

Gendered Innovations in Energy and Environmental Media: A Case Study¹

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Scientists have reached a consensus that greenhouse gas emissions released from human activities are the primary drivers behind climate change (IPCC, 2007). Despite growing public sympathy towards the green movement due to legislative and advocacy efforts, however, society still fails to match this attitude with a sense of urgency and action. Reducing individual energy consumption in homes and businesses is one of the simplest and most effective actions to take. Although targeting individual consumption does not offer an all-encompassing solution, residential energy use alone averages 20 percent of a nation's total carbon footprint and promises a significant reduction in emissions (Linden *et al.*, 2006). Therefore, improving energy knowledge and behaviors to foster a more environmentally-active society is vital to tackling the global challenge of climate change. Unfortunately, stereotypes have splintered the green movement and have thrown up barriers against more effective action. "Environmentalism" has traditionally been associated with femininity while "energy" carries a masculine connotation. To create a sustainable future, the green movement as a whole is in need of a gendered overhaul.

The Challenge

In this case study, we approach environmentalism and energy decision-making from a gendered perspective. For centuries, women have been associated with nature; more recently, environmentalism has become a "female" domain. According to Graceann Bennett and Freya Williams, 82 percent of Americans perceive the green movement as "feminine" (2011). Many researchers have discovered that being female often correlates with eco-friendly behavior, but much work remains to be done to analyze what cultural factors cause that correlation. For instance, Ritta Rätty and Annika Carlsson-Kanyama find differences in energy consumption between men and women in Europe ranging from six percent to 38 percent (Rätty *et al.*, 2009). Christina Ergas and Richard York observe a correlation between growing gender equality and decreased carbon emissions and suggest that women may be better protectors of the environment (Ergas & York, 2012).

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The next step in research would be to analyze the impacts of other factors, such as affluence, geography, and government, to develop a more thorough analysis of how such factors intersect with biological sex to influence behavior. Failing to clearly delineate such factors from sex implies that the mere fact of being a woman can explain differences in attitudes. According to David Sleeth-Keppler, assistant professor at Humboldt State University, the feminine association with environmentalism and climate change concern is a cultural phenomenon and not necessarily linked to biological sex. Sleeth-Keppler acknowledges the correlation between sex and environmentalism, but demonstrates that personality types are far better predictors of whether or not an individual is “green” (Sleeth-Keppler, 2012). Without clear methods to differentiate gender from non-gender factors, researchers tend to overemphasize minor differences in climate change attitudes and reinforce the stereotype linking women with environmentalism.

This perceived gendered division on environmentalism is derived from larger societal gender stereotypes. The media tends to portray women as passive consumers and men as active experts and decision-makers. These images reach children through coloring books as early as two years of age, when they begin developing awareness of gender norms. Although coloring book characters are gender-balanced overall, 44 percent of male characters and 58 percent of female characters exhibit stereotypical behaviors: the males exercise control in active outdoor roles while the females remain in passive or serving roles (Fitzpatrick & McPherson, 2010). Furthermore, males are twice as likely as females to be portrayed as adults while females are three times as likely to be shown as children. Finally, female coloring books contain more stereotypes overall than male coloring books.

These gender stereotypes propagate later in life in the form of television advertisements. According to Martin Eisend, Professor of International Marketing at the European University Viadrina Frankfurt, U.S. advertisements usually portray women as consumers (64.1 percent) rather than authority figures (34.7 percent), whereas men are more likely to be portrayed as authority figures than consumers (Eisend, 2010). Both women’s products and gender-neutral products tend to portray men as scientists and experts while females are portrayed as happy, grateful, and content users of those products.

Through independent analysis, we found that this media standard existed in green advertising as well. Our media analysis consisted of viewing 11 advertisements for household products, cars, utilities, and conservation. We recorded the number of men and women, their respective roles, and whether the ad targeted men or women. We found that only three advertisements (27 percent) included women in a significant role: two advertisements had female voice-overs, while one had three women actors. Furthermore, two of the three female-lead advertisements were for Clorox’s Green Works product line and

Samsung's Eco-bubble washing machine, and the third advertised a European renewable energy utility in the context of household energy use. These green advertisements perpetuate stereotypes by employing female actresses only in household advertisements and primarily using environmental appeals to market household consumer products to women. On the other hand, three out of four utility advertisements primarily contained male actors and voice-overs. For instance, SunPower's advertisement used a male voice-over and showed pictures of exclusively male solar panel installers. Austin Energy also had a male voice-over and portrayed a young boy saving the world with wind energy. The resulting gender norms suggest that men hold ultimate energy authority and exclusively inspire boys to solve climate change.



FIGURE 1. The television advertisement for Clorox's Green Works product line is an example of how the media feminizes environmental concern and eco-friendly behaviors. Green advertisements like these reinforce the norm that sustainability is a female domain (Godelnik, 2013).

