THE REP PROJECT'S

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REPORT

INTRODUCTION

This report examines representations of gender in primetime media coverage for the first week of the 2020 Olympics held in Tokyo, Japan (rescheduled to 2021). Here are our major findings:

MAJOR FINDINGS

- Women receive 59.1% of screen time in primetime Olympic coverage compared to the global population baseline of 49.6% women.
- Eight-in-ten Olympic commentators are men (82.0%).
- Two-thirds of women athletes (69.6%) wear revealing outfits compared to half of men athletes (53.5%).
- Women athletes are about ten times more likely to be visually objectified with a camera angle than men athletes (5.7% compared with 0.6%).
- Men athletes are referred to as "male [athlete|sport]" just 2.0% of the time compared with 13.6% for women athletes. This reinforces the idea that men are "real" athletes while women are secondary.
- Women athletes are seven times more likely to be referred to using a gender diminutive (e.g., "girl") than men athletes.

FULL REPORT

This report examines representations of gender in primetime media coverage of the first week of the 2020 Olympics held in Tokyo, Japan (rescheduled to 2021 due to the global pandemic). We are interested in knowing whether women athletes receive the same amount and type of coverage as men athletes. More specifically, we examine whether media coverage centers male athletes and whether it degrades or sexualizes women athletes. Research studies have documented decades of sexism in coverage of women athletes. We find that while some sexism persists, primetime media coverage of the Tokyo Olympics was mostly gender equitable. We begin this report with details about our methodology, followed by an overview of previous studies, our major findings, and action steps for media and Olympic executives based on these findings.

METHODOLOGY

The methodology we use for this study is content analysis, a systematic analysis of communications, such as TV programs, films, advertisements, video games, and Olympic sports coverage. Social scientists use content analysis to quantify representations of different identity groups and themes. We conducted two types of content analysis for this study: 1) automated coding and 2) human coding.

AUTOMATED CODING

Using a multi-stage face detection and classification algorithm, we are able to use machine learning to analyze Olympic coverage for screen time by gender. The algorithm we used in this study consists of two distinct parts, the first being a YOLOv5 convolutional neural network integrated with a Deep SORT object tracker to both detect and track faces in video. We fine-tuned this model on a publicly available dataset, WIDER FACE,[1] as well as a collection of hand-annotated data to be able to recognize a diverse set of faces in televised content. We then use each cropped face output from the object detection model as input into a multi-task classification network that aims to classify each face as man | woman. We trained this model on refined sets of publicly available data, including both FairFace[2] and UTKFace[3] datasets, and another hand-coded dataset of faces collected from past Olympic coverage. We ran all primetime Olympic coverage through the algorithm and analyzed the quantity of coverage by segment for faces with high enough detection and classification confidence. For more information about how we conducted this automated analysis, see Appendix A.

HUMAN CODING

Six researchers coded the primetime Olympic coverage in this study. Prior to fielding the study, the team engaged in 46 hours of training on general coding procedures for this specific project. At the end of the training period, the team achieved interrater reliability to ensure that the coding was uniform. The coders analyzed 1,052 Olympic competitors (81.7%), commentators (13.2%), reporters/interviewers (4.6%), and non-competing interviewees (0.5%) in 24 hours of primetime Olympic coverage during the first week of the games (from Saturday, July 24th - Friday, July 30th). We analyzed Olympic coverage on NBC, the official US channel for the Tokyo Olympics.

1. Yang, S., Luo, P., Loy, C. C., & Tang, X. (2016). *WIDER FACE: A Face Detection Benchmark.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR).

2. Karkkainen, K., & Joo, J. (2021). FairFace: Face Attribute Dataset for Balanced Race, Gender, and Age for Bias Measurement and Mitigation. *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, 1548-1558.

3. Zhang, Z., Song, Y., & Qi, H. (2017). Ageprogression/regressionby conditional adversarial autoencoder. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition,* 5810–5818.

PREVIOUS STUDIES

Previous research finds gender biases in media coverage of athletes. We summarize these major findings in terms of the quantity of coverage women athletes receive and the quality of their coverage.

QUANTITY OF COVERAGE

Women athletes have historically been persistently under-represented in sports coverage. In the past 25 years, only 2% of ESPN coverage and 2% of local news coverage has focused on women athletes.[4] Over 90% of sports hosts, anchors, and editors are men,[5] so a lack of women behind the scenes translates into biased coverage.

