Gender Inequality in 500 Popular Films: Examining On-Screen Portrayals and Behind-the-Scenes Employment Patterns in Motion Pictures Released between 2007-2012

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This study examines gender roles of speaking characters in top-grossing films. This is our fourth Annenberg report, focusing on the gender of independent speaking characters appearing in 100 top-grossing fictional films from 2012, 2010, 2009, 2008, and 2007. In total, 500 movies and over 21,000 speaking characters have been content analyzed for gender prevalence, demographic information, and hypersexualization. Below, we highlight the study's key findings.

Key Findings

Gender Prevalence

Females are grossly underrepresented on screen in 2012 films. Out of 4,475 speaking characters on screen, only 28.4% are female. This translates into a ratio of 2.51 males to every 1 female on screen. 2012 reveals the lowest percentage of on-screen females (28.4%) across the 5-year sample. Only 6% of the top-grossing films in 2012 featured a balanced cast, or females in 45-54.9% of all speaking roles. Just over a quarter of all narrators (27.5%) are female.

Only 16.7% of the 1,228 directors, writers, and producers are female across the 100 top-grossing films of 2012. Women accounted for 4.1% of directors, 12.2% of writers, and 20% of producers. This calculates to a 2012 ratio of 5 males to every 1 female behind the camera. Almost no changes are observed in female employment patterns behind the camera across the 5 years studied. Together, the findings show that the gender needle is not moving on screen or behind the camera in popular films.

Gender Portrayal

Females in the top-grossing films of 2012 are more likely than males to be shown in sexy (i.e., tight or alluring) attire (M=7%, F=31.6%) or partially naked (M=9.4%, F=31%), defined as exposing at least some skin in the breast, midriff, or high upper thigh area. Females' age is related to on-screen hypersexualization.

When compared to females between 21-39 years of age, in 2012, females 13-20 years of age are *more likely* to be shown in sexualized attire and partially naked, whereas females 40 to 64 years of age are *less likely*. The proportion of teenaged females in alluring apparel has increased 22% between 2009 and 2012. A larger overtime increase is observed in the percentage of teenage females depicted with some nudity (+32.5%) between 2007 and 2012.

Our last set of analyses revealed that filmmaker gender is associated with how stories are told. Looking across the 5-year sample, films with female helmers are populated with *more* girls/women on screen and with *less* female sexualization. At least one avenue to diversifying cinematic content or reducing the risk of some negative effects (i.e., objectification) may be to hire more women behind the camera.

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This study examines gender roles of speaking characters in top-grossing films. This is our fourth Annenberg report, focusing on the gender of independent speaking characters appearing in the 100 top-grossing fictional films in 2012, 2010, 2009, 2008, and 2007.[1] In total, 500 movies and over 21,000 speaking characters have been content analyzed for gender prevalence, demographic information, and hypersexualization.[2] In the following section, we overview the findings for 2012 as well as 5-year overtime comparisons. Only significant differences of 5% or greater between males and females or overtime will be noted.[3]

Table 1
Prevalence of Female Speaking Characters On Screen: 2007-2012

Prevalence	2007	2008	2009	2010	2012
% of female characters	29.9%	32.8%	32.8%	30.3%	28.4%
% of films w/balanced casts	11.9%	15%	16.8%	4%	6%
Ratio of males to females	2.35 to 1	2.05 to 1	2.05 to 1	2.3 to 1	2.51 to 1
% of narrators that are female	18.5%	36.1%	41.7%	51.5%	27.5%
Total # of speaking characters	4,379	4,370	4,342	4,153	4,475
Total # of films	100	100	100	100	100

Gender Prevalence: On Screen & Behind the Camera

Females are grossly underrepresented in 2012 films. Out of 4,475 speaking characters, only 28.4% (*n*=1,273) are female. This translates into a ratio of 2.51 males to every 1 female on screen. We also assessed the total number of films with balanced casts. Here, balanced refers to a cast wherein roughly half, or 45-54.9%, of all on-screen speaking characters are girls or

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women. As shown in Table 1, 6% of the top-grossing films in 2012 featured a balanced cast. Only two films had a higher percentage of females than males.

Has the prevalence of girls/women on screen changed over time? The answer to this question is no. As noted in Table 1, 2012 reveals the lowest percentage of on-screen females (28.4%) across the 5-year sample. The percentage of gender-balanced casts in 2012 is 5% lower than in 2007, 2008 or 2009. In terms of narration, a meaningful increase in the percentage of female narrators is observed between 2007 and 2010. A reversal of this trend emerged in 2012, however, with females accounting for only 27.5% of narrators.

The under representation of females on screen is surprising given population and movie attendance patterns. Girls and women represent fully half of the U.S. population and buy half of the movie tickets sold.[4] As we have stated before, females simply do not represent half of the cinematic sky.[5] The lack of movement on screen is also somewhat unexpected, given the advocacy efforts of many non profits in the U.S. to increase the prevalence of and diversify the portrayal of girls and women across media.

Table 2
Prevalence of Females Behind the Camera: 2007-2012

Prevalence	**2007**	**2008**	**2009**	**2010**	**2012**
% of female directors	2.7% (*n*=3)	8% (*n*=9)	3.6% (*n*=4)	2.7% (*n*=3)	4.1% (*n*=5)
% of female writers	11.2% (*n*=35)	13.6% (*n*=35)	13.5% (*n*=38)	11.1% (*n*=29)	12.2% (*n*=34)
% of female producers	20.5% (*n*=174)	19.1% (*n*=164)	21.6% (*n*=183)	18.3% (*n*=160)	20% (*n*=166)
% of total (d/w/p) females	17% (*n*=212)	16.9% (*n*=208)	18.1% (*n*=225)	15.4% (*n*=192)	16.7% (*n*=205)
Gender Ratio	5 to 1	4.9 to 1	4.5 to1	5.5 to 1	5 to 1

Turning our attention behind the camera, a total of 1,228 directors, writers, and producers are credited on the 100 top-grossing films of 2012.[6] Only 16.7% are female, however (see Table 2). Women accounted for 4.1% of directors, 12.2% of writers, and 20% of producers. This calculates to a 2012 ratio of 5 males to every 1 female behind the camera. Almost no changes are observed in female employment patterns behind the camera across the 5 years studied, save one. As shown in Table 2, the percentage of female directors increased and then decreased between 2007 and 2010. Even still, females represent less than 5% of all directors across 4 of the 5 years studied.

