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Constructing Difference: Lego® Set Narratives Promote Stereotypic Gender Roles and Play

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Abstract LEGO® construction sets are a staple in many children's lives. Given worldwide distribution, generations of children have grown up playing with these brightly colored, interlocking plastic bricks. Historically marketed to all children, the LEGO® Group has begun targeting male and female consumers differentially with the introduction of product lines such as LEGO® City and LEGO® Friends. Although the packaging, marketing, brick colors, and characters have changed, little is known about whether these product series encourage differences in the way boys and girls play. This content analysis compared the play narratives of sets marketed to boys (LEGO® City) and girls (LEGO® Friends). Our analysis found distinct gendered messages that encourage boys to enact various skilled professions, heroism, and expertise, whereas girls are encouraged to focus on having hobbies, being domestic, caring for others, socializing, being amateurs, and appreciating and striving for beauty. Although LEGO® City and Friends sets offer opportunities for construction, they also promote stereotyped gender roles for enacting femininity and masculinity in play. Parents, educators, and practitioners often focus on the educational affordances of LEGO® construction. We recommend that they also consider the other lessons, both explicit and implicit, being taught through gender-specific LEGO® sets.

Play is an important part of children's learning. Not only does it provide opportunities for physical, cognitive, social, and emotional development, but play also enables children to experiment with social roles and cultural practices in the world around them (Maccoby 1998). Materials made for children's play (i.e., toys) can shape the ways in which children engage and what they learn from such activities. As ample research has demonstrated, toy features, from color palette to structure (e.g., wheels, porcelain), greatly influence if and how boys and girls play (Fishel 2001; Ruble et al. 2007; Weisgram et al. 2014). As Lauwaert (2009, pp.12–13) explains that the "structure of a toy, its technological specificities, its materiality, the rules and manuals, examples and guidelines, its 'reputation' and connotations create a network of facilitated play practices…[that] create a window of opportunities within whose boundaries the players can act." These networks of facilitated play practices are aimed at what Wohlwend (2009, p. 59) describes as an "anticipated identity" or projection of an idealized child consumer. By closely examining toys, associated artifacts, and their marketing and distribution trajectories, it is possible to get a clear sense of the identities being projected or anticipated for potential child consumers of these products in terms of children's attributes such as race, ethnicity, social class, and gender.

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Importance of Play

For decades, developmental scientists and educators have stressed the "critical importance" (Zigler and Bishop-Josef 2004, p. 9) of play for children's development. Vygotsky (1978) noted that, through play, children develop increasingly abstract thought. Piaget argued that play offers children opportunities to demonstrate their semiotic and cognitive abilities (e.g., Inhelder and Piaget 1964), and Bodrova and Leong (1996) noted that play helps build executive function such as inhibitory control. Others have identified the contribution play makes to children's development and expressions of creativity, communication, perspective-taking, and social skills (Guerro et al. 2016; Lillard et al. 2013; Russ et al. 1999; Sutton-Smith 1967; Youngblade and Dunn 1995). Play is so important for children's development that the United Nations High Commission for Human Rights (1989) declared that play should be a right of every child, and the American Academy of Pediatrics established guidelines for supporting children's play (Ginsburg 2007).

Gender and Play

Research has found that caregivers and educators often provide different types of toys to male and female children (Rheingold and Cook 1975) and encourage or discourage different types of play according to children's gender (Clearfield and Nelson 2006; K. A. Martin 1998). Surveys of children from kindergarten to eighth grade demonstrate that they are aware of these gendered expectations for play and have play preferences that adhere to these expectations (Etaugh and Liss 1992).

More recently, studies have explored the ways in which both product design and the marketing associated with toys can guide play by making social roles, especially gender roles, particularly salient to players (Auster and Mansbach 2012; Coyle and Liben 2016; Coyne et al. 2016). For instance, when gender-neutral objects (e.g., nutcracker, garlic press) are colored pink or blue and labeled for girls or boys, it alters the likelihood of such toys being selected for play by boys and girls. In particular, pink gives girls permission to play (Weisgram et al. 2014). Toy color also can impact performance. In a recent study of engineering toys colored in primary or pastel colors, boys demonstrated worse engineering aptitude when playing with pastel, rather than brightly colored, toys (Mulvey et al. 2017). Moreover, gender-typing of color appears early. When given a choice, children as young as 20–40 months of age show significant Sex x Color preferences. Specifically, girls play with pink toys whereas boys actively avoid them (Wong and Hines 2014).

The types of toys that are typically labeled and marketed for boys often involve transportation (e.g., cars, trucks, planes), construction (e.g., building sets), adventure, danger, and aggression (Blakemore and Centers 2005; C. L. Martin and Ruble 2004). Interestingly, the design features of many of these toys support the development of spatial and larger Science, Technology, Engineering, and Mathematics (STEM), skills, as well as assertiveness, agency, and competence (Connor and Serbin 1977; Eliot 2010; Miller 1988). In contrast, toys marketed to girls often are focused on caregiving (e.g., dolls), domesticity (e.g., cleaning, shopping), and attractiveness (e.g., fashion, make-up) (Blakemore and Centers 2005; C. L. Martin and Ruble 2004). Some studies have found that play with these types of toys can heighten girls' awareness of their body shape, sexuality, and attractiveness (Dittmar et al. 2006; Starr and Ferguson 2012) and minimize the possible occupations they could envision for themselves (Etaugh and Liss 1992). For instance, 4–7 year-old girls who played with Barbie envisioned themselves as able to do fewer jobs than girls who played with Mrs. Potato Head. However, these children did not differ in how they envisioned the number of occupations boys could have (Sherman and Zurbriggen 2014). There is also evidence that some girls are more sensitive to these influences. For example, when gender salience is high for preschool-aged girls, playing a game with a hyper-feminized character (i.e., Barbie) increases their interest in highly feminine activities compared to watching a less feminine character doing the same jobs (Coyle and Liben 2016). These patterns suggest that boys and girls are learning different skills when playing, which may reinforce current gender stereotypes and influence future career aspirations (Blickenstaff 2005).