Despite women's virtual erasure in sports coverage in general, we have seen significant strides when it comes to women's coverage in the Olympics. Men athletes received twice as much primetime coverage as women athletes in the 2002 Olympics,[6] but a decade later, women received 55% of primetime coverage in the 2021 London Olympics.[7] By the 2016 Olympics in Rio de Janeiro, women athletes received 58% of primetime Olympic coverage.[8] The gender gap in Olympic coverage has closed in the past two decades, but women athletes continue to be misrepresented through overt sexism in coverage and more subtle sexism through gendered framing.

QUALITY OF COVERAGE

Women athletes have made tremendous gains when it comes to primetime media coverage in the Olympics, but they continue to be covered in sexist ways. Research has long identified that women athletes are covered in specific ways that diminish their athleticism and value as competitors.[9] We present previous studies on four themes of sexist coverage: the centering of men as "true" athletes, the infantilization of female athletes, a focus on traditional gender roles for women, and the sexualization of women athletes.

Media coverage of sports has long centered male athletes as the only "true" athletes while diminishing female athleticism. Sports coverage presents women athletes as more emotional with less physical prowess than male athletes.[10] Reporters often refer to men as "athletes" and to women as "female athletes," which establishes men as the "true" athlete and women as the "other."[11] Not only is their

4. Cooky, Cheryl, Michael Messner, and Michela Musto (2015). "It's Dude Time!": A Quarter Century of Excluding Women in Televised News and Highlight Shows. *Communication & Sport*, 3(3): 261-287.

5. Serazio, Michael (2019). "I Still Get Tweets to Go Back in the Kitchen." *The Conversation*, June 13, https://www.pri.org/stories/2019-06-13/i-still-get-tweets-go-back-kitchen-enduring-power-sexism-sports-media

6. Feeney, Nolan (2014). A Brief History of Sexism in TV Coverage of the Olympics. *The Atlantic*, February 21, https://www.theatlantic.com/entertainment/archive/2014/02/a-brief-history-of-sexism-in-tv-coverage-of-the-olympics/284003/

7. Rogers, Katie (2016). Sure, These Women are Winning Olympic Medals, But Are They Single? *The New York Times*, August 16, https://www.nytimes.com/2016/08/19/sports/olympics/sexism-olympics-women.html

8. Ibid.

9. See Kane, Mary. J. and Heather D. Maxwell. 2011. "Expanding the Boundaries of Sport Media Research: Using Critical Theory to Explore Consumer Responses to Representations of Women's Sports." Journal of Sport Management 25: 202-216.

10. Serazio, Michael (2019). "I Still Get Tweets to Go Back in the Kitchen." *The Conversation*, June 13, https://www.pri.org/stories/2019-06-13/i-still-get-tweets-go-back-kitchen-enduring-power-sexism-sports-media

11. Wasserman, Sarah (2019). Sexism at the Olympics and Why It Matters. *FairyGodBoss*, https://fairygodboss.com/articles/sexism-at-the-olympics-and-why-it-matters

athleticism diminished in subtle but powerful ways, when women lose, they are framed as less athletic and committed to their sport, whereas losing men are framed as momentarily lacking concentration.[12] The more common words used to describe male athletes during the 2012 London Summer Olympics was "fastest" and "strongest" whereas the top words for female athletes were "married" or "unmarried."[13] The presumption of male athleticism as the only "true" athleticism means that even the most celebrated women athletes take a secondary position. For example, when Katie Ledecky won gold and broke a world record, she got second billing in headlines behind Michael Phelp's silver medal win. Similarly, the Olympic accomplishments of Venus and Serena were diminished when a reporter stated that Andy Murray was the first person to ever win two Olympic gold medals for tennis. Murray thankfully responded, "I think Venus and Serena have won about four each."[14]

The athleticism of women athletes is also diminished by commentators who infantilize them, meaning they treat them as children in a way that denies their age and maturity. Women athletes are routinely infantilized by calling them "young ladies," "girls," or using their first names as opposed to their last names. For example, one study finds that women tennis players are referred to by their first names 52.7% of the time compared to 7.8% of the time for men.[15] Infantilizing women athletes "tempers the symbolic threat posed by successful adult sportswomen by representing them as 'girls' in a domain— sports— that is a primary space for constructing and defining masculinity."[16] The infantilization of women athletes was on full display in 2016 when an NBC commentator who saw balance beam competitor Sanne Wevers writing in a notebook after a routine opined that she was writing in her diary. Another (woman) commentator was quick to correct him that Wevers was using the notebook to calculate scores. Perhaps the most common form of infantilization, though, is frequent references to women athletes as "girls."[17] Viewers have been calling out this overt sexism since the inception of social media in the 2000s.