Gender Portrayal: Age & Sexualization

Perhaps more important than gender prevalence on screen is the nature or way in which girls and women are depicted. For this report, we focus on two factors surrounding portrayal: age and sexualization. Characters' age seems to vary with gender in 2012.[7] Females are more likely than males to be depicted as adults (21-39 years old) and less likely to be shown as middle aged (40-

64 years old). No differences emerge by gender in the percentage of child, teen, or elderly speaking characters (see Table 3).

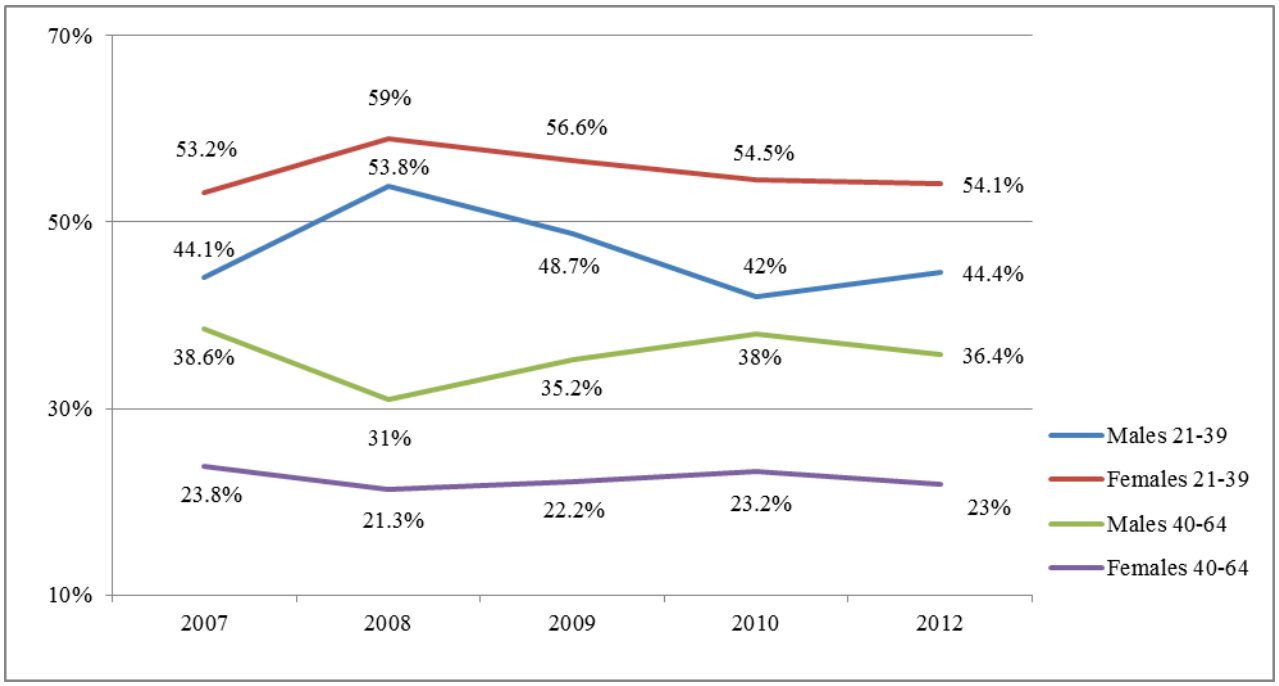
Table 3
Character Age by Gender in Top Grossing 2012 Films

Age Breakdown	Males	Females
Child (0-12 years)	6.5%	9.2%
Teen (13-20 years)	7.2%	10%
Adult (21-39 years)*	44.4%	54.1%
Middle Aged (40-64 years)*	36.4%	23%
Elderly (65+ years)	5.5%	3.7%

Note: The percentages are calculated within gender. Each column totals 100% of all speaking males or females coded for apparent age. An asterisk denotes a 5% or greater difference between genders within an age level.

Figure 1 depicts the 5-year trends focusing on adult characters between 21-64 years of age. The majority of all female characters' roles are for 21-39 year olds. A full 59% of all females are playing characters in this age bracket in 2008. However, a similar peak in 2008 is observed for 21-39 year old males. Less than a quarter of all female speaking parts are for women 40 to 64 years of age. These percentages are substantially below the percentages of male speaking characters in this age cohort, clearly suggesting that there is a sell by date for the majority of female actors in film. While there is little deviation in the percentage of males in the 40 to 64 years of age grouping, a low is observed in 2008 (31%).

Figure 1
Adults Characters' Age by Gender: 2007-2012



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We also measured the sexualization of speaking characters. Females in the top-grossing films of 2012 are more likely than males to be shown in sexy (i.e., tight or alluring) attire (M=7%, F=31.6%) or partially naked (M=9.4%, F=31%), defined as exposing at least some skin in the breast, midriff, or high upper thigh area (see Table 4).[8] These patterns suggest that many females in film are still functioning as eye candy, which may activate or reinforce females' self objectification,[9] body shame, appearance anxiety, and/or decreased task attention/performance.[10]

Focusing on overtime trends, the percentage of females in sexy attire climbed in 2010 after 3 years of little deviation (see Table 4). However, the proportion of females in sexualized attire in 2012 does not meaningfully differ (5% or more) from the proportion of females in 2007. In terms of partial nudity, a higher percentage of females are scantily clad in 2010 and 2012 than in 2007, 2008, or 2009. Though not measured in 2012, the percentage of attractive females decreased between 2007 and 2009. The percentage of females coded as physically desirable in 2010 does not differ meaningfully from the other years this variable was measured.