Gender and Toy Marketing

Recent research has focused more acutely on the ways in which marketing can make gendered play more salient (Auster and Mansbach 2012; Black et al. 2016; Carrington et al. 2007), especially when increasing numbers of toy marketing campaigns are being geared to specific gendered categories of users (Black et al. 2013; Hudak 2017; Kahlenberg and Hein 2010). For instance, studies of commercials for children's toys find distinct differences in the narratives of play, including more active, aggressive, and antisocial behaviors in toys for boys and more cooperative and domestic behaviors in toys for girls (Larson 2001; Smith 1994). Moreover, experimental studies find marketing to influence children's perception of appropriate play for their own gender (Pike and Jennings 2005). The bulk of such research explores the marketing and packaging of typically girls' or boys' products (e.g., Barbies versus Dinosaurs). Little is known about how online product marketing and play narratives might differ when similar types of toys, such as Lego® construction blocks, are specifically targeting male or female consumers.

One global franchise that is embracing gender differentiation through marketing is LEGO®, which has created distinct lines of building sets for girls (e.g., Friends, Disney Princesses, Fairies) and boys (e.g., Ninjago, City, Star Wars), as well as product websites that use gender as a searchable category (e.g., shopLego.com, Lego.com). These attempts to broaden the appeal of construction bricks may be viewed as beneficial, given research demonstrating that girls tend to play with fewer spatial toys than boys do (Blickenstaff 2005; Jirout and Newcombe 2015) and the potential STEM-related benefits that play with spatial toys may offer (Eliot 2010; Liben and Coyle 2014). However, a growing body of work explores the ways in which LEGO® brick color (pink and purple vs. black and gray), set complexity, and character choices (minifigures, mini-doll figures) might impact play (Black et al. 2016), and it points to design features that may mitigate the potential benefits of spatial play. Although the gendered packaging and marketing of LEGO® sets have gotten much attention in the media, to date little attention has been paid to LEGO®'s online marketing materials. Thus, little is known about whether the play narratives for these LEGO® building sets are equivalent, or whether the gendered marketing differences extend to gendered expectations of how children should play with construction blocks. These narratives are short descriptions of the package content and storyline that accompanies all LEGO® sets online. The narratives are available when shopping with most online vendors (e.g., Amazon, Target), but if viewed on Lego.com, they can have accompanying pictures and/or videos of these plots. Given that cognitive social learning theory (Bandura 1971, 1986), sociocultural theory (Rogoff 2003; Vygotsky 1978), and cultivation theory (Gerbner 1969; Gerbner et al. 2002) focus on how the world around the child is embedded with messages that influence children's interests, social roles, and sense of efficacy, it is worthwhile to consider the messages in LEGO® marketing. By contrasting the play narratives of LEGO® building sets listed on LEGO®'s online store, we explore (a) the play themes, activities, and character relationships depicted in LEGO® City® (marketed to boys) and LEGO® Friends® (marketed to girls) marketing materials and (b) whether the social roles or anticipated identities found in the LEGO® product narratives differ between the two product lines.

Method

Study and Data

In the present study we used a combined approach to content analysis (Morgan 1993; Wohlwend 2009), bringing together qualitative methods for in-depth coding and thematic interpretation (Boyatzis 1998) of text with quantitative methods for frequency analysis and statistical comparisons of textual content across sets. All 66 LEGO® Friends® sets released on Lego.com between January 2012 and February 2015, as well as an additional 66 sets from the 100 released LEGO® City® sets, were selected for analysis. (A full list of the kits we coded is available as an online supplement.) This involved an initial process of matching Friends and City sets in terms of content (i.e., boat, airplane, camper van, car) and number of pieces, which also tended to yield parity in price because cost correlates with number of pieces for readily available sets. When matches were no longer available, a random selection of City sets was added to the sample. This yielded a total of 132 (66 City and 66 Friends) set narratives to review.

Qualitative Coding

We used both deductive and inductive coding processes to explore thematic patterns of similarity and difference across the two product line narratives. The study team consisted of two university professors (one a community psychologist who specializes in media and children's development and the other an applied linguist who specializes in popular culture and children's learning), one graduate research assistant, and three undergraduate research assistants who met weekly during the course of the project. The team began with a deductive, theoretically-informed approach to coding (Miles and Huberman 1994; Saldaña 2009). Specifically, we drew from extant literature and prior research (Bazzini et al. 2010; Blakemore and Centers 2005; England et al. 2011; Sweet 2014) to identify a priori categories of stereotypical gender differentiation in toys (e.g., danger and violence in toys for boys; physical attractiveness and nurturing in toys for girls), and we used these categories for initial deductive coding of the data. The team used Dedoose coding software to facilitate collaborative, mixed-methods analysis and to allow for easy access to shared code definitions, data, and analytic memos. After this initial session of coding, the team met to refine and collapse existing codes, identify new codes, and create subcategories as needed. As an example, based on the study team's recognition of the need for a code to represent distinct forms of caregiving in the data, the a priori code of "caregiving" was expanded to "caregiving of animals and humans" and "sharing" to encompass more of the variety of caregiving behaviors (i.e., feeding, bathing) as well as more subtle forms of caregiving (i.e., sharing food, taking time to watch others). The data were then recoded by the graduate and undergraduate research assistants. A quarter of all the sets were double-coded to assess interrater reliability.

In the next stage of analysis, the two professors used data excerpts and analytic memos to illustrate the process of inductive coding of data samples for the rest of the study team. The team then returned to the data and coded inductively, keeping separate notes on potential codes and patterns that were identified in the data. The team then met again, compared notes,

generated an additional set of codes, and returned to the data for additional coding. Throughout this process, the team met weekly; compared emergent codes, patterns, and points of discontinuity against data samples; and then refined code definitions, added and deleted codes, and returned to the data to recode. Categories for which the team was unable to reach a consensus of definition or identification across coders were not included in the present analyses.

Thematic Analysis

After coding was complete, two members of the research team (first and second authors) used the analytic tools provided with the Dedoose coding software to identify patterns and points of discontinuity in the data. For example, a bar chart displaying average code weights in specific categories as applied to each product line (i.e., all the product line sets, both 66 City and 66 Friends) provided the researchers with an overview of all codes, as well as a clear visual representation of the prevalence of particular types of codes in each product line and instances of significant overlap of codes (e.g., the code "leisure" occurred in 7.8% of City sets and 92.2% of Friends sets). From there, the researchers began to collate codes (Braun and Clarke 2006), noting patterns of prevalence, overlap, and absence in relation to each product line to generate initial themes. After generating initial themes, the researchers returned to the data, reading specific narrative excerpts associated with particular codes to refine thematic categories and identifying possible overarching themes and subthemes (Braun and Clarke 2006; Saldaña 2009). Next, the researchers reviewed the themes, checking their veracity against each other, the quantitative findings, and the dataset as a whole. Then, as a final step, remaining themes were defined and given final descriptive names.

