups with specific toy types, or the way gendered ideas about toys vary based on race. Scholars should examine how these patterns are related to racialized gender schemes in sport-specific toys and play. We need much more research to help us understand how gender and race intersect regarding sport and toys.

Practice Implications

This study has implications for toy manufacturers and retailers. Small changes in the way these toys are marketed can broaden play and future sport opportunities for all children. The removal of gendered terms from toy names and descriptions is a welcome improvement, but these textual messages are belied by the overabundance of boys in the accompanying photos as well as by the colored toys. Ideally, sports toys would be increasingly available in neutral color schemes. Photographs showing children using the toys should include children of multiple genders where possible, and care must be taken to not perpetuate stereotypes about who should and should not enjoy playing different sports. Toy companies could showcase girls as active participants enjoying sports toys and fully engaging in gross motor play that can promote lifelong exercise and good health, rather than portraying girls as passive bystanders to action (that is often being taken by boys). Companies may balk at the number of models needed to increase diversity, but these costs may be offset by a widening of folks to the target market. While gendered color schemes are not recommended, toys that use feminized or masculine color schemes should make efforts to depict both boys, girls, and nonbinary children using the toys. This shift would potentially eventually remove the gendered nature of colors, allowing children to play with toys of all colors and remove an important barrier to mixed gender play.

A greater awareness of market forces that drive stereotypical purchasing can help adults think critically and carefully when providing toys to children. The website photos were typically identical to those displayed on the toy packaging. Purchasers can either buy second-hand toys, unbox toys, or repackage items before giving them as gifts. Adults can help also model diverse and balanced play whenever possible. Such actions would reduce exposure to male-dominated marketing images while creating more-inclusive gender schemas. To reduce implicit ideas based on color, adults (including educators) should seek out neutrally colored toys and provide a wide array of toys regardless of the gender identity of children who will play with them.

Conclusion

Toys play an important role in children's development but most research has not focused specifically on sport-related toys. This study takes a necessary first step in establishing the strongly gendered perceptions of sport-related toys. Our findings suggest that sport toys are still marked and largely perceived as being for boys. This is especially true for activities involving physicality, aggression, and strength. Toys that are painted in feminine-typed colors and sports that emphasize beauty, grace, and aesthetics are seen as more appropriate for girls. Sport toys are particularly important to study because girls continue to lag boys in sport participation, a traditionally masculine domain. By playing with sport-related toys, children can build fine and gross motor skills that are critical for physical literacy and set the foundation for teamwork by engaging in cooperative play with others. Children can also engage in role-playing that will help them appreciate and understand physical activities. We hope researchers expand our research to learn how gendered sport toys shape children's behavior and development.

Acknowledgements The authors would like to thank Jordan Levinson for her review and feedback on an earlier version of this manuscript. The authors are grateful for the research assistance of McKenna Douglas, Lenien Jamir, Elena Rosas-Azcatl, and Kristen Williams-Libert.

Author Contributions All authors whose name appears on the submission made substantial contributions to both the conception, design, analysis, and interpretation of the manuscript. All authors contributed to the drafting process, approve the version to be published, and agree to be accountable for any questions related to accuracy or integrity.

Funding A small portion of the research was funded by the Monmouth University Research and Creativity Grant awarded to Dr. Dinella. No other funding was received to assist with the preparation of this manuscript.

Data Availability The data and other materials that support the findings in this study are available from the authors upon request.

Declarations

Ethical Approval Part 2 of the study involves Human participants. The study was approved by the Monmouth University IRB.

Informed Consent The informed consent process took place via an online form in the survey.

Competing Interests There are no other financial or non-financial competing interests other than the grant reported above.

