

REDUCING RED MEAT CONSUMPTION FOR A MORE SUSTAINABLE DIET

In partnership with the City of Vancouver and CityStudio

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Background Information

Serving as an underlying focal point within all cultures, red meat—predominantly beef, pork, and lamb—produce various implications throughout all its commodified stages. Being found to inflict varying ramifications upon many sectors, a majority of the practices in the red meat industry apply significant stress the environment, threaten human health, and inflict inhumane and unethical treatment upon their animals. As a major contributor to environmental pollution due to carbon output, and required land, water, feed, and energy, red meat contributes the greatest influence among the domesticated animal industry. While 1 kg of beef has been found to use the most land and energy, it provides the highest global warming potential compared of all other meats due to different feeds, methane emissions, and reproduction rates (de Vries & de Boer, 2010). Although beef requires the most resources while creating the highest environmental impact, the effects from the entire red meat industry prove congruently consequential.

As a whole, red meat constitutes the most resource intensive sources of meat while additionally producing the highest amount of emissions throughout its entire commodity chain (Hamerschlag, K., 2011). By finding a reduction in emissions from decreased beef consumption, the Natural Resources Defense Council (2017) has confirmed a direct link between climate-warming pollution from the environmental impact associated from beef consumption. In addition to the environmental degradation, red meat consumption contributes to detrimental health impacts, which include the increased risk of stroke, type-2 diabetes, and many cancers, such as pancreatic, esophageal, bladder, breast, lung, colon, and prostate (Cross et al., 2010; Ferrucci et al., 2010; Lam et al., 2009; Larsson, Virtamo, & Wolk, 2011; Nöthlings et al., 2005; Steinbresher et al., 2010). The Archives of Internal Medicine from Harvard University (2012) found that consuming more than three ounces of beef per serving increased the chance of mortality by 13% mainly due to

cardiovascular diseases. Despite the efforts to keep the industry practices concealed (Hoogland, Boer, & Boersema, 2005), animal abuse, torture, and inhumane treatment are actively conducted behind the closed doors of all factory farms (Monson, S., 2005).

A dramatic rise in global meat consumption from the last few decades (Hamerschlag, K., 2011) and a pervasive disassociation of meat from its commodity chain (Hoogland, Boer, & Boersema, 2005) contribute to the current unsustainable trends. The lack of awareness amongst consumers serves as the fundamental contributor of modern behaviors, suggesting an urgent need to re-evaluate modern consumption and encourage a sustainable shift among society. By reducing red meat consumption, the demand of red meat will lower while respectively reducing the associated impacts from the industry.

The City of Vancouver's 'Greenest City Initiative' (2016) has set goals to reduce the city's carbon emissions and ecological footprint. The City of Vancouver is emphasizing the significant impact produced from food, which is most predominantly within the agricultural and domesticated animal industry. While the last attempt at reducing meat consumption—Meatless Mondays—proved predominantly unsuccessful, we sought to determine the most effective form of communication with the Vancouver Community regarding the issues from red meat

Research Question

Due to the overexposure of advertisements and influential imagery on the internet, public spaces, and commodities themselves, researchers have endured an increasing urge to determine the effectiveness of shock advertising on controversial subjects. With shock advertising entailing an image or message which violates norms to deliberately startle the audience (Dahl, Frankenberger, & Manchunda, 2003), several studies have been conducted on young adults to determine the effectiveness of graphic or fear-invoking advertising to reduce smoking, unprotected

sex, and distracted driving. While reducing cigarette consumption and unprotected sex proved shocking media and messages to be effective in reducing behavior (Dahl, Frankenberger, & Manchunda, 2003; Starr & Drake, 2017), efforts to reduce texting and driving proved these methods to be unsuccessful (Cismaru & Nimegeers, 2017; Lim, Lin, & Chung, 2017). As previous studies have yielded conflicting results when trying to reduce consequential behaviors, no studies have attempted to understand the receptivity of reducing red meat.

To combat the trend in rising red meat consumption and assist in Vancouver's 'Greenest City Initiative', we teamed up with CityStudio and the City of Vancouver to conduct a social study on the local community to increase awareness and analyze the receptivity of the issues. By conducting a survey which deterred red meat consumption, we analyzed the effectiveness of shock advertising and determined the subject area that generated the most impact.