The assumption that sustainability is feminine and energy is masculine drives a gender gap between energy management and environmentalism, when both are critical elements of the green movement. This divide contributes to the current gap between belief and action regarding climate change mitigation. Graceann Bennett and Freya Williams reveal that while 80 percent of US respondents believe that activities such as walking or biking to work, purchasing locally grown food, using eco-friendly products, and recycling are important to living a sustainable lifestyle, only 50 percent of respondents practice those behaviors (Bennett & Williams,

2011). Similarly, the 2011 Green Brands Survey found that 72 percent of Americans believe it is important to buy from green companies, but only 30 percent plan on spending more on green products in the future (Green Brands, 2011). These statistics illustrate that the primary problem is no longer convincing people that climate change is real, but rather promoting action against climate change.

To turn passive believers into active agents, we need to first understand the consequences of our gender norms on the green movement. The media portrays women as eco-friendly consumers, so women tend to be more receptive to and aware of environmental concerns. On the other hand, the media portrays men as energy managers and rarely targets them in environmental ads, so men are less likely to make energy decisions based on environmental reasons. According to Diana Haytko and Erika Matulich, women express more positive attitudes toward green advertising and green products, and exhibit more environmentally responsible behaviors than men (Haytko *et al.*, 2008). Unfortunately, the media also fails to portray women as energy managers, which is reflected in the composition of energy companies. Carlsson-Kanyama, Isabel Ripa Juliá, and Ulrike Röhr found that out of 464 German, Swedish, and Spanish energy company boards, only five percent had boards or management groups that could be considered gender equal, and 64 percent had no women at all (Carlsson-Kanyama *et al.*, 2010). While Carlsson-Kanyama's article was inconclusive about whether the presence of women can influence company investment in sustainable energy sources, there appears to be a chasm between environmental conscience and energy authority. The media portrays women as environmentally responsible, but does not grant them authority. Meanwhile, the media portrays men as energy managers, but provides no environmental context with which to make educated decisions. The challenge lies in integrating both sides of the gender divide to holistically tackle the monumental challenge of climate change.

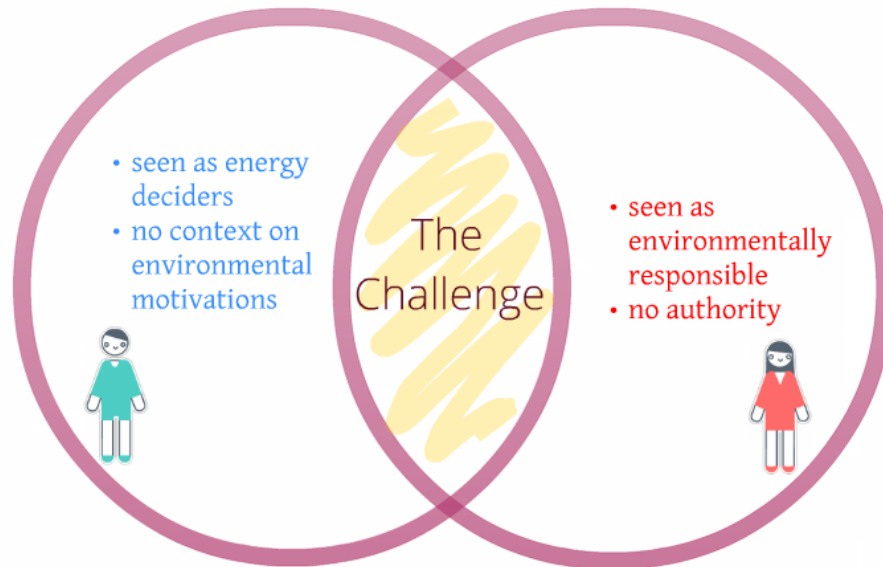


FIGURE 2. The gender divide in climate change. Women are perceived as environmentally-conscious consumers, but are not granted energy authority. Men are seen as energy deciders but are not targeted in environmental ads, and therefore have less context in which to make educated energy decisions.

Gendered Innovation #1

Our first Gendered Innovation challenges gender stereotypes in environmental and energy advertising to broaden the scope of both men and women’s roles. The first piece of this innovation makes energy leadership more inclusive by portraying women in active, managerial roles in energy advertisements. In our analysis of green advertising, we found no examples where women held the active or expert role in advertisements that inspire innovation and leadership in the energy sector. This deficit demonstrates the need to reach beyond current gendered portrayals in advertisements that dissuade women from embracing energy authority. Ads that provide positive role models and encourage women to pursue leadership positions in energy management would give women a greater voice and authority when it comes to energy decision-making.