References

Aguinis, H., Villamor, I., & Ramani, R. (2021). Mturk research: Review and recommendations. *Journal of Management*, *47*(4), 823–837. https://doi.org/10.1177/0149206320969787

American Psychological Association. (2008). *Report of the APA task force on the sexualization of girls*. American Psychological Association. https://www.apa.org/pi/women/programs/girls/report-summary.pdf

Armentrout, S. M., Kamphoff, C., & Thomae, J. (2014). Photographic images in sports illustrated for kids: An analysis of sport coverage and gender representation. *Women in Sport & Physical Activity Journal*, *22*(1), 37–46. https://doi.org/10.1123/wspaj.2014-0011

Aspen Institute (2015). *Physical literacy in the United States: A model, strategic plan, and call to action*. https://www.aspeninstitute.org/publications/physical-literacy-model-strategic-plan-call-action/

Auster, C. J., & Mansbach, C. S. (2012). The gender marketing of toys: An analysis of color and type of toy on the Disney store website. *Sex Roles*, *67*(7–8), 375–388. https://doi.org/10.1007/s11199-012-0177-8

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

Bem, S. L. (1983). Gender schema theory and its implications for child development: Raising gender-aschematic children in a gender-schematic society. *Signs*, *8*(4), 598–616.

Blakemore, J. E., & Centers, R. E. (2005). Characteristics of boys' and girls' toys. *Sex Roles*, *53*(9–10), 619–633. https://doi.org/10.1007/s11199-005-7729-0

Boe, J. L., & Woods, R. J. (2018). Parents' influence on infants' gender-typed toy preferences. *Sex Roles*, *79*(5–6), 358–373. https://doi.org/10.1007/s11199-017-0858-4

Bowman, E. (2024). Paris games are being hailed as the 'gender-equal' olympics. Let's take a closer look. *NPR*. https://www.npr.org/2024/07/31/g-s1-14470/paris-games-is-gender-equal-olympics

Braddock-II, J. H., Sokol-Katz, J., Greene, A., & Basinger-Fleischman, L. (2005). Uneven playing fields: State variations in boys' and girls' access to and participation in high school interscholastic sports. *Sociological Spectrum*, *25*(2), 231–250. https://doi.org/10.1080/02732170590884040

Brake, D. L. (2010). *Getting in the game: Title IX and the women's sports revolution*. NYU.

Buszard, T., Reid, M., Masters, R., & Farrow, D. (2016). Scaling the equipment and play area in children's sport to improve motor skill acquisition: A systematic review. *Sports Medicine*, *46*(6), 829–843. https://doi.org/10.1007/s40279-015-0452-2

Buszard, T., Garofolini, A., Reid, M., Farrow, D., Oppici, L., & Whiteside, D. (2020). Scaling sports equipment for children promotes functional movement variability. *Scientific Reports*, *10*, Article 3111. https://doi.org/10.1038/s41598-020-59475-5

Cahn, S. K. (2015). *Coming on strong: Gender and sexuality in women's sport* (2nd ed.). University of Illinois Press.

Chalabaev, A., Sarrazin, P., Fontayne, P., Boiché, J., & Clément-Guillotin, C. (2013). The influence of sex stereotypes and gender roles on participation and performance in sport and exercise: Review and future directions. *Psychology of Sport and Exercise*, *14*(2), 136–144. https://doi.org/10.1016/j.psychsport.2012.10.005

Cherney, I. (2018). Characteristics of masculine and feminine toys and gender differentiated play. In E. S. Weisgram, & L. M. Dinella (Eds.), *Gender typing of children's toys: How early play experiences impact development* (pp. 73–95). American Psychological Association.

Chiu, S. W., Gervan, S., Fairbrother, C., Johnson, L. L., Owen-Anderson, A. F. H., Bradley, S. J., & Zucker, K. J. (2006). Sex-dimorphic color preference in children with gender identity disorder: A comparison to clinical and community controls. *Sex Roles*, *55*(5), 385–395. https://doi.org/10.1007/s11199-006-9089-9

Clark, K. B., & Clark, M. P. (1950). Emotional factors in racial identification and preference in Negro children. *Journal of Negro Education*, *19*(3), 341–350. https://doi.org/10.2307/2966491

Coakley, J. (2020). *Sports in society: Issues and controversies* (12th ed.). McGraw-Hill.

Coletti, J. T., Allan, V., & Martin, L. J. (2021). Reading between the lines: Gender stereotypes in children's sport-based books. *Women in Sport & Physical Activity Journal*, *29*(1), 1–11. https://doi.org/10.1123/wspaj.2020-0036

Cooky, C., & Rauscher, L. (2016). Girls and the racialization of female bodies in a sport context. In M. A. Messner, & M. Musto (Eds.), *Child's play: Sport in kids' worlds* (pp. 61–81). Rutgers University Press.