Quantitative Comparisons

To ensure consistency in the application of codes across the research team, Krippendorff's alpha (Kalpha) was calculated for each category (Krippendorff 2004). Table 2 reports reliability of codes. Once all sets were coded, the frequencies of the codes and thematic patterns across the two product series were compared using Chi-square proportional probabilities (Campbell 2007).

Results

Differences between Friends and City Sets

Analyses revealed that the content of LEGO® Friends and City construction set narratives, even when focused on comparable subject matter and aimed at comparable age groups,

differed significantly in terms of how fictional LEGO® characters and anticipated child consumers were discursively positioned. To illustrate, each construction set provided a storyline with the potential to shape how child consumers put the sets into action. All narratives for Friends sets included named characters/mini-doll figures (e.g., Olivia, Emma, Mia) and at times included the anticipated child consumer. In contrast, City sets, with the exception of the recurring character Chase McCain, included unnamed characters/minifigures or characters who were described in terms of their profession or role in the narrative (e.g., fire fighter, police officer, pilot) and always included the anticipated child narrator in the action. The following examples are from two Friends and City construction sets that are comparable in terms of content (airplane with pilot), price ($19.99), and number of pieces (195 and 140, respectively). See Table 1 for details of coding process.

> Friends—(Lego® 3063) Heartlake Flying Club:
> Soar the sunny Heartlake skies with Stephanie! Find sky-high adventure at the Heartlake Flying Club where she takes flying lessons. Now that she has some experience, Stephanie can even fly all by herself. With a map to find her way around and a life preserver for safety, Stephanie can practice piloting her very own seaplane and earn her diploma! Includes Stephanie mini-doll figure.
> City—Lego® 60019) Stunt Plane:
> Pull up alongside the sleek Stunt Plane in the Octan™ truck and fuel it up! Put the pilot in place, close the cockpit and get ready for fast-paced stunts in the skies of LEGO® City. Fire up the big engine, spin the propeller and lift off! Use the tools and fire extinguisher to make repairs and stay safe. Includes 2 minifigures with accessories: a pilot and a driver.

These two narratives are representative of the tone and focus of the other sets in each of the series. To illustrate the coding procedure, it is worthwhile to deconstruct core components of these narratives. In the first narrative, the fictional Friends character is positioned as an ongoing learner who is finally able to fly "all by herself." However, in spite of Stephanie's readiness to pilot "her very own seaplane" solo, she is situated as a novice aviator who must "practice piloting" in order to "earn her diploma." Her flying is positioned as a recreational activity. In contrast, the unnamed City pilot is positioned as an expert aviator who is capable of performing stunts, putting out fires, and making repairs to equipment. His flying is framed as a profession. Further, he has tools and a fire extinguisher to fix problems rather than a map and life preserver for getting lost or crashing.

Table 1 Sample coding of friends (Lego® 3063) Heartlake flying club narrative

Narrative line	Code(s)	Definition
Soar the sunny Heartlake skies with Stephanie!	Consumer: Passive	Consumer is observing, going along for the ride
	Named minifigure	Character has a name
Find sky-high adventure at the Heartlake Flying Club where she takes flying lessons.	Consumer: Passive	Consumer is observing, going along for the ride
	Hobby	Activity is positioned as 'for fun' rather than for profit or fame/recognition
	Novice	Character is positioned as learning, practicing, needing assistance
Now that she has some experience, Stephanie can even fly all by herself.	Novice	Character is positioned as learning, practicing, needing assistance
	Named minifigure	Character has a name
With a map to find her way around and a life preserver for safety, Stephanie can practice piloting her very own seaplane and earn her diploma!	Novice	Character is positioned as learning, practicing, needing assistance
	Named minifigure	Character has a name
Includes Stephanie mini-doll figure.	Named minifigure	Character has a name

Interestingly, the anticipated child consumers of these sets are positioned differently as well. The Friends narrative uses the second-person point of view in the first two sentences to situate the child consumer as a participant in the narrative ("Soar the sunny Heartlake skies with Stephanie! Find sky-high adventure at the Heartlake Flying Club where she takes flying lessons"), but the final lines use the third-person point of view that positions the fictional character as the agent in the narrative ("With a map to find her way around and a life preserver for safety, Stephanie can practice piloting her very own seaplane and earn her diploma!"). In contrast, the City narrative uses the second-person point of view in all lines of the narrative, thereby positioning the child consumer as the primary agent in the storyline (e.g., the use of active verbs throughout: "Pull up alongside... Put the pilot in place… close the cockpit…get ready… Fire up…spin…lift off").

The contrasting codes in these sample sets are illustrative of coding and thematic patterns that were identified through qualitative and quantitative analyses. The subsequent "Results" section presents a series of thematically consistent patterns in which male consumers and LEGO® characters are discursively positioned as having agency, independence, and expertise as they engage in impactful employment and activities. In contrast, both female consumers and characters are positioned as occupying primarily passive, ornamental roles as they have fun, socialize, and care for others. A summary of the themes we identified, their coding definition, sample text illustrating each theme, and their Kalphas can be found in Table 2, and comparisons of City and Friends sets across these themes can be found in Fig. 1.

Themes 1 and 2: Men Have Professions, Women Have Hobbies

One of the most striking sets of thematic patterns that emerged in our data was the emphasis on male characters' professional work activity and the focus on recreational activity, hobbies, and domestic tasks for female characters.

Work/Employment

LEGO® City provides many opportunities for players (typically boys) to "try on" important and varied occupations and social roles. Fully 59 of the 66 City sets (89%) involved some sort of job or profession. The bulk (52) of these involved civil service activities (police officer, firefighter), graduate level (e.g., doctor, astronaut) or professional (e.g., pilot, paramedic, rescue diver) training or specialized skills (e.g., race car driver, train conductor). Only a few jobs had no educational or skill requirements (e.g., crook for police to catch, shopper). Interestingly, all but one set featured male minifigures and 20 (30%) had an additional female minifigure. Some of these females also had specialized jobs (e.g., policewoman, arctic explorer), whereas others lacked professions (e.g., passenger, cat owner). In total there were 195 minifigures with 90% being male. Structurally, all of these minifigures could fit securely inside the LEGO® buildings and vehicles (e.g., in cockpit of plane, behind the wheel of the crane), allowing child consumers to pretend that the character was performing the prescribed job.