Another way that women athletes are diminished as competitors is to discuss them in terms of their roles as girlfriends, wives, and mothers. While there is nothing inherently wrong in discussing family or relationship status, the stark double standard with male and female athletes indicates that there is more to the story here. Women framed in more traditional ways related to gender roles makes them less threatening in a space where their very presence challenges notions of strength and physical prowess as inherently and exclusively male. For example, when US Olympic trap shooter Corey Cogdell Unrein won a bronze medal, *The Chicago Tribune* failed to use her name, instead describing her only as the wife of a Bears' football player.

12. Feeney, Nolan (2014). A Brief History of Sexism in TV Coverage of the Olympics. *The Atlantic*, February 21, https://www.theatlantic.com/entertainment/archive/2014/02/a-brief-history-of-sexism-in-tv-coverage-of-the-olympics/284003/

13. Rogers, Katie (2016). Sure, These Women are Winning Olympic Medals, But Are They Single? *The New York Times*, August 16, https://www.nytimes.com/2016/08/19/sports/olympics/sexism-olympics-women.html

14. Sweeney, Mark (2016). "BBC Stands by John Inverdale, Saying Olympic Tennis Gaffe was 'Simple Error.'" August 15, https://www.theguardian.com/media/2016/aug/15/bbc-john-inverdale-olympic-tennis-steve-redgrave

15. Duncan, Margaret Carlisle and Michael A. Messner. 1998. "The Media Image of Sport and Gender". In Mediasport, 170-185, edited by Lawrence A. Wenner. New York: Routledge.

16. Wensing, Emma. H. and Toni Bruce. 2003. "Bending the Rules: Media Representations of Gender during an International Sporting Event." International Review for the Sociology of Sport 38(4): 387-396.

17. Feeney, Nolan (2014). A Brief History of Sexism in TV Coverage of the Olympics. *The Atlantic*, February 21, https://www.theatlantic.com/entertainment/archive/2014/02/a-brief-history-of-sexism-in-tv-coverage-of-the-olympics/284003/

As noted above, women athletes are most commonly described as "married" or "unmarried" whereas male athletes are most commonly described as "strongest" and "fastest."[18] In other words, male athletes are described in terms of their skills and performance while women athletes are described in relation to men.

Coverage of women athletes also persistently sexualizes them in ways that suggest the most important thing about them is the way they look.[19] For example, during the 2014 Winter Olympics in Sochi, an NBC analyst discussed the extremely dangerous courses for skiers, noting that female athletes do "all of that while in a Lycra suit, maybe a little bit of makeup— now that is grace under pressure." One study finds that 97% of women's primetime Olympic coverage features them in swimsuits or revealing leotards.[20] A recent study by Cynthia Frisby of athletes on the cover of *Sports Illustrated* and *ESPN The Magazine* finds that "female athletes depicted on the covers of sports magazines are still being sexualized and objectified, depicted in seductive poses and scantily clad clothing while male athletes are often seen in their team uniforms depicted in active, game playing athletic motions associated or related to his sport."[21] One-in-four (26.6%) women athletes were provocatively or sexually dressed compared to only 5.6% of male athletes on these magazine covers.

Researcher Emily Wughalter noticed the persistent reference to women athletes' boyfriends, husbands, children, and appearance in the 1970s — a "feminine apologetic" to balance out their "violation" of feminine societal norms as athletes.[22] A more recent study of depictions of women athletes on the cover of *Sports Illustrated* finds that one-third (32%) of women athletes are sexualized when they appear and half (48%) are shown engaging in feminine or sexualized attire and poses that have nothing to do with their sport.[23] Additionally, 88% of women on the cover of *Sports Illustrated* are shown smiling whereas men are typically shown competing. This "feminine apologetic" reinforces the idea that women athletes violate gender expectations simply by engaging in highly competitive physical activities.