Table 4
Hypersexualization of Female Characters On Screen: 2007-2012

Hypersexuality	**2007**	**2008**	**2009**	**2010**	**2012**
% in sexualized attire	27%	25.7%	25.8%	33.8%	31.6%
% w/some exposed skin	21.8%	23.7%	23.6%	30.8%	31%
% referenced attractive	18.5%	15.1%	10.9%	14.7%	Not Measured

Note: Within year, each cell illuminates the percentage of females possessing a certain characteristic. For instance, 27% of female speaking characters in 2007 are shown in sexy attire. This also means that 73% are not shown in such apparel. Percentages for male speaking characters are not factored into Table 4 but can be found in Footnote 11.

Using the age and sexualization indicators discussed above, we looked at how teen (13-20 year olds), young adult (21-39 year olds), and middle-aged (40-64 year olds) *females* are presented in 2012 films.[12] When compared to females between 21-39 years of age, females 13-20 years of age are *more likely* to be shown in sexualized attire and partially naked whereas females 40 to 64 years of age are *less likely* (see Table 5).

Table 5
Female Sexualization by Age in Top Grossing 2012 Films

	13-20 yr olds	**21-39 yr olds**	**40-64 yr olds**
Sexually Revealing Attire	56.6%	39.9%	16.4%
Partial or Full Nudity	55.8%	39.6%	15.7%

Is the sexualization of teenage females increasing over time? Yes. Figure 2 outlines the percentage of females in sexy attire between 2007 and 2012. The proportion of teenage females in alluring apparel has increased 22% between 2009 and 2012. The remaining two age groups ebb and flow, with the highest percentages revealed in 2010.

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Figure 2
Percentages of Females in Sexy Attire by Age: 2007-2012