Cooky, C., Council, L. D., Mears, M. A., & Messner, M. A. (2021). One and done: The long eclipse of women's televised sports, 1989–2019. *Communication & Sport*, *9*(3), 347–371. https://doi.org/10.1177/21674795211003524

Cunningham, S. J., & Macrae, C. N. (2011). The colour of gender stereotyping. *British Journal of Psychology*, *102*(3), 598–614. https://doi.org/10.1111/j.2044-8295.2011.02023.x

Davis, J. T. M., Robertson, E., Lew-Levy, S., Neldner, K., Kapitany, R., Nielsen, M., & Hines, M. (2021). Cultural components of sex differences in color preference. *Child Development*, *92*(4), 1574–1589. https://doi.org/10.1111/cdev.13528

Desmond, M., & Emirbayer, M. (2020). *Race in America* (2nd ed.). W. W. Norton & Company.

Dinella, L. M. (2015). Cognitive theories of gender development. In K. L. Nadal (Ed.), *Encyclopedia of psychology and gender* (pp. 344–348). SAGE.

Dinella, L. M., & Weisgram, E. S. (2018). Gender-typing of children's toys: Causes, consequences, and correlates. *Sex Roles*, *79*(5–6), 253–259. https://doi.org/10.1007/s11199-018-0943-3

Dinella, L. M., Weisgram, E. S., & Fulcher, M. (2017). Children's gender-typed toy interests: Does propulsion matter? *Archives of Sexual Behavior*, *46*(5), 1295–1305. https://doi.org/10.1007/s10508-016-0901-5

Douglas, D. D. (2005). Venus, Serena, and the women's Tennis Association (WTA): When and where race enters. *Sociology of Sport Journal*, *22*(3), 256–282. https://doi.org/10.1123/ssj.22.3.255

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: Informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity*, *10*(1), 1–21. https://doi.org/10.1186/1479-5868-10-98

Endendijk, J. J. (2022). Welcome to a pink and blue world! An analysis of gender-typed content in birth announcement cards from 1940–2019 in the Netherlands. *Sex Roles*, *86*(1–2), 1–13. https://doi.org/10.1007/s11199-021-01249-y

Feinberg, D. (2024, April 5). Women's basketball growth helped by star players, more media coverage, rules changes. *AP News*. https://apnews.com/article/march-madness-staley-clark-growth-495a79087d0e1972ed691388a9d3ffc1

Fisher-Thompson, D. (1993). Adult toy purchases for children: Factors affecting sex-typed toy selection. *Journal of Applied Developmental Psychology*, *14*(3), 385–406. https://doi.org/10.1016/0193-3973(93)90016-O

Gietzen, M. S., Gollust, S. E., Linde, J. A., Neumark-Sztainer, D., & Eisenberg, M. E. (2017). A content analysis of physical activity in TV shows popular among adolescents. *Research Quarterly for Exercise and Sport*, *88*(1), 72–82. https://doi.org/10.1080/02701367.2016.1266459

Gurrieri, L., Cahill, H. D., Finn, F., McVey, L., & Sagheer, S. (2022). Gendered marketing and feminism. In K. Kubacki, L. Parker, C. Domegan, & L. Brennan (Eds.), *The Routledge companion to marketing and society* (pp. 141–155). Routledge. https://doi.org/10.4324/9781003028079

Hanish, L. D., Xiao, S. X., Malouf, L. M., Martin, C. L., Goble, P., Fabes, R. A., DeLay, D., & Bryce, C. (2023). The benefits of buddies: Strategically pairing preschoolers with other-gender classmates promotes positive peer interactions. *Early Education and Development*, *34*(5), 1011–1025. https://doi.org/10.1080/10409289.2022.2090773

Hardin, M., & Greer, J. D. (2009). The influence of gender-role socialization, media use and sports participation on perceptions of gender-appropriate sports. *Journal of Sport Behavior*, *32*(2), 207–226.

Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures*, *1*(1), 77–89. https://doi.org/10.1080/19312450709336664

Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity*, *7*(1), 1–16. https://doi.org/10.1186/1479-5868-7-40

Jonauskaite, D., Dael, N., Chèvre, L., Althaus, B., Tremea, A., Charalambides, L., & Mohr, C. (2019). Pink for girls, red for boys, and blue for both genders: Colour preferences in children and adults. *Sex Roles*, *80*(9), 630–642. https://doi.org/10.1007/s11199-018-0955-z

Jung, I., & Griber, Y. A. (2019). *Colour associations for the words feminine and masculine in nine different countries* [Conference paper]. AIC 2019 Color and Landscape, Midterm Meeting of the International Color Association (AIC), Buenos Aires, Argentina. https://www.diva-portal.org/smash/record.jsf?pid=diva2:1423818

Kahlenberg, S., & Hein, M. (2010). Progression on Nickelodeon? Gender-role stereotypes in toy commercials. *Sex Roles*, *62*(11–12), 830–847. https://doi.org/10.1007/s11199-009-9653-1

Kirkham, P. (1996). *The gendered object*. Manchester University.

Krane, V., Ross, S. R., Miller, M., Ganoe, K., Lucas-Carr, C., & Barak, K. S. (2011). It's cheesy when they smile: What girl athletes prefer in images of female college athletes. *Research Quarterly for Exercise and Sport*, *82*(4), 755–768. https://doi.org/10.1080/02701367.2011.10599812

Leaper, C. (2000). Gender, affiliation, assertion, and the interactive context of parent–child play. *Developmental Psychology*, *36*(3), 381–393. https://doi.org/10.1037/0012-1649.36.3.381

Leaper, C., & Bigler, R. (2018). Societal causes and consequences of gender-typing of children's toys. In E. S. Weisgram, & L. M. Dinella (Eds.), *Gender typing of children's toys: How early play experiences impact development* (pp. 287–308). American Psychological Association.

Levin, D. E., & Kilbourne, J. (2009). *So sexy so soon: The new sexualized childhood and what parents can do to protect their kids*. Ballantine Books.

LoBue, V., & DeLoache, J. S. (2011). Pretty in pink: The early development of gender-stereotyped colour preferences. *British Journal of Developmental Psychology*, *29*(3), 656–667. https://doi.org/10.1111/j.2044-835X.2011.02027.x

Lopes, L. V. M., Veloso, A. R., & Ferraz, S. B. (2024). Productive and repressive power: The influence of gender norms on parents' decisions on children's consumption. *Journal of Consumer Affairs*, *58*(1), 177–195. https://doi.org/10.1111/joca.12558

MacNevin, M., & Berman, R. (2017). The black baby doll doesn't fit the disconnect between early childhood diversity policy, early childhood educator practice, and children's play. *Early Child Development and Care*, *187*(5–6), 827–839. https://doi.org/10.1080/03004430.2016.1223065

Martin, C. L., & Cook, R. E. (2018). Cognitive perspectives on children's toy choices. In E. S. Weisgram, & L. M. Dinella (Eds.), *Gender typing of children's toys: How early play experiences impact development* (pp. 141–164). American Psychological Association.

Martin, C. L., & Dinella, L. M. (2002). Children's gender cognitions, the social environment, and sex differences in cognitive domains. In: A. V. McGillicuddy-De Lisi & R. De Lisi (Ed.), *Biology, society, and behavior: The development of sex differences in cognition* (pp. 207–239). Ablex Publishing.

Martin, C. L., & Dinella, L. M. (2012). Congruence between gender stereotypes and activity preference in self-identified tomboys and non-tomboys. *Archives of Sexual Behavior*, *41*(3), 599–610. https://doi.org/10.1007/s10508-011-9786-5

Martin, C. L., & Halverson, C. F. (1981). A schematic processing model of sex typing and stereotyping in children. *Child Development*, *52*(4), 1119–1134. https://doi.org/10.2307/1129498

Martin, A., & McDonald, M. G. (2012). Covering women's sport? An analysis of sports Illustrated covers from 1987–2009 and ESPN the magazine covers from 1998–2009. *Graduate Journal of Sport Exercise & Physical Education Research*, *1*, 81–97.

