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***Still No Jetpacks or Gender Parity:  
Animated Film from 1980 through 2016\****

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**ABSTRACT**

This study examines the gender ratio of characters in the 150 top-grossing full-length animated films from 1980 through 2016. Results show that males hold an overwhelming majority of both central and auxiliary roles. Male characters fill significantly more of the lead or protagonist roles, the speaking roles, the members of the protagonist's main gang, and the film's titles. No significant change has occurred over the years (1980–2016) to alter the gender balance; however, an increase in female authors and screenwriters corresponds with an increase in female characters in all of these roles. The underrepresentation of female characters in animated films exemplifies the ways in which popular media reflects and reproduces social inequality.

**KEY WORDS** Content Analysis; Gender Roles; Children's Media; Stereotypes

Films from Hollywood's Disney, Pixar, DreamWorks, and other studios are among the current-day storytellers for children. Whereas children in the past listened to family stories or books read by adults, children today are increasingly spending time watching stories produced by large film and television studios (Kaiser Family Foundation 2010). In fact, television viewing is displacing one-on-one communication between children and adults in the United States (Christakis et al. 2009). Now with DVD players, computers, and handheld devices, the time that US children spend with entertainment media has increased to an average of 7.5 hours daily for youth 8–18 years old, and with "media multitasking," they consume almost 11 hours of content daily (Kaiser Family Foundation 2010).

The purpose of this content analysis study is to assess the number of male and female characters in a medium that is very popular with children: animated film. In animated film, there should be no limits to the abilities of characters; female swashbucklers can be drawn as easily as male swashbucklers. In a medium in which insects can talk and tasty food can drop from the sky, our imaginations need not be

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confined to traditional and tired gender stereotypes. Animals and inanimate objects brought to life in animated film are not inherently male.

This study is not limited to one particular film studio (such as Disney) but includes all major studios producing popular animated movies. Although most of these films are developed by US companies, their influence and distribution are worldwide (MPAA 2015). The current study uses the 150 top-grossing animated films (based on US and Canadian box office receipts) from 1980 through 2016, assessing the sex of characters in the lead roles, film-title roles, main entourage, and speaking roles. It asks whether the sex ratio has changed with more recent films or when more of the screenwriters and authors are female. This study contributes to the existing literature by incorporating a large sample of the most popular animated films released since 1980. By exposing the distorted proportion of male to female characters in these films, this study raises awareness about the marginalization of females in stories predominantly consumed by children.

Most stories for children teach important moral lessons while they entertain. Moskalenko (2008) states that children are socialized through interactions with adults, other children, and material such as fairy tales. Mass media influences the cultivation of values, beliefs, dreams, and expectations (Swindler 1986). Gender development is one of the key aspects of socialization (Gooden and Gooden 2001). Children learn about gender through observation of others, personal experiences, and stories. As social cognitive theorists contend, people learn about the world through interactions and personal experiences, and media functions as a form of interaction (Bandura 1986). Children learn from media just as they learn from real-world models of behavior. For example, girls' participation in archery has doubled since 2012, and 70 percent of those girls have said that the female protagonists in *The Hunger Games* and *Brave* influenced their decision to take up the sport (Geena Davis Institute on Gender in Media 2016a). Children learn conceptions of masculinity and femininity and the expected characteristics that are appropriate for each gender. Bian, Leslie, and Cimpian (2017) find changes in girls between ages five and seven. At five years old, both boys and girls think that their own gender can be "really, really smart." By the next year or two, girls (but not boys) are significantly less likely to associate brilliance with their own gender. Social learning is increased by the repetition of the message that occurs when children watch videos repeatedly. These stereotypes that children absorb have lasting effects on how they see and process social information and, as Bandura (1986) notes, how they use their capabilities.

Studies have found that children (as well as adults [Signorielli 1989]) who spend more time watching television exhibit greater gender-role stereotyping than do children who spend less time (Frueh and McGhee 1975). They pick up on the media differences at an early age; US children as young as four years notice that boys appear more often than girls in television cartoons (Thompson and Zerbinos 1997). Preschool boys who watch more superhero programs play in more male-stereotyped ways, and the impact is still evident a year later (Coyne et al. 2014). A longitudinal panel survey of 396 children found that increased television exposure correlated with decreased self-esteem for African American children and for white girls. White boys' self-esteem, however, increased with television viewing (Martins and Harrison 2011). Other studies (Tognoli,

Pullen, and Lieber 1994) contend that gender bias in children's media gives boys a sense of entitlement and lowers girls' self-esteem. Furthermore, Thorne (1993) notes that children's understandings of gender are constructed as social processes involving groups of kids. Children police each other in delineating the boundaries of what is acceptable behavior for girls and boys. Thus, the children who do absorb greater quantities of children's media and the subsequent stereotypes spread their understanding of gender roles to other children. Signorielli (1989) argues that children, in perceiving these differences, learn that females are less important than males.