LEGO® Friends, on the other hand, had significantly fewer opportunities for players to try out professional roles, with only 31 of 66 (47%) sets involving employment or

Table 2 Coding thematic categories and interrater reliability

Theme and definition	Sample text	Kalpha
Theme 1: Work/Employment		.89
Professional label to character, mini-figure, mini-doll figure (e.g., police officer, firefighter) and/or description as work (e.g., working at the mall)	The fire chief is always ready to help the people of LEGO® City! Meet Natasha the stylist with her cool colored hair. Construction workers lay the cement 2 firefighters, a pilot, crook and a police officer.	
Theme 2a: Domesticity		.97
Activities that include food preparation including cooking, mixing, baking, blending, cleaning, and serving others in a non-job related capacity.	Serve up snacks at the picnic table Help the girls cook Wash the dishes Help clean Make breakfast in the kitchen	
Theme 2b: Recreation/Hobbies		.94
Activities described as fun, recreational, or a hobby. Excluded all activities that were described as work or a profession. Activities include: Hanging out, camping, horseback-riding, swimming, photography, picnicking, hiking, sightseeing, sunbathing, watching TV, boating, jet skiing, canoeing, martial arts, diary writing, magic, sleeping/resting, playing or listening to music, painting, and partying	Relax on the floating ring and take a drink, then play on the slide. Put on the swim flippers and have fun with the playful dolphin! Now set up a picnic blanket and enjoy a croissant and cherries in the sunshine or toast marshmallows by the campfire. Watch a movie together on the flat-screen TV.	
Theme 3a: Heroism/Danger		.90
Activities that involve saving others, facing dangerous situations, or high-risk endeavors	Tackle the blaze and save the day! Rescue the couple with the life preservers Help her to rescue the animals of Heartlake City! But beware – this is a dangerous place with extreme weather conditions and a polar bear lurking near the camp!	
Theme 3b: Urgency		.92
Activities that require quick and immediate response. Common terms include speed, quickly, hurry, race, and rush.	Put the driver in the cockpit quick and speed to the big LEGO® City road race Get to the scene fast on his speedy Fire Motorcycle Speed to the rescue The jet engine is on fire and must be put out, fast! Speed to the scene	
Theme 4: Friendship/Socializing		.97
Activities that focus on time with friends and social events including hanging out, having sleepovers, and hosting or attending parties	Emma loves having her friends over to hang out Head to the big blue pool to hang out with Andrea and her friend Isabella Stephanie is going to visit her friend Kate Friends arrive for a sleepover	
Theme 5: Helping, Sharing, and Caring		.97
Activities that involve caring for others (human or animal) and sharing time, resources, or affection	Share a toasted marshmallow Feed and pamper her to make her feel better Don't forget to make sure everyone is wearing sunscreen Take care of injured animals	
Theme 6: Expert		.96
Activities that require specialized skill or expertise, acknowledgement of expertise/success by others, or exclusive position.	Demolition experts finish off the job Finish the race ahead of the pack and lift the big winner's trophy! The fire chief is always ready to help the people of LEGO® City! Watch the scoreboard and then celebrate Stephanie's victory on the winner's podium with a trophy and rosettes.	
Theme 7: Novice		.89
Activities that involve practicing, trying, learning, or attempting and lack clear expertise or mastery.	Practice her ballet dancing in the big mirror Practice your horseback riding skills and learn to pull the cart with the help of the Instructor Practice riding or jumping with 2 practice jumps! Mia is learning to play the drums and practices on her very own drum set in her bedroom.	
Theme 8: Beauty/Attractiveness		1.0
	Give Emma a hair makeover at the Heartlake Hair Salon Ride Stephanie's pretty blue bike to school!	

Table 2 (continued)

Theme and definition	Sample text	Kalpha
Activities that involve primping, dressing up, putting on make-up or accessories as well as descriptions that focus on attractiveness such as pretty, beautiful, gorgeous.	It's a busy day of beauty fun down at the Butterfly Beauty Shop! Get Emma ready at the makeup table so she looks her best for the camera	

professions, ($\chi^2 = 26.51$, $p < .001$, Cramer's $V = .45$). Most of the jobs in Heartlake City (the setting for the LEGO® Friends sets) were based on retail—selling products such as ice cream, clothes, baked goods, lemonade, pizza, and smoothies. However, a few professions were described, including farmer, veterinarian, model, pilot, lifeguard, teacher, horse-riding instructor, newscaster, fashion designer, stylist, and pet groomer. Some sets included potential professions that were discursively positioned as hobbies (e.g., magician, smoothie-maker, ballet dancer, soccer player).

Domesticity

Often, narratives portrayed Friends' characters as engaged in domestic labor such as cooking and cleaning (32% of sets), and they discursively positioned the anticipated female child consumer as a participant in such domestic activities. Examples include "help the girls cook," "Bake and create a garden party," "Wash the dishes before setting up the sunbeds," "Clean with a bucket and broom," and "Wash dishes in the sink." No LEGO® City sets involved domestic work, and the only mention of cleaning was work related (e.g., street sweeper, tow-truck driver cleaning up after towing).

Almost all of the Friends sets (63, 95%) included one or more of the female LEGO® Friends, only 8 of the 66 sets included a male character, and three sets had only animals (foal, bunnies, puppy). The male Friends' characters often had a job or clearly delineated social role (e.g., Andrew the boat captain and cameraman; Matthew the veterinarian, off-road driver, and student; Noah, the pilot; Julian the DJ, and dads Peter and Louis), and typically the female LEGO® Friends were described as helping the male character with his specialized task (e.g., "carry his medical bag"; "help steer the boat"). Two Friends sets had mother-father pairs (in contrast to City sets which had none). In total, there were 92 mini-doll figures included with 92% ($n = 85$) being female. Interestingly, all of the Friends mini-doll figures were too large to fit inside the LEGO® vehicles and structures included in the set, and only a few could fit on furniture (e.g., beds, couches), potentially limiting how a child consumer could enact characters' activities, such as Stephanie flying the plane.