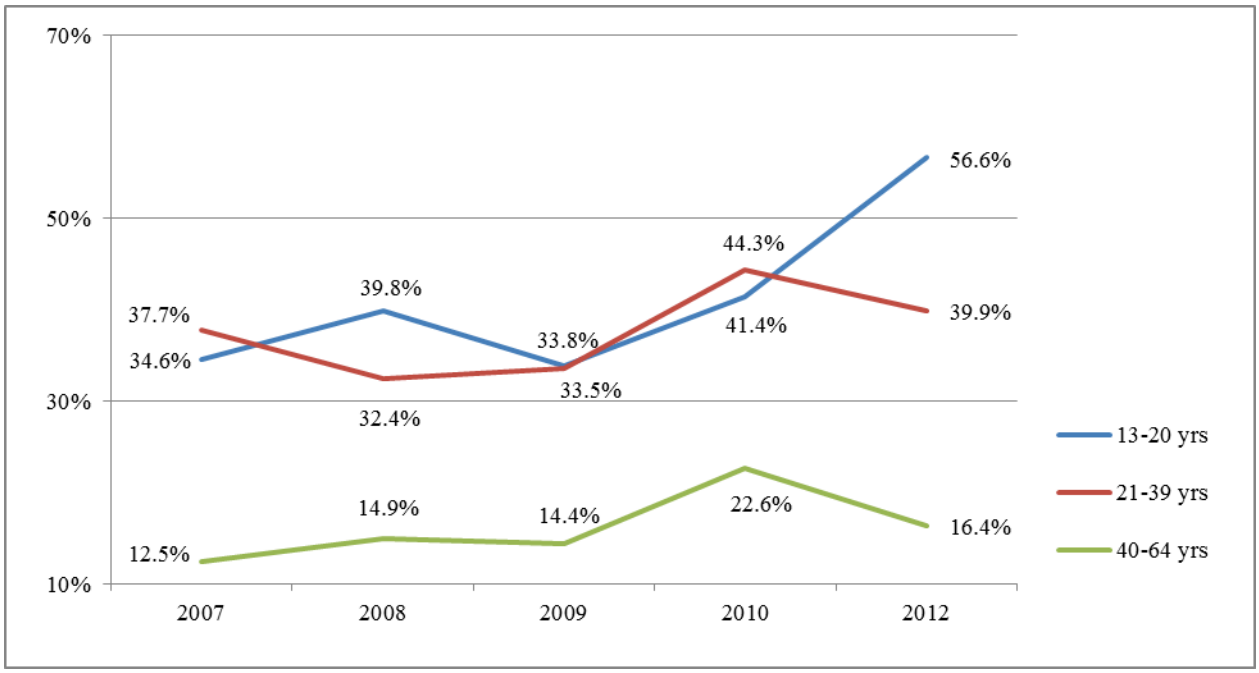

Figure 3
Percentage of Females w/Some Nudity by Age: 2007-2012

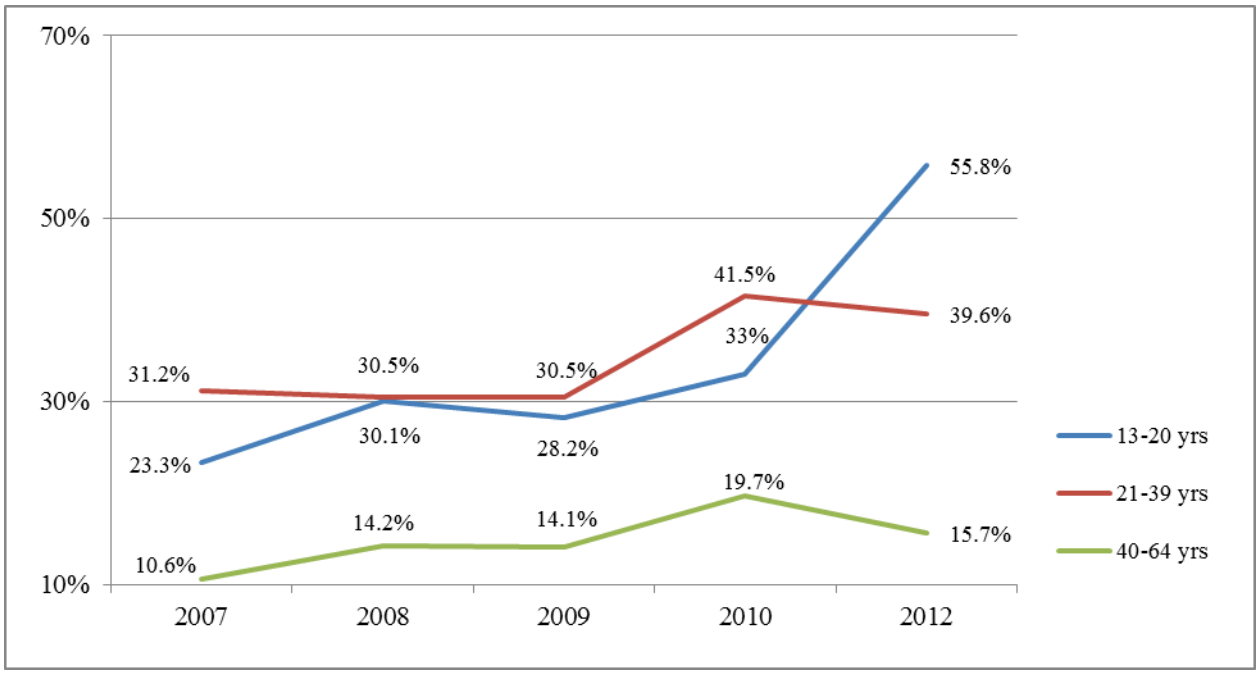

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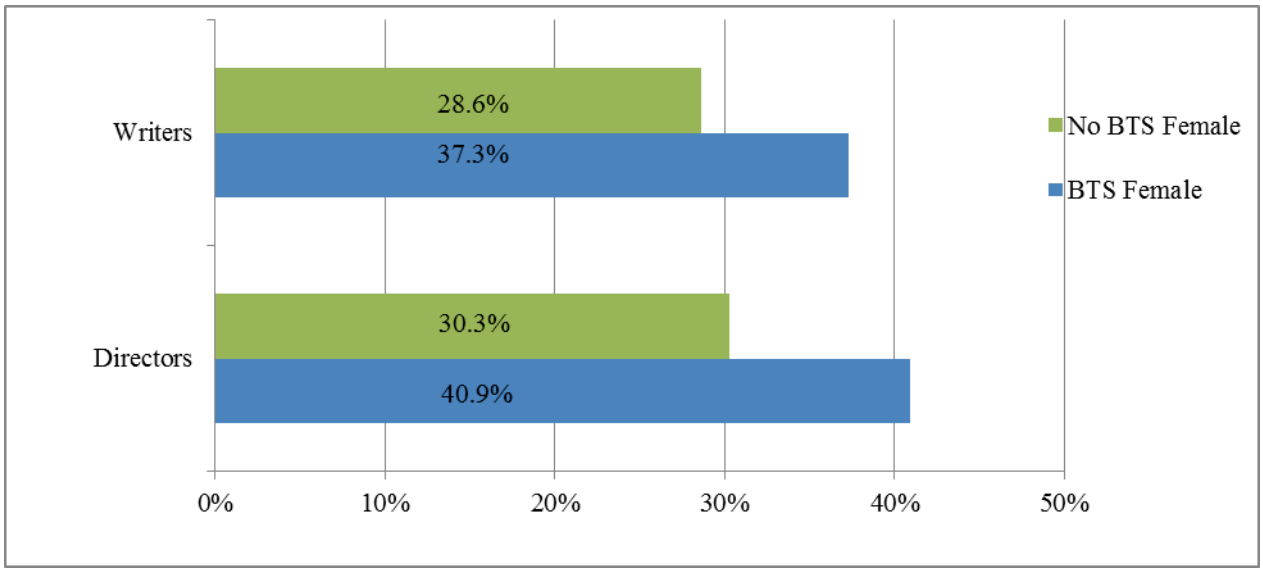
Figure 3 shows overtime trends in partial nudity (see Figure 3). The percentage of teenage females depicted with some nudity has increased 32.5% between 2007 and 2012, though the increase has not been precisely linear. The remaining two age groups wax and wane a bit, with both demonstrating the highest percentages of female partial nudity in 2010.

Content Creator Gender & On Screen Portrayals

How does having a female behind the scenes as a writer or director affect the presentation of girls/women on screen? To answer this question, we analyzed all 500 films across the 5-year sample. As shown in Figure 4, the percentage of girls/women on screen is significantly higher when at least one female is involved in the directing or writing process.[13] A 10.6% increase of females on screen is observed when one or more women are involved directing motion pictures. A similar but less pronounced increase is observed when movies have one or more female screenwriters attached (8.7%). As we have argued before, these results suggest that females may be writing about and advocating for other females on screen. It may also be the case that production executives feel more comfortable giving female-driven properties and/or certain types of story lines to female directors and screenwriters.

Figure 4
Percentage of Females On Screen by Involvement of Females Behind-the-Scenes



Beyond prevalence, we also were interested in the relationship between on-screen female sexualization (i.e., sexually revealing clothing, nudity) and content creator gender. Here, we only focus on overall trends rather than looking within specific ages. Female characters are less likely to be depicted in sexually revealing attire in female directed films (22.2%) than films with only male direction (29%).[14] A significant but non-meaningful difference was observed for writer gender, however.

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Turning our attention to female characters and nudity, the gender of the director is associated with level of exposed skin. Female characters are less likely to be portrayed partially or fully naked in female directed films (19.6%) than are female characters in male directed films (26.5%).[15] A similar trend was observed for screenwriter gender, with the percentage of female characters partially naked lower in films penned by at least one female (22.3%) than the percentage found in films penned by males only (27.7%).

Taken together, four out of the five results reported in this section illuminate that the choices female content creators may make in storytelling differ from the choices male content creators may make. These findings are consistent with other research[16] and illuminate that content creator gender in film matters for the nature of the story being told.

Conclusion

In this content analysis we assessed gender roles in 500 top-grossing films theatrically released across 5 years: 2007, 2008, 2009, 2010, and 2012. Three main findings emerged across the study. First, females continue to be underrepresented on screen and behind the camera. No meaningful increases in the prevalence of girls and women on screen are observed across multiple measures. 2012 featured the *lowest* percentage of female speaking characters across the years studied. Almost no change is observed behind the camera in the percentage of female directors, writers, and producers across 500 films and the 5 years evaluated.