## **LITERATURE REVIEW**

Because media are a primary source of gender socialization (Bandura 1986), it is important to know how (and how often) males and females are portrayed in these works for children. Research on this topic began in earnest in the 1970s, focusing initially on children's books. Weitzman et al. (1972) analyzed Caldecott (1938–1972) and Newbery (1922–1972) award-winning children's books as well as the best selling of the inexpensive Little Golden Books and found that male characters outnumbered females three to one. Other studies mirrored these findings (Czaplinski 1972; Davis and McDaniel 1999; LaDow 1976). The Notable Children's Books list of picture books (selected by the American Library Association) have more equal representation, as Gooden and Gooden (2001) found with books from 1995 through 1999, as do Coretta Scott King Awards books (illustrated by African Americans) and Pura Belpré books (illustrated by Latinos and Latinas), according to a study by Clark et al. (2007). Nonetheless, in a comprehensive study of several thousand children's books published throughout the twentieth century, McCabe et al. (2011) found that males were represented in the titles nearly twice as often as females.

Studies of the male-to-female ratio in US children's television shows produce similar findings. Male characters are used two to three times more often than are female characters, as Baker and Raney (2004) found in 44 animated Saturday-morning children's programs. Smith and Cook (2008) had similar findings with 1,034 television shows for children broadcast in the United States in 2005, in that roughly twice as many male as female characters were represented. Furthermore, they found that animated programs in particular were more likely to have higher rates of male characters. Findings by Thompson and Zerbinos (1995) concurred: Males had three times as many leads as females in 41 different children's cartoons broadcast in the United States in 1993. Educational television for children provides the best balance of characters (based on 23 educational programs aired on PBS in 1997), but even here, males outnumber females 59 percent to 41 percent (Barner 1999).

Studies of children's films are similar to those of films for adults. Smith et al. (2010) examined the top-grossing 1990–2005 G-rated films released theatrically in North America and found that 72 percent of the characters were male. Other studies by Smith (Smith and Cook 2008) show that films for children use slightly more female characters than do films for older audiences. Of 400 popular North American films released between 1990 and 2006, G-rated films had a 2.5:1 ratio of male to female characters, a slightly

better ratio than for films rated PG, PG-13, or R. A new software program that automatically records the screen and speaking time for characters was used to analyze the 100 top-grossing non-animated films from 2015 and found that males got almost twice the screen and speaking time as females (Geena Davis Institute 2016b). For films with male lead characters, the differences were exacerbated: Males spoke three times longer and had nearly three times the screen time. When females led films, the speaking and screen times of males and females was roughly equal. Similarly, Smith, Choueiti, and Pieper (2016) found that males were given 69.7 percent of the speaking roles from the top 800 films released from 2007 to 2015. Thus is posed the first hypothesis of this study:

H<sub>1</sub>: Male characters will outnumber female characters in protagonist roles, film titles, members of the main gang, and speaking characters.

The next research area focuses on whether there has been an improvement over time (1980–2016) in the number of female characters that populate our children’s stories. The assumption in starting with films from 1980 was that the second and third waves of the women’s movement would increase the number and prominence of female characters. Findings to date are conflicting, however. The studies of American children’s books over the same time span found no improvement (Davis and McDaniel 1999; Hamilton et al. 2006), nor did the Smith et al. (2010) study of 101 G-rated North American animated and live-action films from 1990 to 2005. Other studies note changes in the gender balance, however. Clark et al. (2007) noticed a curvilinear pattern with highs in visibility for females in children’s books in the early 1980s and lows in the 1960s and 2000s. There was some noted improvement in a study of US cartoons from 1935 through 1992, which found that from 1980 on, males were used 2 to 1, an improvement from the earlier 3 to 1 (Thompson and Zerbinos 1995). Thus, I pose the second hypothesis:

H<sub>2</sub>: The gender composition of characters in the roles of protagonist, film title, members of the main gang, and speaking characters will become more equal over time (1980–2016).