Recreation/Hobbies

Both sets described characters involved in recreational activities. However, the prevalence and types of activities were
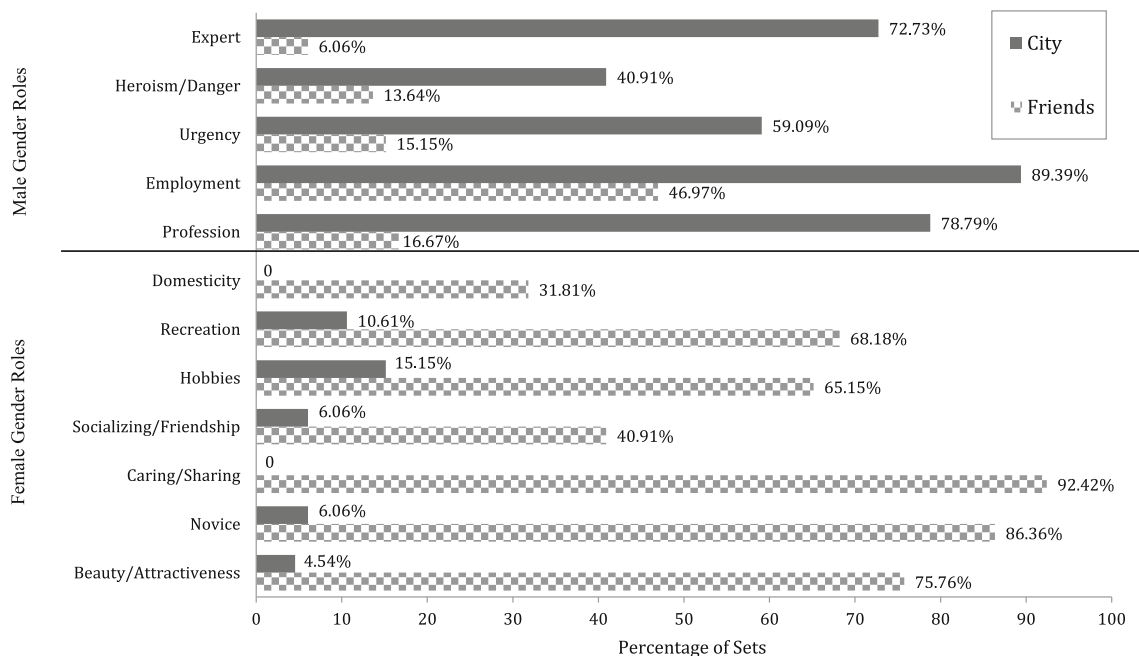
Fig. 1 Percentage of LEGO® City (targeting boys) and Friends (targeting girls) sets with each theme

quite different between sets (χ^2 = 105, p < .001, Cramer's V = .70). In the 66 City sets, only 7 (11%) involved recreational activities such as jumping waves, doing airplane stunts, eating, biking, and watching TV. Of the 66 Friends sets, 45 (68%) involved leisure activities such as hanging out, building a sand castle, cruising, going to a party, sleeping, primping, camping, biking, eating, watching TV, and shopping. Many of the leisure activities involved preparing for or going to social activities: "get ready for the party on the captain's deck with a shower and some primping in the bathroom", "host a sleepover or have a party!," or "throw a garden party with Stephanie's Outdoor Bakery!" Interestingly, none of the LEGO® City sets involved social events, like parties.

Relaxing and unwinding were present in both series but were framed differently. In LEGO® Friends' sets, narratives described winding down, relaxing, and napping (e.g., "wind down on the lounge chairs or soak in the bubbly hot tub"; enjoy "a well-earned relax in the spa"; "wind down in the tranquil environment with the cute bonsai tree and drink some water"; "watching the flat screen TV and getting lots of rest in the sleeping bunk"). In the LEGO® City sets, all references to relaxing and sleeping were described as following a hard day of physical labor or temporarily taking a break before doing more work (e.g., "The fire chief sips his coffee in his office while a firefighter repairs the truck and another takes a well-earned nap"; "Then push off into the water for an exciting day of exploration, before returning for a good night's sleep in the spacious Camper Van when the sun goes down"; "relax in a cozy corner of the garage and watch TV before lowering the door, driving out on the snow scooter and beginning another research mission").

Hobbies were featured prominently in all of the LEGO® Friends' sets but were present in only 10 LEGO® City narratives (χ^2 = 96.81, p < .001, Cramer's V = .86). Interestingly, some of the activities that were positioned as hobbies in LEGO® Friends sets were presented as professions in LEGO® City. For instance, driving a vehicle as a profession (e.g., racecar driver, arctic ice crawler driver) was common in LEGO® City sets (50 of 66 sets), but driving was never described as a recreational activity or hobby (with the exception of towing a watercraft to then play in the waves or racing a motorbike and doing stunts). Conversely, driving in LEGO® Friends sets was almost exclusively for recreation (e.g., "Head to Heartlake Shopping Mall for a girls' day out! Stephanie and Emma are driving there in their new convertible for a fun day of fashion"; "Drive the camper to the mountains, the forest, the beach or anywhere your imagination wants to go!"). It is important to note that transportation vehicles were included in all City sets and only 26 of the 66 Friends sets (and not all were motorized; e.g., bicycles, canoe, windsurfer).

Along these lines, 90% of the LEGO® Friends narratives described having fun, whereas only 10% of LEGO® City sets used such terms (χ^2 = 83.84, p < .001, Cramer's V = .78). In

City narratives, references to fun usually involved the building of the set or the global appeal of the entire LEGO® set (e.g., "There's tons of fun to be had in this massive building set"; "Enter a world of building fun with the LEGO®"), whereas the Friends narratives used fun to describe the imaginary play activities of the characters (e.g., "Stephanie and Emma are driving there in their new convertible for a fun day of fashion"; "Later on, put on the swim flippers and have fun with the playful dolphin!"). It is also worth noting that the legs of LEGO® Friends mini-doll figures do not separate and lack the two connective openings that allow for secure attachment to vehicles that is standard in City characters, thereby limiting the potential for pretend play and effective, realistic participation in many of the activities. For instance, there is a dojo for Emma to practice her martial arts skills for "another fantastic performance" (not tournament), but no kicking with the mini-doll figure is possible.

Theme 3: Being Male Involves Danger, Saving People, and Sense of Urgency

Another thematic pattern that emerged in the data was that of males being in danger and being heroes who save other people. In marketing images and narratives, the landscape of LEGO® City was characterized by predatory animals, hazardous weather conditions, and human-made or natural disasters. This can be juxtaposed with the lovable pets and idyllic settings that compose Heartlake City, the primary setting for a majority of the LEGO® Friends product line.