Martin, C. L., Eisenbud, L., & Rose, H. (1995). Children's gender-based reasoning about toys. *Child Development*, *66*(5), 1453–1471. https://doi.org/10.2307/1131657

Martin, C. L., Xiao, S. X., DeLay, D., Hanish, L. D., Fabes, R. A., Morris, S., & Oswalt, K. (2022). Gender integration and elementary-age students' classroom belongingness: The importance of other-gender peers. *Psychology in the Schools*, *59*(8), 1492–1510. https://doi.org/10.1002/pits.22687

McNiel, J. N., Harris, D. A., & Fondren, K. M. (2012). Women and the wild: Gender socialization in wilderness recreation advertising. *Gender Issues*, *29*(1–4), 39–55. https://doi.org/10.1007/s12147-012-9111-1

Midgley, C., DeBues-Stafford, G., Lockwood, P., & Thai, S. (2021). She needs to see it to be it: The importance of same-gender athletic role models. *Sex Roles*, *85*(3), 142–160. https://doi.org/10.1007/s11199-020-01209-y

Mohebbi, M. (2014). Investigating the gender-based colour preference in children. *Procedia-Social and Behavioral Sciences*, *112*, 827–831. https://doi.org/10.1016/j.sbspro.2014.01.1238

Moradi, B., & Huang, Y. P. (2008). Objectification theory and psychology of women: A decade of advances and future directions. *Psychology of Women Quarterly*, *32*(4), 377–398. https://doi.org/10.1111/j.1471-6402.2008.00452.x

Mullin, B. A., & Hogg, M. A. (1999). Motivations for group membership: The role of subjective importance and uncertainty reduction. *Basic & Applied Social Psychology*, *21*(2), 91–102. https://doi.org/10.1207/15324839951036443

Navarro, R., Martínez, V., Yubero, S., & Larrañaga, E. (2014). Impact of gender and the stereotyped nature of illustrations on choice of color: Replica of the study by Karniol (2011) in a Spanish sample. *Gender Issues*, *31*(2), 142–162. https://doi.org/10.1007/s12147-014-9122-1

Neuendorf, K. A. (2011). Content analysis—A methodological primer for gender research. *Sex Roles*, *64*(3–4), 276–289. https://doi.org/10.1007/s11199-010-9893-0

Paoletti, J. B. (1987). Clothing and gender in America: Children's fashions, 1890–1920. *Signs*, *13*(1), 136–143. https://doi.org/10.1086/494390

Pike, J. J., & Jennings, N. A. (2005). The effects of commercials on children's perceptions of gender appropriate toy use. *Sex Roles*, *52*(1–2), 83–91. https://doi.org/10.1007/s11199-005-1195-6

Porter, C. O. L. H., Outlaw, R., Gale, J. P., & Cho, T. S. (2019). The use of online panel data in management research: A review and recommendations. *Journal of Management*, *45*(1), 319–344. https://doi.org/10.1177/0149206318811569

Rasmussen, K., Dufur, M. J., Cope, M. R., & Pierce, H. (2021). Gender marginalization in sports participation through advertising: The case of Nike. *International Journal of Environmental Research and Public Health*, *18*(15), 7759–7781. https://doi.org/10.3390/ijerph18157759

Richards, M. N., Putnick, D. L., & Bornstein, M. H. (2020). Toy buying today: Considerations, information seeking, and thoughts about manufacturer suggested age. *Journal of Applied Developmental Psychology*, *68*., Article 101134. https://doi.org/10.1016/j.appdev.2020.101134

Schultz, J. (2014). *Qualifying times: Points of change in U.S. women's sport*. University of Illinois Press.

Shutts, K., Banaji, M. R., & Spelke, E. S. (2010). Social categories guide young children's preferences for novel objects. *Developmental Science*, *13*(4), 599–610. https://doi.org/10.1111/j.1467-7687.2009.00913.x

Signorella, M. L., Bigler, R. S., & Liben, L. S. (1993). Developmental differences in children′s gender schemata about others: A meta-analytic review. *Developmental Review*, *13*(2), 147–183. https://doi.org/10.1006/drev.1993.1007

Spinner, L., Cameron, L., & Calogero, R. (2018). Peer toy play as a gateway to children's gender flexibility: The effect of (counter) stereotypic portrayals of peers in children's magazines. *Sex Roles*, *79*(5–6), 314–328. https://doi.org/10.1007/s11199-017-0883-3