In addition, this study looked for factors that influenced the male-to-female ratio in these films, focusing on the specific question of whether the gender of the authors and screenwriters had an impact on the number of male and female characters. There are conflicting findings from children’s books. Earlier studies found that regardless of the gender of the author, the lead character in children’s stories—when a gender could be determined—was usually male (Keintz 1987; Kolbe and LaVoie 1981; Tognoli et al. 1994). In a more recent study (Hamilton et al. 2006), male authors of children’s books published in the United States from 1995 through 2001 were three times more likely to use male than female title characters, and female authors produced books with only slightly more male title characters (55 percent compared to female title characters at 45

percent). Female authors may be a key factor in giving more female characters a chance at the central roles.

How do the numbers of male and female characters compare when females write for animated film? Unfortunately, women fill few of the author and screenwriter roles for popular film, ranging from 8 percent to 18 percent of employed screenwriters in recent US studies (Bielby and Bielby 1996; Eschholz, Bufkin, and Long 2002; Smith et al. 2008, 2009). Lauzen (2016), in following behind-the-scenes employment on the top 250 US films annually, notes that female writers have decreased from 13 percent in 1998 to 11 percent in 2015. While Smith et al.'s (2008) study of Academy Award-nominated films (1977–2006) found no significant relationship between the numbers of females onscreen and the writers' genders, Smith et al.'s (2009) 2007's top films found a significant pattern that movies written by one or more female screenwriters depicted a higher percentage of females on screen (34.9 percent) than did films written by solely male screenwriters (28.1 percent). Of the 18 female-driven films in 2007, Smith et al. (2009) noticed that half had one or more women on the writing team. Furthermore, in recent studies of prime-time US television shows, increases in women holding important behind-the-scenes roles (writer, creator, or executive producer) correlated with significant increases in female characters in scripted (but not reality) programming (Lauzen, Dozier, and Cleveland 2006). Glascock (2001) found that increases in female executive producers correlated with increases in female main characters, and increases in female writers correlated with increases in female characters overall. Thus, I pose the third hypothesis:

H<sub>3</sub>: An increase in the percentage of female writers is correlated with an increase in females in the protagonist role, film title, members of the main gang, and speaking characters.

## DATA AND ANALYSIS

The list of the 200 top-grossing animated full-length films from 1980 through 2016 was compiled according to [www.boxofficemojo.com](http://www.boxofficemojo.com)'s September 2016 ranking. [Boxofficemojo.com](http://www.boxofficemojo.com) uses the lifetime North American theater grosses to determine a film's ranking. Lifetime gross was then calculated using 2016 inflation-adjusted dollars and retained the top 150 films after excluding those films without cohesive plot lines (*Fantasia 2000*) and those not child-friendly and receiving R ratings (*Sausage Party* and *South Park: Bigger, Longer, and Uncut*). Under the genre of animation, [boxofficemojo.com](http://www.boxofficemojo.com) includes computer-generated animation (*Shrek*), stop-motion animation (*Coraline*), and films that blend live action and animation, such as *Space Jam* (with Michael Jordan playing basketball with Bugs Bunny). Most, but not all, of the top films are US productions, but British Aardman Animation's films made the top 150, as did Japanese anime Pokemon movies.

The names of the writers for each film were retrieved from the films' credits and from the websites IMDbPro, inBaseline, Freebase.com, and Wikipedia. Included was anyone listed in a writing capacity, including authors, writers, screenwriters, story creators, and authors of earlier literary pieces.

Research assistants and I operationalized the variables, coded each film separately, and then met to discuss any discrepancies. We refined the category definitions until the tallies were consistent. Films were re-watched when necessary to validate the counts. Inter-coder reliability was sufficiently high for all variables.