Heroism and Danger

A common thematic pattern in LEGO® City was heroism. Fully 27 sets (41%) described rescues, and they position the child consumer as an active helper and participant in a variety of situations, from shark attacks (e.g., "There's a shark coming close to shore and the surfer doesn't see it. Speed to the rescue on the Coast Guard watercraft"; "Find his broken down catamaran sailboat with a falling sail function before the great white shark does!"; "Rescue the couple with the life preservers, pull them into the helicopter and scare the sharks away with the water cannons!") to raging fires (e.g., "A recycling container is on fire in LEGO® City! Help the firefighter get to the scene fast on his speedy Fire Motorcycle"; "Slide the firefighters down the pole, load them into the fire truck, van and helicopter to save the day"). In all but one set, rescues involved saving one or more people (saving a cat was the exception: "Help save the day! When the cat gets stuck in the buildable tree, rush the fire chief to the scene in his cool Fire Chief Car to lure the cat down with a tasty fish").

Rescues were also described in nine (14%) LEGO® Friends sets, but this was significantly fewer than in the City sets ($\chi^2 = 11.97$, $p < .001$, Cramer's $V = .31$). Further, none involved rescuing people, only baby jungle animals (e.g., "Rescue the tiger cub from the water and explore the beautiful Jungle Falls!"; "Help rescue a baby bear in trouble with Mia's helicopter and Matthew's offroader!"; "Set up home in the Jungle Rescue Base and rescue the little panda!"). Interestingly, the City rescues were almost always described with a sense of urgency ("hurry", "speed", "rush") whereas only four of the Friends rescues (6%) were described this way. For example, Friends sets often involved animal rescues in which no immediate action was needed, except to spend time with displaced animals (at the animal rescue base: "Take a shower in the bathroom at the end of an exciting day and help the girls cook and eat dinner together with the animals before heading to bed for a good night's sleep"; or raise funds/ awareness for the shelter: "Take some pictures in the photo booth before strutting down the catwalk in the charity fashion show while the DJ spins the decks, all to raise awareness for jungle animal rescue. Phew – what a day!").

Urgency

The use of urgency terms was not exclusive to rescues; these terms were present in 59% of the LEGO® City sets but only 15% of the LEGO® Friends sets ($\chi^2 = 27$, $p < .001$, Cramer's $V = .45$). Given that so many of the prescribed Friends activities were leisurely in nature, this is not surprising. Similarly, danger was a common theme in LEGO® City narratives, with 88% of the sets describing dangerous locations (e.g., "But beware—this is a dangerous place with extreme weather conditions and a polar bear lurking near the camp!"), risky tasks (e.g., "Hurry, the tree is on fire! Drive the 4x4 Fire Truck into position, put on the fireproof clothing and put out the fire with the powerful water cannon"), or assistance with the dangerous job of others (e.g., "Set up a traffic diversion, help the firefighters tackle the blaze and save the day!"). Conversely, dangerous themes were less common in the LEGO® Friends narratives, with only 12% mentioning risk ($\chi^2 = 75.7$, $p < .001$, Cramer's $V = .68$). Most of these risks were less perilous than those described in LEGO® City, such as monitoring rough surf (e.g., "Watch the waves and decide which flag to raise. If it's red, it's dangerous and if it's green, it's safe") or rescuing an animal (e.g., "Rush to the riverside and find the tiger stranded in rough waters").

Themes 4 and 5: Females Want to Socialize; Males Enjoy Solitary Activities

Another salient set of thematic patterns that emerged from the data is the depiction of males as solitary figures who primarily work and play alone and females as caregivers who require and seek out constant companionship.

Friendship and Socializing

Many (48%) of the LEGO® Friends narratives focused on friendship and interacting with other Friends characters. Such socializing was less common in LEGO® City, with no explicit socializing described and only four sets containing more than one minifigure engaged in a recreational activity (e.g., camping, off-roading at the beach). Although City sets often included more than one minifigure, these groupings were focused on working together (38), saving other(s) (7), or capturing criminals(s) (16).

Fully 27% of LEGO® Friends narratives explicitly mentioned friends, and some sets' opening line mentioned friendship (e.g., "Cruise around Heartlake City in Mia's Roadster to meet her friends!"; "Hang out or host a sleepover in Andrea's Bedroom!") or implied friendship by highlighting mini-doll figures in action together (e.g., "Come join Mia and Liza as they go horseback riding at the Sunshine Ranch!"; "Visit the beach house with Stephanie and Kate for seaside fun!"). Friends set narratives typically involved some sort of human (73%) or animal (53%) companionship. In the City sets, minifigures were seldom depicted as social (6%) or with a non-dangerous animal (4%).

Helping, Sharing, and Caring

LEGO® Friends sets often described the characters as sharing objects, time, or meals (92%), whereas none of the LEGO® City sets described sharing ($\chi^2 = 110$, $p < .001$, Cramer's $V = .93$). Caregiving was also a common activity in the LEGO® Friends narratives, with 29% of the sets describing caring for a person or animal (e.g., "Andrea loves looking after her furry friend Jazz"), and another 59% focused on doing or making something nice for a friend or pet (e.g., "Help Naya use the delicious box of fruits to make the drink in the blender or the juice squeezer and then take it out to Andrea on the sun terrace"). Thirty (45%) of the LEGO® City sets involved helping in some way ("The fire chief is always ready to help the people of LEGO® City"; "Jump aboard the medical rescue helicopter, land on the water and assist the injured crook") ($\chi^2 = 2.46$, $p < .05$, Cramer's $V = .14$), but none (0%) involved caregiving of a person or pet, sharing, or making something for someone else ($\chi^2 = 22.19$, $p < .001$, Cramer's $V = .41$).