To summarize previous studies on coverage, women athletes are diminished in sexist and gendered ways— using language to establish men as "true" athletes and othering women athletes; discussing men in terms of their physical prowess and women in terms of their relationships to men (as girlfriends, wives, and mothers); infantilizing female athletes; and sexualizing female athletes. Women may have caught up with men in terms of the amount of media coverage in the Olympics, but the quality of their coverage still shows stark sexism.

18. Rogers, Katie (2016). Sure, These Women are Winning Olympic Medals, But Are They Single? *The New York Times*, August 16, https://www.nytimes.com/2016/08/19/sports/olympics/sexism-olympics-women.html

19. Serazio, Michael (2019). "I Still Get Tweets to Go Back in the Kitchen." *The Conversation*, June 13, https://www.pri.org/stories/2019-06-13/i-still-get-tweets-go-back-kitchen-enduring-power-sexism-sports-media

20. Feeney, Nolan (2014). A Brief History of Sexism in TV Coverage of the Olympics. *The Atlantic*, February 21, https://www.theatlantic.com/entertainment/archive/2014/02/a-brief-history-of-sexism-in-tv-coverage-of-the-olympics/284003/

21. Frisby, Cynthia (2017). Sexualization and Objectification of Female Athletes on Sports Magazine Covers: Improvement, Consistency, or Decline? *International Journal of Humanities and Social Sciences*, 7(6): 21-32, https://www.ijhssnet.com/journals/Vol_7_No_6_June_2017/3.pdf

22. Wughalter, Emily (1978). Ruffles and Flounces: The Apologetic in Women's Sports. *Frontiers: A Journal of Women's Studies*, 3(1): 11-13, https://doi.org/10.2307/3345983

23. Nallira, Kaleinani (2021). Apologizing for Nothing: The Reinforcement of the Feminine Apologetic by Sports Media. Senior Comprehensives Project, Occidental College, 2021.

ANALYSIS

In this section, we present our major findings. Only differences that achieve a statistical threshold of .05 are included in this study. We find several significant gender gaps in coverage that reflect lingering sexism in media coverage of the Olympics.

QUANTITY OF COVERAGE

To determine the percentage of screen time by gender, we ran all primetime Olympic coverage segments through an algorithm that detects discernible faces and classifies them into either men|women. Women receive 59.1% of screen time in primetime Olympic coverage compared to the global population baseline of 49.6% women.[24] Two decades ago, coverage of men athletes was twice that of women athletes in primetime, but our findings here indicate that the rapid shift in coverage favoring women athletes may be a permanent improvement. Women athletes have received more coverage than men in primetime hours since the London Games in 2012, and this advantage for women has grown larger with each summer Olympics.

We also examined the gender breakdown of primetime commentators (people providing live analysis of events) and reporters/interviewers (people interviewing athletes after their races). We find that a majority of reporters who interview athletes after their events are women (54.2%). However, the vast majority of commentators are men (82.0%). This means that men dominate the most important aspect of understanding what is unfolding in each competition for viewers.

We also measured for gender differences in whether athletes were interviewed and whether their backstories were featured going into an event, but did not find significant gaps in the amount of coverage. This means that primetime Olympic coverage is just as likely to center women and men athletes in ways that elevate the athlete's profile. With that said, we do see gender differences in the type of in-depth coverage received, with women athletes having more or a focus on their family than men athletes (10.8% compared with 6.0%). We find no gender differences when it comes to a focus on romantic relationships or parenthood in athlete backstories.

QUALITY OF COVERAGE

When it comes to quality of coverage, we examine athlete sexualization and gendered language use using human coding and automated coding.