Second, the sexualization of female speaking characters is alive and well in popular motion picture content. Looking at all female speaking characters, approximately a third are shown in sexually revealing attire or are partially naked in 2010 and 2012. The trend is more pronounced with regard to teens, as over half are shown sexualized in the most recent year evaluated in this study. Further, the percentage of teens sexualized in top-grossing films seems to be on the rise. More effects research is needed to understand the impact that exposure to sexualized media portrayals has on girls/women as well as boys/men in society. Given that U.S. cinematic content is exported worldwide, it becomes important to examine how viewing such depictions affects the development and maintenance of female objectification among the global audience.

Third and finally, our last set of analyses revealed that content creator gender is associated with how stories are told. Films with female helmers are populated with more girls/women on screen and with less female sexualization. At least one avenue to diversifying on-screen cinematic content or reducing the risk of some negative effects (i.e., objectification) is to hire more women behind the camera. Adding female writers and directors is simple in theory, but complex in execution. Female content creators face a range of barriers as directors, which limits the number of films they make, as well as the genres in which they work.[17] Advocates for women in Hollywood may want to focus on increasing the number of females on screen as well as those behind the camera. Future research should also consider the empirical and theoretical reasons why having a woman behind the camera is associated with the presentation of female characters on screen.

Whether on screen or behind the camera in popular films, the story for females has not changed. Groups concerned about the portrayal of women and girls should alter their message in their quest to tackle this issue and ensure that movies accurately depict their female audience. As

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organizations change the cinematic landscape, they may find that audiences are leaning in--toward the screen and toward popular content that presents women and girls equally and powerfully.

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Footnotes

[1.] Our previous reports have analyzed the 100 top-grossing domestic fictional films of 2007, 2008, and 2009. For this report, we present the results on gender in the 100 most popular films in 2010 (see Appendix A) and 2012 (see Appendix B). In 2007 and 2009, a total of 101 films were included in the samples. This was due to the fact that *Grindhouse* (*Death Proof*, *Planet Terror*) and part of the *Toy Story* franchise (*Toy Story*, *Toy Story 2*) were released or re-released as "double features." To determine the most popular domestic box office performers each year, we utilized the online site Box Office Mojo.

[2.] The primary unit of analysis for all of our research is the independent speaking character. A character was coded as an independent unit if he/she/it spoke one or more words discernibly on screen or was referred to by name. Groups were only coded when two or more identical or nearly homogeneous characters spoke sequentially on screen, thus making the independence of characters impossible to ascertain. Few characters meet this stringent "group" definition, with only 9 groups coded in 2010 and 3 groups coded in 2012. In addition to the speaking character, the film itself functioned as a secondary unit of analysis. At the film level, the MPAA rating (G, PG, PG-13, R) was coded as well as the first narrator (yes, no) and second narrator (yes, no). If the narrator variables were coded "yes," then the biological sex (male, female) of the meta presence also was evaluated.

Measures at the character level assessed a variety of demographic and sexualization variables, which were similar across 2010 and 2012 except where noted below. Only a subset of the measures were featured in this report. In terms of demography, all characters were coded for *form* (i.e., single, group), *type* (i.e., human, animal, anthropomorphized animal/supernatural creature, supernatural creature), *age* (i.e., 0-5 yrs., 6-12 yrs., 13-20 yrs., 21-39 yrs., 40-64 yrs., 65+ yrs.), *sex* (i.e., male, female), *apparent ethnicity* (i.e., White, Hispanic, Black, American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, Middle Eastern, Other), *parental status* (i.e., not parent, single parent, co-parent, parent relational status unknown), and *relational commitment* (i.e., single, married, committed relationship-not married, committed relationship marital status unknown, divorced, widowed). Some of these variables were collapsed prior to analysis for statistical reasons or to facilitate ease of reporting.

Three variables captured the sexualization of characters. Adapted from Downs & Smith (2005), *sexually revealing clothing* (SRC) refers to tight or minimalistic apparel that enhances, calls attention to, or accentuates the curves or angles of the body anywhere from the mid chest to mid thigh regions. This variable was coded as present or absent. *Nudity* refers to the amount and nature of exposed skin on a character's body, which was also modified from the Downs & Smith (2005) investigation. Only the mid chest to mid thigh regions are evaluated for *nudity*, which was coded as none (i.e., no exposed skin), partial (i.e., some cleavage, midriff, or high upper thigh exposure on females; cleavage or bare chest, midriff, high upper thigh on males; also includes exposed buttocks for males/females), or full (i.e., exposed genitals, or fully naked from neck to knees; for females, nipple exposure is also considered full nudity).

These two variables were only applicable for characters that wear clothes and possess a human-like body. In addition to these conceptual definitions and examples, coders were given a set of pictures representing different levels of the sexualization variables. Only one difference emerged in coding SRC and nudity between 2010 and 2012. In the latter year (2012), we asked coders to take screen shots of these variables when present. It could be that screen shots increased the precision of coding judgments, thereby systematically affecting the findings. We doubt that this was the case for two reasons. First, the marginal percentages of *sexually revealing clothing* and *partial nudity* were roughly similar for females *and* males in 2010 and 2012. Second, and when the data were disaggregated by age, 2012 was not systematically higher than 2010 across all age groups of females and males (see Figure 2 & 3 as well as Footnote 12).

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All characters were evaluated for *attractiveness*. This measure ascertained whether one or more characters in the plot verbally (e.g., "You are so hot!") and/or nonverbally (e.g., cat call, whistling, gapping mouth) indicated the physical desirousness of another character. Self references did not count. Characters were coded as not attractive (i.e., no verbal or non verbal references), attractive (i.e., one reference), or very attractive (i.e., two or more references). These latter two levels were collapsed prior to analysis.