Themes 6 and 7: Men Are Experts; Women Are Novices

From flying to building and applying makeup to baking, activities from the two product lines differed significantly in the

levels of expertise ascribed to characters ($\chi^2 = 83.1$, $p < .001$, Cramer's $V = .68$). Across activities, male-oriented products, characters, and anticipated consumers were positioned as capable and knowledgeable, whereas females were consistently positioned as learners in need of practice and help. For example, in 48 (72%) LEGO® City sets, the narrative discursively assumed some measure of power, capability, and skill on the part of both the product and the child consumer (e.g., "No fire is too big for the amazing Airport Fire Truck!"; "Join the demolition experts!"). This was the case in only four (6%) LEGO® Friends sets (e.g., "LEGO® Friends Emma's House shows off all the creative skills of Emma's family") and some of these still implied the need to work toward mastery (e.g., "Then use the mask and sword to start mastering kendo!"). Instead, 57 (86%) Friends sets described the named characters as amateurs who were just learning to do something new (e.g., "Mia is learning to play the drums and practices on her very own drum set in her bedroom"; "Practice until she's perfect then get ready at the pretty makeup table!"). However, only four (6%) LEGO® City sets described the target character as being a novice or learning something new (e.g., "The pump attendant has been trying to mend the broken fuel pump, but something's gone wrong and the pipeline is on fire!"; "If he can't get it going, load it onto the truck with the cool winch function"); however, in this last example, even when the fictional LEGO® City character is a novice, the anticipated male child consumer is positioned as capable of resolving the situation. The word "practice" appeared in 12 of the Friends narratives and the word "learn" in five sets. These words were not in any of the City narratives.

Theme 8: For Women, Beauty Is Important

A final thematic pattern that emerged from the data is the importance of beauty for females—across people, pets, possessions, and places. For example, analyses revealed that references to beauty were commonplace in LEGO® Friends set narratives (75%) but not in LEGO® City set narratives (4%) ($\chi^2 = 69.1$, $p < .001$, Cramer's $V = .73$). Friends sets featured activities for friends to make themselves (24%) (e.g., "Help her practice with her make-up in front of the big vanity mirror after a nice long bubble bath in the bathroom"; "Choose the perfect accessory to complement Emma's new hairstyle before showing her the new look in the mirrors"; "Put on lipstick, and then pick the perfect perfume for the day from her super-cool collection of fancy perfume bottles!") or their pets (13%) look lovely (e.g., "Brush its hair on the grooming table and dress it up with a pretty bow"; "Groom her with the accessory pack including ribbons, brushes and combs to make her very pretty!"). Additionally, LEGO® Friends sets frequently referenced appearances and beauty, even when it was

not a focal action of the sets' narrative. These statements included the attractiveness of pets (e.g., "It's a great day to be a pretty puppy in Heartlake City!"; "With all of these accessories and functions, you can really pamper all of the pretty pets in Heartlake City!"), people ("Get Emma ready at the makeup table so she looks her best for the camera"; "Emma has everything she needs to create trendy new dresses and the coolest clothes for all of her friends to wear"), possessions (e.g., "Andrea loves playing in her pretty bedroom"; "Ride Stephanie's pretty blue bike to school!"), and places (e.g., "Help the tiger in trouble at the beautiful but powerful Jungle Falls!"; "Do some painting in the beautiful zen garden,"). LEGO® City had only three references to attractiveness, and these applied to vehicles ("Drive out of the garage to take your car through the carwash and make it sparkle, fill it up with fuel or tow it to the workshop where the mechanic can repair it!"; "Deliver the shiny new cars to the LEGO® City dealerships with the amazing Auto Transporter!") and a place ("Then take a seat on the clean platform, enjoy your snack and relax"). Across all the LEGO® Friends sets, words that referred to attractive appearances (e.g., cute, pretty, beautiful) were common, occurring in 61% of all narratives. Such terms did not exist in any of the LEGO® City set narratives.

Discussion

It has been over 20 years since Mattel's Teen Talk Barbie asserted that "Math class is tough," sparking heated debates about the potential impact that toys and their concomitant narratives may have on children's beliefs about their places in the world. Although the negative publicity provided impetus for Mattel to eventually remove the controversial statement from Teen Talk Barbie's verbal repertoire, analyses from the current study suggest that gender stereotypes still play a prominent role in the marketing and manufacturing of popular toys such as LEGO®. However, what sets the current study apart from the Mattel example is the subtlety and multifaceted nature of gendered messages that are conveyed in the LEGO® narratives and product design. These messages go beyond simply modeling available social roles and instead use language in ways that discursively position anticipated male child consumers as active, capable agents and female consumers as more passive, novice, social caregivers.

What makes these findings most surprising is that LEGO® building sets have historically been marketed as educational toys that promote engineering principles for *all* young children (Lego History Timeline 2017). However, spokespeople for the corporation make it clear that their current conceptualizations of girls' and boys' engineering play differ

significantly; LEGO®'s UK managing director, Marko Ilincic, described in 2011:

> We're looking for the right balance of creativity that appeals to girls and construction. We don't want to take the construction away altogether, but there are degrees of 'constructability', and simply producing a pink version of the boys' products is not enough. An understanding of how gender patterns differ is key" (Bawden 2011, para. 6).

Unfortunately, shifting the aforementioned "constructability" of the Friends line may diminish the positive impacts of construction play. For example, including greater numbers of "bespoke" pieces (LEGO® pieces that have one specific fit or function) such as the numerous grooming, cooking, eating, and decorating pieces included in Friends sets may diminish the complexity of and opportunities for experimentation with set construction (Black et al. 2016). Further, recent studies find that when children play with engineering toys that are clearly feminized (pink color, female characters), they learn less about engineering principles than when the toys are gender neutral or more like a boy's toy (e.g., Coyle 2015; Mulvey et al. 2017). In addition, consumers should weigh the potential benefits of construction play against the potential drawbacks of heavily stereotyped gender roles.

Children can learn important messages about cultural norms and societal expectations through play (Basow 2006; Rogoff 2003) because it offers them opportunities to consider and practice taking on adult social roles, and gender-based roles can be especially salient in this type of sociodramatic play (Basow 2006). Decades of research have shown that children utilize gender stereotypes as a way to identify how they should conceptualize gender roles and to inform normative ways to look, act, and think (Kohlberg 1966; C. L. Martin et al. 1995). As children search for ways to conceptualize and enact gender roles, LEGO® is offering implicit and explicit guidance in how these roles differ for males and females.

LEGO®'s marketing to male and female child consumers is not just offering variations on brick colors and characters but promoting very gendered ways in which young children should play with these construction sets. Specifically, boys are encouraged to "investigate," "explore," "build," and "repair" whereas girls are enticed to "relax," "primp," "hang out," "shop," and "work on your tan." Instead of placing imaginary play in a "high-tech laboratory," "space shuttle," or "coast guard boat," as it typically is located in the series marketed to boys (i.e., City), female players are encouraged to enact stories in "bakeries," "malls," and "beauty salons." (The one exception in the Friends' narratives is Olivia's Invention Workshop, which is not a profession but a place where "Olivia loves tinkering with her toys to make cool creations.") Girls are encouraged to serve, clean, entertain, and care for others. If they aspire to professions, it should involve retail of food and clothes or vocations of beauty and entertainment, like Andrea who "works at the LEGO Friends City Park Cafe and loves dishing out tasty treats, when she is not singing into her broom and daydreaming of her big performance." From these analyses, it is clear that LEGO® encourages imaginary play that position girls in highly gender stereotypic roles. This stereotyped gender positioning of male and female players is in-line with other content analyses of Halloween costumes, Valentines, action figures, dolls, websites, movies, and commercials (Coyne et al. 2016; England et al. 2011; Murnen et al. 2016; Starr and Ferguson 2012).