The second part of this innovation is to make “green” less “pink.” Eliminating the association between women and environmentally-friendly behaviors will help make sustainability more appealing to men. Portraying men in environmental ads or providing a more “masculine” perspective on climate change in advertisements are two ways to “defeminize” environmentalism. For instance, the “Do Right” advertisement by Repower America draws men to sustainability by appealing to traditionally masculine areas of national security and agriculture. The “Do Right” ad depicts a typical Midwest farmer promoting the need to repower the U.S. with renewable, clean energy with the premise that our current dependence on foreign oil from unfriendly nations is both harmful to the

planet and a national security threat. Although no women appear in this commercial, Repower America offers men better environmental context for their energy decisions. A second advertisement that breaks current gender and environmental stereotypes is a commercial for the Nissan Leaf electric vehicle, which shows a businessman practicing environmentally-friendly and energy-conscious behaviors by driving an electric vehicle. By hugging the polar bear, the businessman is able to embrace a traditionally “feminine” role without losing the audience’s respect. More advertisements that cross the barrier separating women from energy authority and men from environmental concern are necessary to mainstream green actions in both men and women.



FIGURE 3. This image is taken from a television advertisement for the Nissan Leaf. This ad crosses the current gender divide separating men from environmental concern and eco-friendly behaviors by showing a respected “masculine” businessman driving an electric vehicle. Ads such as this one serve to popularize and normalize sustainable behaviors in men, which is essential to making the green movement gender neutral (Macleod, 2010).

Gendered Innovation #2

Our second Gendered Innovation applies video games to bridge the gender gap in climate change. Although the relationship between video games and behavior has traditionally been cast in a negative light, there is potential for positive influences. Studies have confirmed that first-person shooter games increase aggressive thoughts, but more recent studies have explored ways in which video games and virtual reality can inspire positive behavioral changes (Anderson & Dill, 2000). For example, researchers at Stanford demonstrated that players granted the superpower

of flight in an immersive virtual environment were more likely to offer and provide assistance than participants who used a virtual helicopter (Rosenberg *et al.*, 2013). Therefore, games that incorporate real-world challenges present a viable method to improve energy and environmental knowledge and behaviors. Even more promising is the potential of gaming as a venue enabling use of “collective intelligence,” or harnessing vast diversities of intelligence, experience, skills, wisdom, and imagination of multitudes of players to develop faster and more innovative solutions than any one individual is capable of. Foldit, an online protein-folding video game developed by the University of Washington, has already demonstrated the effectiveness of collective intelligence in gaming at solving real-world challenges. In 2011, Foldit players successfully deciphered the crystal structure of the AIDS-causing Mason-Pfizer monkey virus retroviral protease (Khatib *et al.*, 2011). More impressively, players accomplished the feat, which had stymied scientists for 15 years, in a mere 10 days. Thus, evidence conclusively proves the potential of games to influence behaviors and their effectiveness in solving real-world challenges.



FIGURE 4. A screenshot of the online video game Foldit, in which players assemble proteins. The game was designed by the University of Washington, and the specific challenges are given by researchers. The success of Foldit demonstrates the effectiveness of video games in solving real-world problems (Brace, 2010).

Progressive designers have produced games such as *Evoke*, *A World Without Oil*, and *Power House*, in which players tackle real-world challenges such as famine, fuel shortage, and energy management in virtual settings. According to Jane McGonigal from the Institute For the Future, gamers facing virtual challenges share a sense of optimistic

urgency, and harnessing that optimistic urgency could be a breakthrough for tackling real world problems (McGonigal, 2010). While video games can be a tool for solving the challenges of climate change, though, convincing people to play environmentally-focused games may be a challenge in itself.

Our first solution to this conundrum is to incorporate these games into education. A recent article in the Stanford Report discusses the idea of “gaming to learn” (Mackay, 2013). Mackay writes that learning and playing need not be exclusive, although this is the traditional sentiment. Using games as a tool for learning does not necessarily “dumb down” education, but can be a method to more effectively engage and motivate students. For example, work by Constance Steinkuehler and Elizabeth King has demonstrated that online games increase reading levels in students; the students were more motivated to read challenging texts when those texts were integrated into an online game (Steinkuehler & King, 2009). Similarly, incorporating energy and environmental games into the educational curriculum could enhance students’ knowledge about environmental issues and promote behavioral changes through a more fun and engaging medium than traditional textbooks and lectures.