To assess the films' central characters, we used three separate variables. First, we coded whether the film's title was gendered—that is, named after a male or males (*Shrek*, *Mr. Peabody & Sherman*), a female (*Finding Dory*, *Mulan*, *Coraline*), both male(s) and female(s) (*Lilo & Stitch*, *Gnomeo and Juliet*)—or not (*Ice Age*, *Bee Movie*, *Zootopia*). Second, we coded the gender of the lead character in the film. The lead character, or protagonist, was defined as the character whose journey was followed throughout the film and through whose eyes we saw the world. Although the backstory or life history of other characters was frequently included, we coded as lead character the one whose more complete story was told. Third, we coded the gender(s) of the characters in the main gang. In most films, the protagonist has an entourage, a group of friends who travel along and help with the lead's journey. These are the lead character's buddies or sidekicks who make the adventure more fun. For example, in *Madagascar*, Alex finds himself shipwrecked along with his buddies Marty, Gloria, and Melman, and in *Monsters, Inc.*, Sully, Mike, and Boo discover a new source of energy to fuel the city. Parents and older mentors are rarely included in the gang. This variable is admittedly a subjective one, so the coders had to collectively agree on the members of the entourage for each film before coding was completed.

In addition to the central characters, we examined the gender(s) of all the characters that spoke or were named. Even though these characters were frequently animals, robots, or other nonhuman beings, their genders were easily determined by their names, voices, appearances, and mannerisms. Any character whose gender could not be determined was excluded from the analysis. Nonverbal communications and utterances such as booing, hissing, or laughing were not considered speaking. We did not consider singing to be speaking. Furthermore, we needed to see the character onscreen in order to count him or her as a speaking character.

## **DESCRIPTIVE STATISTICS**

The 150 North American top-grossing full-length animated films from 1980 through 2016 include many of the films that children have watched and loved over the years. Most of these films are targeted to and appropriate for children, with G and PG ratings (37 percent and 61 percent, respectively). A few films (*The Simpsons Movie*) received the more adult rating of PG-13. As stated earlier, films with an R rating were excluded from the sample. Recent films made the top 150 more often than earlier ones, with nearly one third of the films released from 2011 through 2016, compared to only nine films (6 percent) from the 1980s.

One of our fundamental research areas involved the genders of the central characters. We found that males held the protagonist or lead role in 84.7 percent of the films, many of which were installments of a series of movies. The *Shrek* series had five movies in the top 150 (*Shrek*, *Shrek 2*, *Shrek the Third*, *Shrek Forever After*, and the spin-

off *Puss in Boots*), as did the Ice Age series. The Madagascar series had four, including the spin-off *Penguins of Madagascar*, and the Toy Story and Kung Fu Panda series had three each. Females led in 13.3 percent of the films (*The Little Mermaid*, *Mulan*, *Brave*), but none of these had a sequel that grossed enough to make the top 150 films. Three films (2 percent) centered on the relationship of a mixed-gender lead pair (including *Lilo & Stitch* and *Gnomeo and Juliet*). When the title of the film referred to a character, as nearly half of them did, it was much more likely to be a male character ( $n = 51$ , or 70.8 percent) than a female character ( $n = 7$ , or 9.7 percent). Several of the films ( $n = 14$ , or 19.4 percent) were named for a mixed-gender couple or group, such as *The Incredibles* and *The Simpsons*.

We counted 680 characters in the entourages for the 150 films. The size of the entourage ranged from 1 to 12 characters, with a mean of 4.5 characters per film. Ebenezer Scrooge, the protagonist in *A Christmas Carol*, had no companions on his journey of self-redemption. Several films ( $n = 16$ ) had only two characters (including the lead) in the posse, and they exemplified the classic buddy films, with, for example, SpongeBob and Patrick, or Kuzco and Pacha from *The Emperor's New Groove*. A few of the posse-pairs were male-female love affairs, with WALL-E and Eve, and with the rats Rita and Roddy in *Flushed Away*. On the other end of the continuum, *Toy Story 3* had 12 characters holding hands until the end, and *A Bug's Life* had a whole circus troupe, with 11 characters.

Males dominated in the auxiliary roles as well as the lead roles. In total, 6,039 characters with speaking roles were counted. Males had an average of 29.7 speaking roles per film, ranging from a low of five in *The Croods* to a high of 79 in *The LEGO Movie*. Females had a much lower average number of 10.5 speaking roles per film, with a low of only one in *The Tigger Movie* to a high of 33 in *Monsters University*.

Looking behind the camera at the sex of the creative staff, we found that of the 924 writing credits, 90.8 percent were male. Only 9.2 percent of the writers, cowriters, screenwriters, and authors of the original material were female. In nearly two thirds ( $n = 96$ ) of the films, there were no female writers at all, compared to one film that was written solely by females (*Rugrats Go Wild*).