Importantly, toys that involve role-playing offer children the opportunity to encode "anticipated identities" that consist of not only explicit messages but implicit ones as well (Black et al. 2013, p. 3; Wohlwend 2009). In LEGO® narratives, girls are offered explicit messages about how to be kind, helpful, relaxed, and pretty whereas boys are offered messages of the appeal of heroism, urgency, and professionalism. Implicitly, girls are told to be domestic but social, and that is it appropriate, or even expected, to not yet be good at activities from hobbies to jobs. Girls are *not* offered visions of professions that are prestigious, physically challenging, or risky or that require extensive training or skills (with the exception of veterinary medicine for which described tasks are within the scope of a veterinary technician certificate), whereas boys are actively enticed into such play. Although prosocial behaviors are featured in both series, for boys this means facing danger to rescue others and "save the day!" whereas for girls this means helping animals, sharing, and caregiving. These findings are congruent with other content analyses of toys for children that find that girls' toys typically focus on encouraging nurturance and attractiveness (Blakemore and Centers 2005; Coyne et al. 2016; Francis 2010) and boys' play on elements of danger, heroism, and construction (Francis 2010; Jordan 1995; Sweet 2014). In looking at the two series of LEGO® sets and their accompanying narratives, these gendered patterns are clearly replicated—from stories that involve caring for others through cooking and cleaning versus rescuing others by battling blazes to sets that come equipped with stoves, ovens, dishes and sinks versus fire hoses, axes, and ladders.

Practice Implications

Drawing on developmental research on children's learning about social norms, gender, and gendered expectations (Adler et al. 1992; Basow 2006; Hilliard and Liben 2010), it is possible that these narratives are promoting traditional gender stereotypes in children, which can influence children's sense of proficiency, hope, and ability for a variety of future careers and social relationships based on gender. Developmental theories such as cognitive social

learning theory (Bandura 1971, 1986), sociocultural theory (Rogoff 2003; Vygotsky 1978), and cultivation theory (Gerbner 1969) assert that the messages embedded in the world surrounding children greatly impact children's sense of efficacy, their interests, and social roles. Given that LEGO® toy sets are marketed specifically to male and female players, and our findings that the narratives of play for these sets adhere to rigid gender stereotypes, children might be learning about the construction of gender in additional to how to assemble colorful bricks into structures.

When girls' play narratives are focused on trying but not excelling; on caring, giving, and cleaning as hobbies but not as professions, and on dedicating time to fashion and beauty rather than to hard work and skill, LEGO® is encouraging girls to play in highly gender-stereotypic ways. Boys, instead, are provided with messages of agency, heroism, and professionalism. These are messages about which consumers should be aware when purchasing sets for children. Unfortunately, it is likely that these gender-stereotypic narratives appeal to parents and other adults who buy these sets, as evidenced by the increase in sales. With the introduction of gendered product lines, sales of LEGO® sets have tripled from $300 million in 2011 to $900 million in 2014, with sales by 2015 surpassing Mattel and Hasbro (Chew 2015). Given the widespread distribution of these products, it is worthwhile to consider the explicit and implicit learning opportunities of these construction sets, as well as why parents prefer to purchase gender-stereotyped LEGO® toys.

Given that these are online narratives, it is possible that child consumers are not exposed to these narratives. Nonetheless, LEGO® friend players still have sets with images printed on packaging and instructions, as well as material play objects supporting these plotlines such as pots, blenders, sinks, brooms, mirrors, and make-up whereas LEGO® City players get sets with tools, fire extinguishers, handcuffs, trophies, radios, and dynamite. The artifacts support these gender stereotypes. However, it is probable that many children are reading or having these narratives read to them. Lego.com receives about 15 million visits each month (SimilarWeb 2017), and their site offers games, sharing spaces, videos and product materials designed for children, as well as shopping. There are also numerous LEGO® fan sites with links to LEGO® shopping. Further LEGO® Friends and LEGO® City were both among the top five selling LEGO® series for the years of the present review (Lego.com 2015).

Limitations and Future Research

Our in-depth content analysis of the product narratives associated with LEGO® City and LEGO® Friends found striking differences in the primary activities, personal relationships between characters, and featured traits between these two product lines. However, we did not talk with children about the messages they perceived while reading these narratives or how frequently they read the narratives when shopping or visiting LEGO® sites. Although there is evidence of children's internalization of implicit gender messages (Coyne et al. 2016; C. L. Martin et al. 1995), more research is needed to understand how these LEGO®-produced messages are interpreted by children. Further, we did not explore the equivalence of the sets in terms of building and play opportunities, other than to note the limitation of the minifigures/mini-doll figures' capacities to be used with the brick-constructed items. Other work (e.g., Black et al. 2016) has noted differences in the functionality of pieces (e.g., female-marketed product lines have single use items whereas male product lines have bricks that connect to many other items in the set) and discrepant age expectations (e.g., female-marketed product lines recommend an older age than male-marketed product lines with equivalent numbers of pieces) between sets. Lastly, although there is evidence that packaging and toy color convey messages about the appropriateness of the toy for boys or girls (Weisgram et al. 2014; Wong and Hines 2014), we did not observe girls' and boys' preferences for the Friends or City sets.

Conclusion

A study of about 3000 parents in five countries (U.S., Germany, U.K., France, and Japan) found that 94% believed that time playing with LEGO® sets was time spent learning (LEGO Learning Institute 2002). Although the creative building opportunities provided by LEGO® may be educationally beneficial (Singer et al. 2006), the other lessons provided via associated product packaging and marketing materials should be considered, especially when they vary by gender. Our content analysis of online LEGO® building set narratives found consistently different and very gendered messages to children about how to play, reinforcing Fishel's (2001, p. 13) astute observation that "Toyland really is boy and girl land."

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