24. Hannah Ritchie and Max Roser (2019) - "Gender Ratio". Published online at OurWorldInData.org. Retrieved from https://ourworldindata.org/gender-ratio

Sexualization

Previous research has identified large gender gaps in the sexualization of women athletes versus men athletes. We find no gender differences in commentator mention of athlete appearance, body shaming, or verbally objectifying comments, or but sizeable gender gaps in revealing clothing and camera angles:

- Men and women athletes are equally likely to have commentators speak about their appearance (2.9% compared with 2.5%).
- Only two athletes were the subject of body shaming by a commentator: one woman and one man.
- No athletes were verbally objectified (reduced to a sex object with commentary about their bodies) by commentators or reporters.
- Revealing clothing is common attire for athletes who are trying to gain an edge in competition, but women athletes are more likely to be shown in revealing outfits than men athletes (69.6% compared with 53.5%).
- Women athletes are about ten times more likely to be visually objectified than men athletes (5.7% compared with 0.6%). (Visual objectification occurs when a camera pans an athlete's body and/or focuses on specific body parts in a sexualizing way.)

Gendered Language

We used automated analysis to examine the ways in which athletes were described by commentators and reporters in primetime Olympic coverage. We analyzed three specific aspects of gendered language use pertaining to athletes:

1. How often "athlete" and other variants of the word have a gendered prefix in front to describe an athlete (i.e., "female athlete," "female swimmer," etc.)
2. Gendered diminutive language used to describe athletes.
3. The top adjectives used for women and men athletes.

Women are referred to as "female athlete" (as opposed to just "athlete") 4.1% of the time, while no men are referred to as "male athlete." When we expand this analysis to include other variants like "swimmer," "gymnast," "surfer," etc., the gender gap is even more pronounced. As shown below, women athletes are referred to as "female [sport here]" 13.6% of the time compared to only 2.0% of the time for men athletes. This reinforces the idea that men athletes are the norm for the sport while women athletes are secondary or "other" athletes.

TABLE 1: GENDERED REFERENCES FOR "ATHLETE"

GENDER	% OF GENDERED REFERENCES
MEN	▮ 2.0%
WOMEN	▬▬▬▬ 13.6%

We also measured for gender diminutive language, meaning women athletes were referred to as "girls" or other infantilizing or dismissive terms. We find a significant gender gap when it comes to this type of language use. As shown in Table 2 below, women athletes were seven times more likely to be referred to using a gender diminutive.

TABLE 2: GENDER DIMINUTIVE LANGUAGE USE

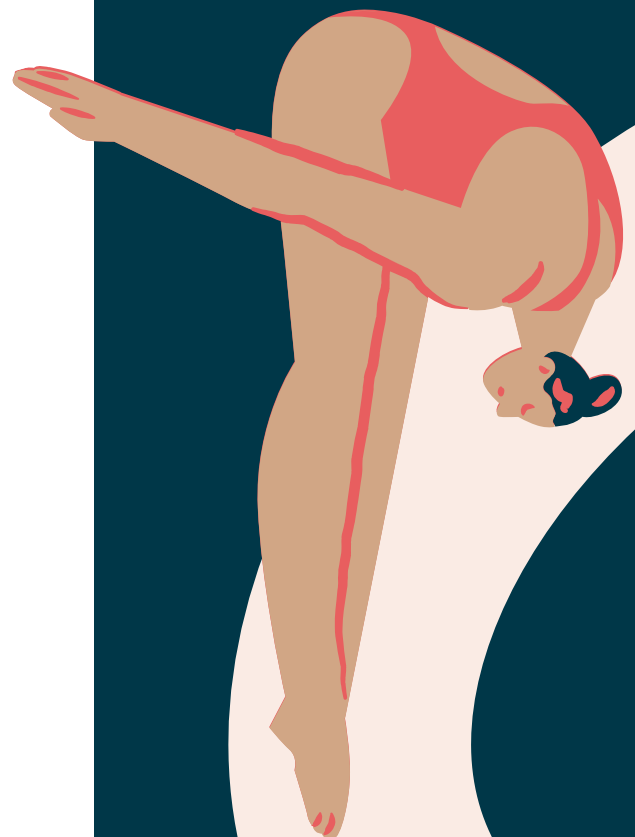| GENDER	# OF GENDER DIMINUTIVES
MEN	▦ 4
WOMEN	▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 29

The most popular diminutive for men athletes was "boy," with four total mentions during primetime Olympic coverage. The most popular gender diminutives for women athletes was "girl" (21 mentions), "lady" (6 mentions), and "chick" (2 mentions).