## RESULTS

In  $H_1$ , we examined the gender proportion of characters in central and auxiliary roles. Four variables were used to compare the number of male and female characters: the protagonist role, the title of the film, entourage roles, and speaking roles. The gender differences were significant for all four variables at the  $p < .001$  level.

The film's protagonist, the individual followed throughout the film, was significantly more likely to be male than female ( $X^2 = 77.8$ ,  $df = 1$ ,  $p < .001$ ). (The three mixed-gender coleads were excluded from the chi-square test because of their low number.) An overwhelming 84.7 percent of the protagonist roles in these films went to males, from Lewis, the orphan in *Meet the Robinsons*, to the neurotic Z in *Antz*. In a few of these male-led films, two males shared the protagonist role. For example, in *The Road to El Dorado*, Tulio and Miguel were almost inseparable, as were Mr. Peabody and



Sherman. Many of the films featured a male-female couple as central characters but followed the male's experiences more than the female's. *The Simpsons Movie* followed Homer's adventures much more than Marge's. Both Bob and Helen Parr (*The Incredibles*) were superheroes relegated to a boring suburban life, but the film followed Bob's struggles with this more than Helen's. The 20 films with female leads covered the range of princess stories, from those in which a commoner became a princess (*The Princess and the Frog*, *Mulan*, and *Beauty and the Beast*) to those in which girls were born princesses (*The Little Mermaid*, *Frozen*, *Brave*, and *Pocahontas*) to those in which girls were born princesses but did not know it (*Tangled*); however, occasional female-led stories (*Finding Dory*, *Zootopia*, *Chicken Run*, *Monsters vs. Aliens*, *Coraline*) did not involve princesses.

We also assessed whether the films' titles referred to males or females. The titles were coded as referring to a male character, a female character, both male and female characters, or no character at all. Overall, 48 percent of the film titles referred to characters. A chi-square analysis found that titles were significantly more likely to refer to male characters than to female or both male and female characters ( $X^2 = 46.58$ ,  $df = 2$ ,  $p < .001$ ). That is, 70.8 percent of the film titles referred to male characters (*Shrek* and *Aladdin*) and 19.4 percent to both male and female characters (*The Incredibles*), while only 9.7 percent referred to female characters (*The Little Mermaid*, *Mulan*).

Furthermore, males filled more of the entourage roles than did females. All films had at least one male in the main posse, while *Toy Story 3* had a high of 10 males. More than half of the movies ( $n = 79$ ) had only one female in the entourage. The largest female posse was four; one such posse was found in *Chicken Run*. The average size of the posse or entourage was 4.5 characters per film. Males held an average of 3.2 of these roles (71.9 percent), and females held an average of 1.3 (28.1 percent of the roles). The  $t$ -test was significant ( $t = 13.21$   $df = 149$ ,  $p < .001$ ). In 16 percent of the films ( $n = 24$ ), there were no female members in the entourage at all. For example, in the original *Ice Age* film, three male animals—Manny, Sid, and Diego—show that predator and prey can work together to achieve a goal: that of returning a human baby to his clan. There was not a lactating female in the gang or even in sight during the entire journey, however. The animals in the barnyard (*Barnyard: The Original Party Animals*) did indeed party, just not with girls. The hens were sleeping in the chicken coop while the party was happening.

Moreover, 73.2 percent of all the 6,039 speaking roles went to males. Males had a significantly higher average (assessed with a  $t$ -test) of 29.8 speaking roles per film than females' 10.5 ( $t = 18.17$ ,  $df = 149$ ,  $p < .001$ ). Within individual films, the speaking roles held by males ranged from 40.7 percent (*Coraline*) to 92.7 percent (*The Adventures of Tintin*). In *Aladdin*, the Disney film about the petty thief Aladdin and the sultan's daughter Jasmine, 91.7 percent of the speaking roles went to males. Surprisingly, *Pocahontas*, the story about a Native American woman who yearned for adventure, gave 86.7 percent of its speaking roles to male characters. Thus, even in stories that focus on females' adventures, the world in which they strive is composed overwhelmingly of males. Only three films had males in fewer than 50 percent of the speaking roles, and these films barely dipped below the 50 percent mark, ranging from 40.7 percent to 48.8 percent.