Our second solution is to integrate social media and competition into green games to promote changes in environmental behaviors. Schultz and Cialdini revealed the power that normative social influence has in motivating energy consumption; they found giving households information about how their energy usage compared to that of their neighbors was a strong motivator in changing energy usage (Cialdini & Schultz, 2004). Alex Laskey, president of Opower, described a similar experiment he ran with his team during a recent talk at TED2013. According to Laskey, describing the financial, environmental, and moral motivations for saving energy had no effect on changing his team’s energy behaviors. However, reminding employees that their neighbors were cutting consumption sparked significant changes in energy conservation (Ha, 2013). Social media is an ideal outlet to catalyze behavioral changes through social influence and by enhancing awareness about environmental games. Such games can tap into competitive and social forces to change behaviors by pitting classrooms against each other in schools, or friends against each other on Facebook.

Most importantly, though, environmental games should be held to the same standards as popular titles if they expect to succeed. As is the case for advertising, video games can employ existing media strategies to appeal to men. For instance, Evoke uses comic-book illustrations and intense music that one might expect in an exciting shooter game. Another approach would be to incorporate real-world problems in standard video games. Indeed, some producers are already moving towards that direction; for instance, Call of Duty: Black Ops II highlights a rare earths crisis between China and the U.S. Incorporating environmental and energy

crises into video games would be an effective way to raise awareness among men.

Although we exclusively mention men in the preceding argument, increasing the “epicness” of games would appeal to women as well. While gaming promises an exciting, new pathway to instigate knowledge and behavioral change, designers should take care to avoid reinforcing gender stereotypes in the process. Even researchers are prone to overlook gender stereotypes. A recent Stanford Report article describing the potential of games as educational tools featured a picture of three young boys and referenced a study that indicated gaming could improve the reading level of boys, without a corresponding analysis of its effect on girls (Mackay, 2013). If video game designers fail to carefully consider their feminine audience, though, they will undermine the benefits highlighted in this case study. Leaving women and girls out of energy and environmental games perpetuates the existing gender divide in climate change. Unfortunately, *Powerhouse* illustrates this pitfall. The sims in the *Powerhouse* family all maintain very traditional gender roles; the mother’s dress and apron suggest she is a housewife, while the father’s suit portrays him as a businessman. Such restricted portrayals of masculine and feminine roles stifle innovation and creativity in tackling the challenges of climate change.

As a matter of fact, video games provide an easy way for men and women to explore alternative gender roles. In particular, designers can create games that encourage women to embrace leadership and management qualities. When researchers studied female gamers in three categories - power gamers, moderate gamers, and non-gamers - they found that female power gamers enjoyed games that allowed them to give their avatars attributes like strength and intelligence that challenged stereotypical representations of women (Royse *et al.*, 2007). Royse’s study also found that female moderate gamers tended to choose games that offered a more controllable environment than the real world. Video games offer a huge window of opportunity for women to explore alternative gender roles; according to the Entertainment Software Association, women represent 42 percent of video game players and 48 percent of the most frequent purchasers of games in the U.S. (Gendered Innovations, 2011). Thus, games are an ideal medium to challenge existing stereotypes. Redesigning video games that allow women to explore gender roles can inspire them to tackle real-world challenges. For instance, *Evoke* highlights two strong female lead characters who use community activism and engineering to solve poverty and natural disasters. In the energy and environment sector, video games should be among the first outlets for portraying women as energy managers and decision-makers.

Conclusion

Despite great progress in shifting public opinion towards more eco-friendly attitudes, there remains a substantial discrepancy between beliefs

and actions. This discrepancy can partly be traced to a gender divide in the media. Through an analysis of gender roles in the media, we find that the green movement has allowed a chasm to emerge between “feminine” environmentalism and “masculine” energy authority. The media portrays women as environmentally-conscious consumers, but does not grant them energy authority. On the other hand, the media portrays men as energy managers, but provides them little environmental context with which to make educated decisions. Fortunately, we can bridge this gender divide by bringing both sides of the green movement together to holistically tackle the challenge of climate change. We propose two Gendered Innovations to achieve this goal. The first Innovation is to “defeminize” environmentalism and “demasculinize” energy authority in green advertisements. Advertisements should highlight national security motivations for pursuing renewable energy and portray respected individuals like businessmen engaging in eco-friendly behaviors to educate men about environmental issues. Meanwhile, the media can promote women energy leaders to inspire more women and girls to take action on energy decisions. Our second Innovation utilizes video games as an outlet for improving energy and environmental knowledge and behaviors. By building games around energy crises or incorporating environmental concerns into existing popular titles, designers could effectively target men. By offering flexibility in gender roles in these energy games, designers could also motivate women, who comprise almost half of U.S. video game players, to make educated energy decisions. Of course, much research and work remains to be done in analyzing the complex interactions between gender, media, and energy. We strongly believe, however, that the green movement’s gender divide is one of the primary barriers to advancing both environmentalism and alternative energy, and we suggest two viable and concrete measures to promote tangible progress. Although we realize that many factors may intersect with gender, we hope that other academics and professionals will consider the impact of gender as they contribute to this exciting field of research.

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