Across all measures, two additional levels were available. "Can't tell" was used when a character possessed a particular trait but the level was impossible to reliably ascertain. For instance, a computer may be shown talking in an androgynous voice. Given the ambiguity of the vocal cues, biological sex would be coded as "can't tell." "Not applicable" was utilized when a character did not possess the particular variable being measured. For example, an anthropomorphized rabbit may be shown in a community of furry friends (e.g., squirrels, bears). While the animals speak, the social or cultural norms do not dictate wearing "clothes." Also, the animals' bodies all closely resemble their natural species in the real world. Consequently, the sexually revealing clothing and nudity variables would be coded as "not applicable."

The coder training and reliability was similar for both the 2010 and 2012 film samples. Students were recruited to participate on the research team for course credit. As a part of the research practicum, the student evaluators were trained for roughly 6 weeks in a classroom environment to unitize characters and evaluate the demographic and hypersexuality indicators. Lab sessions facilitated student learning and provided reliability diagnostics to monitor students' ability to consistently unitize and measure levels of the variables.

After training, the films were randomly assigned to a group of at least 3 student coders. Coders assessed films independently in a monitored research lab setting at the Annenberg School for Communication and Journalism. After a movie was fully coded by all members of the group, reliability was calculated per film and errors/disagreements were noted for fixing/discussion. Students coding films met to discuss unitizing and coding disparities. In some instances, scheduling differences and academic breaks prevented all of the group members from convening. When this occurred, the second author (Choueiti) and at least one member of the coding team discussed discrepancies. Below, we will overview the number of coders for each sample as well as final unitizing and variable coding agreement.

Three groups of students (Fall 2010, n=20; Spring 2011, n=7; Summer 2011, n=5) were trained to evaluate the 2010 sample. A total of 13 of the original Fall 2010 coders returned in the Spring of 2011 to continue monitoring films. Sample-wide unitizing agreement was calculated by assessing the total number of agreed upon lines (speaking characters) in a film by all but one coder (majority). By quartile, we break down unitizing agreement: 1-25 films (# of characters evaluated by all but 1 coder, 100%-90.63%); 26-50 films (90.16%-84.38%); 51-75 films (84.31%-77.42%), and 76-100 films (77.27%-48.51%). It must be noted that only 8 films were below 70%, with 5 movies between 68% and 60.8%. Three of these films were below 60% (*Despicable Me*=59.62%, *Megamind*=51.72%, *Green Zone* =48.51%). This last set of films were very difficult to unitize, given the complexity of the animation and war-related contexts shown.

For variable coding in 2010, we used the Potter & Levine Donnerstein (1999) reliability formula. Median reliability coefficients are reported across all 100 tests as well as the sample-wide range: *form* 1.0 (*range*=1.0), *type* 1.0 (*range*=.75-1.00), *age* 1.0 (*range*=.65-1.0), *sex* 1.0 (*range*=1.0), *ethnicity* 1.0 (*range*=.66-1.0), *parental status* 1.0 (*range*=.64-1.0), *relational status* 1.0 (*range*=.64-1.0), *sexually revealing clothing* 1.0 (*range*=.61-1.0), *nudity* 1.0 (*range*=.63-1.0), *physical beauty* 1.0 (*range*=1.0), *first narrator* 1.0 (*range*=.20-1.0), *first narrator sex* 1.0 (*range*=.37-1.0), *second narrator* 1.0 (*range*=0-1.0), *second narrator sex* 1.0 (*range*=0-1.0).

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A total of 31 research assistants were trained in the Fall of 2012 (*n*=21) and Spring of 2013 (*n*=10) to code the 2012 sample. The procedure was identical to the process listed above. A total of 11 students worked on the project both academic terms. Sample-wide, the unitizing agreement by quartile is as follows: 1-25 films (100%-91.18%); 26-50 films (91.18%-85%); 51-75 films (85%-79.52%), and 76-100 films (79.37%-55.26%). Only 3 films were below 67.8%, *Sinister* (63.64%)*, Titanic* (62.07%), *Chronicle* (55.26%).

Using the Potter & Levine-Donnerstein (1999) test, the sample-wide reliability coefficients for 2012 measures are as follows: *form* 1.0 (*range*=1.0), *type* 1.0 (*range*=.64-1.00), *age* 1.0 (*range*=.65-1.0), *sex* 1.0 (*range*=1.0), *ethnicity* 1.0 (*range*=.83-1.0), *parental status* 1.0 (*range*=.64-1.0), *relational status* 1.0 (*range*=.65-1.0), *sexually revealing clothing* 1.0 (*range*=1.0), *nudity* 1.0 (*range*=1.0), *first narrator* 1.0 (*range*=.20-1.0), *first narrator sex* 1.0 (*range*=.37-1.0), *second narrator* 1.0 (*range*=.47-1.0), *second narrator sex* 1.0 (*range*=.61-1.0).

[3.] Using a chi-square test, each content measure was analyzed to see if it was associated with gender. If the chi-square yielded a significant value ($p < .05$), then we examined whether the difference between males and females was meaningful. By meaningful, we are demarcating a difference of 5% or greater.

[4.] Motion Picture Association of America, Inc. (n.d.). *Theatrical market statistics 2012*. Retrieved from http://www.mpaa.org/policy/industry. This report provides population percentages for gender and box office attendance.

[5.] Reference alluding to: Kristof, N.D., & WuDunn**,** S. **(**2009**).** *Half the sky: Turning oppression into opportunity for women worldwide*. New York: Alfred A. Knopf. We first made this reference in S.L. Smith (n.d., p. 15). *Gender oppression in cinematic content: A look at females on screen and behind the camera in top grossing 2007 films*. Los Angeles, CA: Annenberg School for Communication & Journalism.

[6.] Each film was looked up in IMDb.Pro to find all directors, writers, and producers for both the 2010 and 2012 samples. For the 2010 films, a page was generated for each movie by the senior research team during January and February 2012. Each page listed all individuals across the three categories. The biological sex of every content creator was researched using publicly accessible information on the Internet, IMDb.Pro, NYTimes, or another source (e.g., image, industry website, phone call). Two of the authors checked all of the data in summer of 2012 and a final check occurred April of 2013. In a few cases, reference to the biological sex of a behind the scenes worker was not discovered – their sex was then determined using babynames.com. Amongst the 1,247 individuals for 2010, two were unidentifiable and excluded from any of the analyses. Babynames.com was used for only a few (n=4) of the 1,245 content creators in 2010.