Hypothesis 2 examined whether the gender proportion of characters in the central and auxiliary roles changed over time (1980–2016). We found no significant change in the percentage of female and male characters per film throughout the years. In the first test, a binary logistic regression test found no significant change in the gender of the lead characters over the years. There was no significant change in the number of female-led films from 1980 through 2016. In the 1980s, 88.9 percent of the films had male leads, compared with 80.0 percent in the 1990s, 87.3 percent in the 2000s, and 85.7 percent from 2010 through 2016. Similarly, there was no significant change in the number of films named after female characters from 1980 through 2016. The question of whether the gender composition of those in the entourage would change over the years had no support; the OLS regression test found no significant difference over time. There was no significant increase in the female proportion of the posse from 1980 through 2016. In the 1980s, 35.7 percent of the posse was female, decreasing to 25.5 percent in the 1990s and 27.6 percent in the 2000s before increasing to 28.5 percent in the 2010s. Nor was there any support for the hypothesis that the gender composition of speaking roles would change over the years. The OLS regression test was, again, not significant. In the 1980s, female characters had 29.4 percent of the speaking roles, which decreased to 26.0 percent in the 1990s and wavered in this realm, with 25.7 percent in the 2000s and 27.9 percent in the 2010s.

Thus, we found no significant differences for any of the variables in H<sub>2</sub> that the gender balance of characters changed in the central and auxiliary roles over the years from 1980 through 2016. The percentage of male and female characters did not significantly change in the lead roles, film titles, entourage, or speaking roles in thirty-six years.

Hypothesis 3 asked if the gender of the writers influenced the gender composition of characters in the protagonist, film title, entourage, and speaking roles. Increasing the female writing staff has a significant impact on the percentage of females in central and ancillary roles. The OLS regression found that increasing the percentage of female writers on a film significantly increased the percentage of female characters with speaking roles ( $\beta = .138$ ,  $SE = .054$ ,  $p < .05$ ) and the percentage of females in the entourage ( $\beta = .205$ ,  $SE = .098$ ,  $p < .05$ ). An increase in the percentage of female writers had a marginally significant effect on whether the lead character was female. The logistic regression (excluding the three mixed-gender leads) returned a significance value of  $p = .052$ ; however, in an interesting twist of findings, an increase in the percentage of female writers was significantly correlated with a decrease in the film being titled after a female ( $\beta = -.068$ ,  $SE = .032$ ,  $p < .05$ ). With the exception of *Finding Dory*, most recent female-led films (*Zootopia*, *Brave*, *Inside Out*, *Frozen*, *Tangled*) avoid referring to gender in their titles, whereas earlier female-led films (*Mulan*, *The Little Mermaid*, *Pocahontas*, *Coraline*) highlighted the gender in their titles.

## DISCUSSION AND CONCLUSION

Our sample included a wide range of films, some intended for very young audiences (*Oliver & Company* and the three Rugrats movies), and some more appropriate for older children (*The Simpsons Movie* and *Beavis and Butt-Head Do America*). The films were

examined to determine the prevalence of male and female characters in various film roles. Because animated films target a young audience, it is important to identify biases, as the media could potentially be seen by children as reflections of reality. The construction of a society of predominantly males is misleading. Ignoring female characters in animated films is homogenizing and no less hazardous than promoting all white characters, all Christian, or all heterosexual. Animated films reflect “symbolic annihilation” of women and girls, according to McCabe et al. (2011), because they do not accurately portray a society in which women hold up half the sky. These films only serve to exaggerate male dominance. The problem lies in the contradiction between the espousing of equality between the sexes in Western society, and the reality represented in animated films, where males are favored over females.

Recent studies—including the current one—have found that females are marginalized in children’s animated films, as they are in all other genres. It is particularly disappointing that animated film, which has the capacity to be the most liberating, as it is not tied to the abilities of human actors, maintains the staid imbalance of male and female characters. North American children are viewing a great deal of media (Kaiser Family Foundation 2010), including these very popular films. Thus, we are promoting stereotypes in gender roles for the next generation of citizens through this heavy viewing of lopsided films. As Bandura (1986) and others contend, we are socializing boys and girls into limited and limiting roles.