Statista Research Department. (2024). *Top online stores in the Toys & Baby segment in the U.S. in 2021, by e-commerce net sales*. Statista. https://www.statista.com/forecasts/870301/top-online-stores-toys-baby-united-states-ecommercedb

Staurowsky, E. J., Flowers, C. L., Buzuvis, E., Darvin, L., & Welch, N. (2022). The women's sports Foundation 50 years of title IX: We're not done yet executive summary and policy recommendations. *Women in Sport and Physical Activity Journal*, *30*(2), 71–84. https://doi.org/10.1123/wspaj.2022-0053

Sturdivant, T. D. (2021). Complying and resisting: A qualitative meta-synthesis of the race and gender discourses found in the play of young children. *Journal of Educational Studies and Multidisciplinary Approaches*, *1*(2), 84–104. https://doi.org/10.51383/jesma.2021.10

Táboas-pais, M. I., & Rey-cao, A. (2012). Gender differences in physical education textbooks in Spain: A content analysis of photographs. *Sex Roles*, *67*(7–8), 389–402. https://doi.org/10.1007/s11199-012-0174-y

Trautner, H. M., Ruble, D. N., Cyphers, L., Kirsten, B., Behrendt, R., & Hartmann, P. (2005). Rigidity and flexibility of gender stereotypes in childhood: Developmental or differential? *Infant and Child Development*, *14*(4), 365–381. https://doi.org/10.1002/icd.399

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Basil Blackwell.

Wade, L., & Ferree, M. M. (2023). *Gender: Ideas, interactions, institutions* (3rd ed.). W. W. Norton & Company.

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

Weisgram, E. S., & Dinella, L. M. (Eds.). (2018). *Gender typing of children's toys: How early play experiences impact development*. American Psychological Association.

Weisgram, E. S., Fulcher, M., & Dinella, L. M. (2014). Pink gives girls permission: Exploring the roles of explicit gender labels and gender-typed colors on preschool children's toy preferences. *Journal of Applied Developmental Psychology*, *35*(5), 401–409. https://doi.org/10.1016/j.appdev.2014.06.004

Whiting, B. B., & Edwards, C. P. (1992). *Children of different worlds: The formation of social behavior* (Reprint edition). Harvard University Press.

Whiting, S., Buoncristiano, M., Gelius, P., Abu-Omar, K., Pattison, M., Hyska, J., Duleva, V., Musić Milanović, S., Zamrazilová, H., Hejgaard, T., Rasmussen, M., Nurk, E., Shengelia, L., Kelleher, C. C., Heinen, M. M., Spinelli, A., Nardone, P., Abildina, A., Abdrakhmanova, S., & Breda, J. (2020). Physical activity, screen time, and sleep duration of children aged 6–9 years in 25 countries: An analysis within the WHO European Childhood Obesity Surveillance Initiative (COSI) 2015–2017. *Obesity Facts*, *14*(1), 32–44. https://doi.org/10.1159/000511263

Wong, W. I., & Hines, M. (2015). Preferences for pink and blue: The development of color preferences as a distinct gender-typed behavior in toddlers. *Archives of Sexual Behavior*, *44*(5), 1243–1254. https://doi.org/10.1007/s10508-015-0489-1

Xiao, S. X., Hanish, L. D., Malouf, L. M., Martin, C. L., Lecheile, B., Goble, P., Fabes, R. A., DeLay, D., & Bryce, C. I. (2022). Preschoolers' interactions with other-gender peers promote prosocial behavior and reduce aggression: An examination of the Buddy up intervention. *Early Childhood Research Quarterly*, *60*(3rd Quarter), 403–413. https://doi.org/10.1016/j.ecresq.2022.04.004

Yeung, O., & Johnston, K. (2019). *The physical activity economy in Asia: Market size, participation, barriers, and options to increase movement* [White Paper]. Asian Development Bank. https://www.adb.org/sites/default/files/institutional-document/633886/adou2020bp-physical-activity-economy-asia.pdf

Yeung, S. P., & Wong, W. I. (2018). Gender labels on gender-neutral colors: Do they affect children's color preferences and play performance? *Sex Roles*, *79*(5), 260–272. https://doi.org/10.1007/s11199-017-0875-3