The list of 2012 directors was generated and researched by the fall 2012 undergraduate team as part of a separate study (USC and Sundance/WIF, 2013; see Footnote 17). The writers and producers for 2012 were collected and looked up by the spring 2013 undergraduate team. A member of the senior research team checked the entire 2012 catalog. Afterward, one of the authors verified the data a final time in April 2013. Out of a total of 1,228 individuals, 28 were not confirmed with traditional methods and thus their biological sex was determined using babynames.com. In both samples, duplicates were removed for individuals with more than one credit under the same category (i.e. Michael Fottrell is credited as a Producer and an Executive Producer for *Charlie St. Cloud*).

[7.] Prior to analysis, the *apparent age* variable was collapsed into five levels (child, teen, adult, middle aged, elderly). The chi-square for *age* by *gender* (male, female) was significant, X^2 (4, *n*=4,259) =89.09, $p < .01$, V*=.15.

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[8.] An analysis revealed a significant chi-square for *sexually revealing clothing* (yes, no) and *gender*, X^2 (1, *n*=4,154) =423.65, *p* < .01, phi=.32. *Nudity* was collapsed at the analysis level into two categories: no exposed skin vs. some exposed skin (i.e., partial and full exposure). Only 1.2% (*n*=51) of nudity instances were coded as "full" exposure across the 2012 sample. As a point of comparison, there were 43 instances in 2009 and 32 instances in 2010. The chi-square was significant, X^2 (1, *n*=4,154) =301.37, *p* < .01, phi=.27.

[9.] Aubrey, J. S. (2006). Effects of sexually objectifying media on self-objectification and body surveillance in undergraduates: Results of a 2-year panel study. *Journal of Communication*, *56*(2), 366-386. Harper, B., & Tiggemann, M. (2008). The effect of thin ideal media images on women's self-objectification, mood, and body image. *Sex Roles*, *58*(9-10), 649-657.

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[11.] The percentage of male characters are as follows: *sexually revealing clothing* (2007=4.6%; 2008=5.1%; 2009=4.7%; 2010=7.2%; 2012=7%), *partial nudity* (2007=6.6%; 2008=8.2%; 2009=7.4%; 2010=9.4%; 2012=9.4%), and *attractiveness* (2007=5.4%; 2008=4.1%; 2009=2.5%; 2010=3.8%).

[12.] The relationship between females' *age* (teen, adult, middle aged) and *sexually revealing clothing* was significant, X^2 (2, *n*=1,030) =71.99, *p* < .01, V*=.26. A chi-square also yielded a significant association between females' *age* and *nudity*, X^2 (2, *n*=1,030) =73.12, *p* < .01, V*=.27.

Though not reported above, we did analyze the association between males' age and these two factors (*SRC, nudity*) in the 2012 sample. Both analyses were significant: *sexually revealing clothing*, X^2 (2, *n*=2,527) =35.81, *p* < .01, V*=.12; *nudity*, X^2 (2, *n*=2,527) =40.72, *p* < .01, V*=.13. As shown in the following table, 13-20 and 21-39 year old males were more likely to be sexualized than were 40-64 year old males. We also examined these factors in the 2010 sample. Both of the analyses also were significant, *sexually revealing clothing*, X^2 (2, *n*=2,329) =23.85, *p* < .01, V*=.10; *nudity*, X^2 (2, *n*=2,330) =31.11, *p* < .01, V*=.12. Unlike 2012, only 21-39 year old males were more likely to be depicted in *sexually revealing attire* in 2010 top-grossing films than were 40-64 year old males. An inverse relationship between males' age and *partial nudity* was revealed in 2010.

Male Sexualization by Age in Top Grossing 2012 & 2010 Films

Films 2012	**13-20 year olds**	**21-39 year olds**	**40-64 year olds**
Sexually Revealing Attire	11.6%	9.8%	3.8%
Partial or Full Nudity	15.2%	12.5%	5.4%
Films 2010	**13-20 year olds**	**21-39 year olds**	**40-64 year olds**
Sexually Revealing Attire	7.4%	10.5%	4.9%
Partial or Full Nudity	17.4%	11.8%	6.3%

[13.] The chi-square for *director gender* (male, female) and *character gender* (male, female) was significant, X^2 (1, *n*=21,719) =51.86, *p* < .01, phi=.05. An analysis examining *writer gender* (male, female) and *character gender* was also significant, X^2 (1, *n*=21,719) =146.30, *p* < .01, phi=.08.

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[14.] Chi-square analyses reveal a significant relationship between *director gender* and *sexually revealing clothing*, X^2 (1, *n*=6,394) =8.85, $p < .01$, phi=-.04. The analysis for *writers* was significant, but failed to reveal a 5% difference between films written by males only (29.9%) vs. those with at least one female screenwriter (25.6%), X^2 (1, *n*=6,394) =12.14, $p < .01$, phi= -.04. The chi-square for *director gender* and *sexually revealing clothing* for male characters was significant, X^2 (1, *n*=13,997) =5.20, $p < .05$, phi=.02, but not meaningfully different (5.6% of males had sexually revealing clothing in films with no female director versus 7.9% with a female director). The chi-square for *writer gender* and *sexually revealing clothing* was not significant for male characters.

[15.] The analysis for *film director gender* and *female nudity* (none, some/full) was significant, X^2 (1, *n*=6,389) =9.51, $p < .01$, phi= -.04. Chi-square analysis also revealed a significant effect for *screenwriter gender*, X^2 (1, *n*=6,389) =20.44, $p < .01$, phi= -.06. The analyses for *director gender* and *nudity* for male characters was significant, X^2 (1, *n*=13,998) =5.22, $p < .05$, phi=.02, but not meaningfully different (8.1% of males had partial or full nudity in the absence of a female director, versus 10.7% with a female director). The chi-square for *writer gender* and *nudity* was not significant.