Our findings for  $H_1$  confirm previous research about US children’s books, television, and films, that females are reduced to secondary characters and are often marginalized in both speaking roles and plot development. In our sample, males held the lead role in the vast majority of the films (84.7 percent) and were seven times more likely than females (51 versus 7) to have the film titled after them. Males were more likely to fill the roles of the main posse, at an average of 3.2 males to 1.3 females per film. Males also had a higher percentage of speaking roles than females (73.2 percent compared to 26.8 percent). Our findings are on the high end of the consistent 66–75 percent male bias in children’s media that has been found in studies of US children’s books (McCabe et al. 2011), children’s television programs (Smith and Cook 2008), and superheroes (Baker and Raney 2004). Our findings mirror those of studies of popular North American G-rated films (1990–2004), in which 72 percent of the speaking roles went to males (Smith et al. 2010), and of cartoons (1935–1992), with males having 75 percent of the leads (Thompson and Zerbinos 1995). American educational television for children still provides the best mix available, with males holding only 59 percent of the roles (Barner 1999).

Furthermore, we did not find an increase in female characters over the years of the study (1980–2016), which was the focus of  $H_2$ . Other studies note a lack of improvement in the balance of male and female characters in children’s media over time (Davis and McDaniel 1999; Hamilton et al. 2006; Smith et al. 2010); however, television cartoons experienced an improved 2:1 male-to-female ratio starting in the 1980s, from an earlier 3:1 ratio (Thompson and Zerbinos 1995). It is interesting to note that commercial Saturday-morning cartoons offer a better gender balance than do top-grossing animated films.

Can the disparity between male and female characters in animated films be explained by the genders of the authors and screenwriters? H<sub>3</sub> addressed this question. The vast majority of authors and screenwriters were male (90.8 percent), with 96 of the 150 films having all-male writing teams. Thus, females held 9.2 percent of the writing positions in these films, which is similar to the 8–18 percent in other recent studies (Bielby and Bielby 1996; Eschholz et al. 2002; Lauzen 2016; Smith et al. 2008). Although the percent of female writers was small, it had a significant impact on the presence of females in central and auxiliary roles. Increase in the percentage of female writers is correlated with an increase in females with speaking roles and of female membership in the entourage. There is a marginally significant increase in females in the lead role as the percentage of female writers increases. We thus have support for the studies finding that women authors and screenwriters use female characters somewhat more than male authors do (Glascock 2001; Hamilton et al. 2006; Smith et al. 2009) or that female writers are hired when a film has a considerable number of female characters.

With female authors and screenwriters overwhelmingly outnumbered, organizations such as Women Make Movies (WMM) may help in improving gender bias in film. Similarly, WET Productions ([wetweb.org](http://wetweb.org)) develops, produces, and promotes new material for theater, film, and television that both challenges female stereotypes and advocates for gender equality. The See Jane program, founded by actor Geena Davis, produces press reports highlighting the findings about gender composition and stereotyping in children's media. Finally, this study's focus on the top-grossing films reflects what is consumed most heavily—a choice made by the American theater-going audience—not all that is produced by the film studios. With a little consciousness-raising, parents may reassess their children's media options.

Nonetheless, several top-grossing animated films have engaging female characters. *Finding Dory* (2016), *Frozen* (2013), *Inside Out* (2015), and *Zootopia* (2016) feature female leads and rank in the top 10 grossing (non-inflation-adjusted) films as of early 2017. The 2013 film *Frozen*, which is currently the fifth highest in theater gross sales, captivated audiences with the saga of two sisters, Elsa and Anna. Disney's *Lilo & Stitch* also focuses on the relationship between sisters; furthermore, these sisters, who live in Hawaii, are shown in swimsuits and hot-weather clothes without being sexualized. In *The Wild Thornberrys*, Eliza can talk with animals and saves elephants from the villains. *Chicken Run* features females working together to save themselves from becoming chicken potpie. In the DreamWorks film *Monsters vs. Aliens*, the female lead, Susan (aka Ginormica), starts out as a bride willing to sacrifice her honeymoon (and her own dreams) to support her future husband's career. Even though she is portrayed as highly sexualized throughout the film, she does choose independence and self-reliance after a series of self-affirming challenges.

Notwithstanding the inclusion of smart, adventurous female protagonists as mentioned above, the underrepresentation of female characters may have negative consequences with respect to children's development. Stereotypes and traditional values are passed on through books, television, and films. Children who repeatedly view films in which males consistently outnumber females, speak more than females, and comprise the majority of the lead characters are learning that females are not as worthy as males. At

this point, animated films are not challenging our society's perception that females are less valuable than males; they are perpetuating it.

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