We also analyzed all adjectives used to describe an athlete. It is important to note that this analysis does not include adjectives used to describe an athlete's actual performance, just the athlete themselves. We find that women and men athletes are described in similar terms. The top five adjectives used to describe **men athletes** are:

- **CHAMPION (32)**
- **MEDALIST (25)**
- **YOUNG (13)**
- **FAVORITE (11)**
- **GOOD (11)**

The top five adjectives used to describe **women athletes** are:

- **MEDALIST (32)**
- **GREAT (30)**
- **CHAMPION (29)**
- **FAVORITE (21)**
- **YOUNG (20)**

The word clouds below include all words used to describe men and women athletes. We do not find a pattern of gender bias in adjectives used to describe women and men athletes.

Men athletes word cloud:

Women athletes word cloud:

CONCLUSION

Women athletes have long been erased and diminished in sexist and gendered ways in sports media coverage. From language establishing men as "true" athletes to discussing women in terms of their relationships to men, numerous studies have documented sexist media coverage. We observe both positive and negative findings for the Tokyo Olympics.

On a positive note, women athletes received more coverage than men athletes. We find no gender gaps in discussions of romantic partners, marital status, parenting, appearance, or body shaming.

On a negative note, we find some persistent gender differences that require action: commentators are overwhelmingly men, women athletes are shown in more revealing clothing than male athletes overall, and camera angles are more likely to sexualize women athletes. Also, women athletes are more likely to be referred to as "female athletes" instead of just "athletes," and they continue to be described with gender diminutive terms, such as "girls."

ACTION STEPS

FOR MEDIA EXECUTIVES:

- Hire more women commentators.
- Direct camera people to avoid sexualizing women athletes with camera angles.
- Direct commentators to use "athlete" when referring to men and women athletes instead of gendering the term.
- Direct commentators to avoid referring to women athletes as "girls," "ladies," "chicks," or other language that diminishes them.

FOR OLYMPIC EXECUTIVES:

- Allow women, men, and gender non-conforming athletes to wear the clothing of their choice (instead of mandating sexually revealing outfits for women competitors).

APPENDIX A

SCREEN TIME ANALYSIS

The automated calculations done for the screentime analysis fit into two separate categories:
1. Frame-level analysis. We divide the video into frames, and scan each frame individually to see if we detect a face in the frame. If so, we keep the frame and analyze it to see if any face with a desired identity is present. Here, if we have a frame with one man compared with a frame with ten men, they will both be counted as the same — a frame with at least one man.
2. Face-level analysis. We find all faces that are shown throughout every frame of the video, and do analysis on all faces at once. Here, a single frame with ten women will be counted the same as ten frames with a single woman — ten women's faces found.

These two groups are further broken up into three separate ways to count a face detection:
1. Any face. If a face is really small in the background or huge, taking up the entire frame, it doesn't matter. All faces are counted as equal in the calculations.
2. Non-background faces. Here, we use a predetermined size of 5,776 pixels as the smallest size a face can be before being considered a background character (i.e., someone sitting in the stands, an athlete in the background warming up while another athlete plays, etc.). For these calculations, we only consider faces larger than this threshold.
3. Prominent faces. Of the non-background faces analyzed, we take the largest box size, and only consider faces that are within 80% of this box size. The goal here is while many faces may be on a screen, only some should be prominent faces. This is a refined way of excluding background characters and only focusing on the largest (and thus most prominent) faces in a frame.

TEXT ANALYSIS

We transcribed all audio from the coverage to text using Google Cloud's Speech-to-Text API, and then manually reviewed all text in an attempt to study three areas:

1. How often "athlete" and other variants of the word have a gendered prefix in front of it to describe an athlete (i.e., "female athlete," "female swimmer," etc.)
2. Gendered diminutive language used for each gender.
3. The top adjectives used to describe athletes by gender.

ABOUT THE ORGANIZATION

The Representation Project is a leading global gender justice non-profit organization. We use films, education, research, and activism to challenge harmful gender norms and stereotypes. In 2011, Jennifer Siebel Newsom founded The Rep Project in response to the overwhelming public demand for ongoing education and social action in support of her first film, *Miss Representation*. Since then, Siebel Newsom has released two more acclaimed films, *The Mask You Live In* (2015) and *The Great American Lie* (2019). The organization also runs a global youth filmmaker program to train the next generation of change agents. The Rep Project is also known for its impactful social activism campaigns, including #NotBuyingIt, #AskHerMore, and #RepresentHer.