[16.] Smith, S. L., Choueiti, M., Granados, A. & Erickson, S. (2008). *Asymmetrical Academy Awards®? A look at gender imbalance in best picture nominated films from 1977 to 2006*. http://annenberg.usc.edu/ Faculty/ Communication /~/media/93914BE9EB5 F4C2795A3169E5A CDB84F.ashx. Cerridwen, A., & Simonton, D.K. (2009). Sex doesn't sell – nor impress! Content, box office, critics, and awards in mainstream cinema. *Psychology of Aesthetics, Creativity, and the Arts.* 3, 200-210. Kennard, C., & Murphy, S.T. (2005, p. 127-133). Characteristics of war coverage by female correspondents. In P. Sieb (Ed.), *Media and conflict in the twenty-first century.* New York: Palgrave Macmillan.

[17.] Smith S. L., Pieper, K., & Choueiti, M. (2013). *Exploring the barriers and opportunities for independent women filmmakers*. Report for Sundance Institute and Women In Film Los Angeles. Los Angeles, CA: Sundance Institute and Women In Film Los Angeles. Available online: http://www.sundance.org/programs/women-filmmakers-initiative/

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Appendix A
List of 2010 Films in the Sample

Toy Story 3	The Town	Kick-Ass
Alice in Wonderland (2010)	Prince of Persia: The Sands of Time	Killers
Iron Man 2	Red	Saw 3D
The Twilight Saga: Eclipse	Percy Jackson & The Olympians: The Lightning Thief	Cop Out
Harry Potter and the Deathly Hallows Part 1	Paranormal Activity 2	Cats & Dogs: The Revenge of Kitty Galore
Inception	Unstoppable	Edge of Darkness
Despicable Me	Eat Pray Love	Gulliver's Travels
Shrek Forever After	Dear John	Death at a Funeral (2010)
How to Train Your Dragon	The A-Team	Step Up 3-D
Tangled	Knight & Day	The Last Exorcism
The Karate Kid	Dinner for Schmucks	Legion (2010)
Tron Legacy	The Tourist	Burlesque
True Grit	The Bounty Hunter	The Crazies
Clash of the Titans (2010)	Diary of a Wimpy Kid	For Colored Girls
Grown Ups	The Sorcerer's Apprentice	The Back-Up Plan
Little Fockers	A Nightmare on Elm Street (2010)	Vampires Suck
Megamind	The Last Song	The American
The King's Speech	The Wolfman	Green Zone
The Last Airbender	Get Him to the Greek	Marmaduke
Shutter Island	Resident Evil: Afterlife	Devil
The Other Guys	Tyler Perry's Why Did I Get Married Too?	Hereafter
Salt	Tooth Fairy	When in Rome
Valentine's Day	Secretariat	Love and Other Drugs
Black Swan	Easy A	She's Out of My League
Robin Hood	Takers	Scott Pilgrim vs. the World
The Chronicles of Narnia: The Voyage of the Dawn Treader	Legend of the Guardians: The Owls of Ga'Hoole	Charlie St. Cloud
The Expendables	Life as We Know It	Morning Glory
Due Date	Letters to Juliet	How Do You Know
Yogi Bear	Wall Street: Money Never Sleeps	Daybreakers
Date Night	Predators	Nanny McPhee Returns
The Social Network	Hot Tub Time Machine	The Switch
Sex and the City 2		Brooklyn's Finest
The Book of Eli		Machete
The Fighter		Ramona and Beezus
		Leap Year

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Appendix B
List of 2012 Films in the Sample

Marvel's The Avengers	Think Like a Man	Diary of a Wimpy Kid: Dog Days
The Dark Knight Rises	The Campaign	Sinister
The Hunger Games	The Expendables 2	Beauty and the Beast (3D)
Skyfall	Wrath of the Titans	Savages (2012)
The Hobbit: An Unexpected Journey	Jack Reacher	The Best Exotic Marigold Hotel
The Twilight Saga: Breaking Dawn Part 2	Dark Shadows	Moonrise Kingdom
The Amazing Spider-Man	Parental Guidance	Here Comes the Boom
Brave	John Carter	Red Dawn (2012)
Ted	Act of Valor	The Three Stooges
Madagascar 3: Europe's Most Wanted	This Is 40	Star Wars: Episode I - The Phantom Menace (3D)
Dr. Seuss' The Lorax	Contraband	Resident Evil: Retribution
Wreck-It Ralph	Looper	The Cabin in the Woods
Lincoln	Tyler Perry's Madea's Witness Protection	What to Expect When You're Expecting
MIB 3	Battleship	Finding Nemo (3D)
Django Unchained	Pitch Perfect	End of Watch
Ice Age: Continental Drift	Mirror Mirror	Rock of Ages
Snow White and the Huntsman	Chronicle (2012)	Abraham Lincoln: Vampire Hunter
Les Miserables (2012)	Hope Springs	Lawless
Hotel Transylvania	Underworld Awakening	The Guilt Trip
Taken 2	The Lucky One	That's My Boy
21 Jump Street	The Dictator	Trouble with the Curve
Argo	Total Recall (2012)	The Watch
Silver Linings Playbook	Titanic (3D)	Frankenweenie
Prometheus	American Reunion	Step Up Revolution
Safe House	ParaNorman	Tyler Perry's Good Deeds
The Vow	This Means War	Monsters, Inc. (3D)
Life of Pi	Project X	House at the End of The Street
Magic Mike	The Woman in Black	The Pirates! Band of Misfits
The Bourne Legacy	Paranormal Activity 4	Joyful Noise
Journey 2: The Mysterious Island	The Devil Inside	The Five-Year Engagement
Rise of the Guardians	The Odd Life of Timothy Green	Cloud Atlas
Zero Dark Thirty	Ghost Rider: Spirit of Vengeance	One For the Money
Flight	The Grey	
	Red Tails	
	The Possession	

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