Research Process

With three fundamental consequences stemming from red meat, we studied environmental, ethical, and human health issues. One image was normal, not intended to invoke a large reaction from the audience, while the second was deliberately chosen to shock the audience due to its graphic imagery. For each topic, a related statement was added on the two images to reinforce an impact on the reader. The images and statements can be seen in Figure 1, Figure 2, and Figure 3.

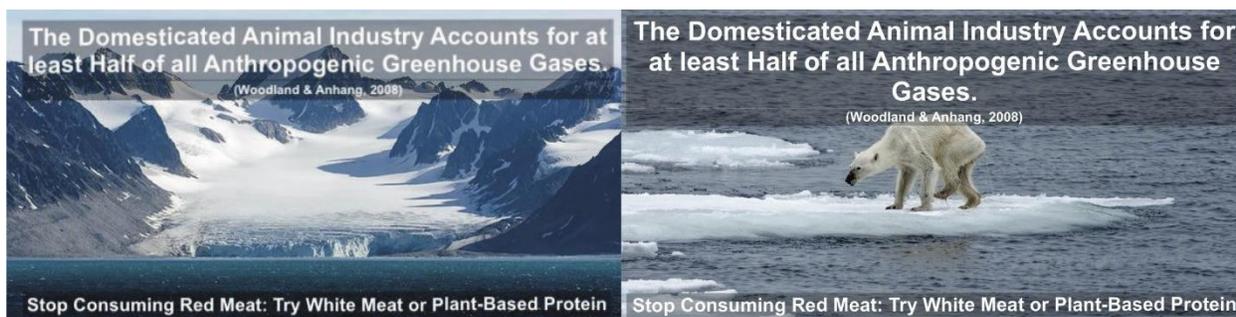


Figure 1. A pair of advertisements depicting the environmental issues associated from the red meat industry. The normal image is on the left and the graphic image is on the right. Images from: Mountain Kingdoms (n.d.) and Kerstin Langenberger (2015).



Figure 2. A pair of advertisements depicting the impacts on health from eating red meat. The normal image is on the left and the graphic image is on the right. Images from: Natalia Lisovskaya (n.d) and @wisethedome (2017).



Figure 3. A pair of advertisements depicting the ethical issues in the red meat industry. The normal image is on the left and the graphic image is on the right. Images from: Agro Consultancy (n.d.) and Last Chance for Animals (2015).

We developed a survey using Google forms (<https://goo.gl/forms/dgTvXtKcvBKCqE6S2>) to compare each pair of advertisements in their respective topics. Participants were asked their field of study and they were able to comment on why they choose a particular image and why it impacted them. Participants were then asked what poster topic resonated with them the most overall. Lastly, participants were asked to state any additional comments in regards to their feelings, suggestions, or observations on the posters and topics they saw on the survey.

To distribute the survey, we posted the survey link on local university Facebook groups (Figure 4) that included students from the University of British Columbia, University of Victoria and Simon Fraser University. The particular Facebook groups we posted in were: UBC Class of 2018, UBC Class of 2019 Official group, UBC Class of 2021 Official Group, UBC Class of 2022 Official Group, UVIC Class of 2019 Social Group, UVIC 2021 and Simon Fraser University Class of 2017 Social Group - Fall 2013. To reduce any potential bias, we created an anonymous Facebook profile to post the link in the aforementioned groups.



Figure 4. A screenshot of a sample post on a UBC class page using an anonymous Facebook account. To encourage diverse participation, the subject of study was not apparent until the participant opened the link to the survey.

Project Outcomes

Using the analytics from our Google form, we generated trends based on the responses of 220 participants. As seen in Figure 5, 88.6% (195) of the participants in the topic of the environment were more impacted by the shocking image, 72.7% (160) in the topic of health were more impacted the shocking image, and 77.3% (170) in the topic of ethics were more impacted by the graphic image. However, ethical issues resonated with the most participants, which yielded 44.5% (98) participants, nearly doubling the 25.9% (57) participants most impacted by health issues and the 29.5% (65) participants that were most affected by the environmental issues, as observed in Figure 6.

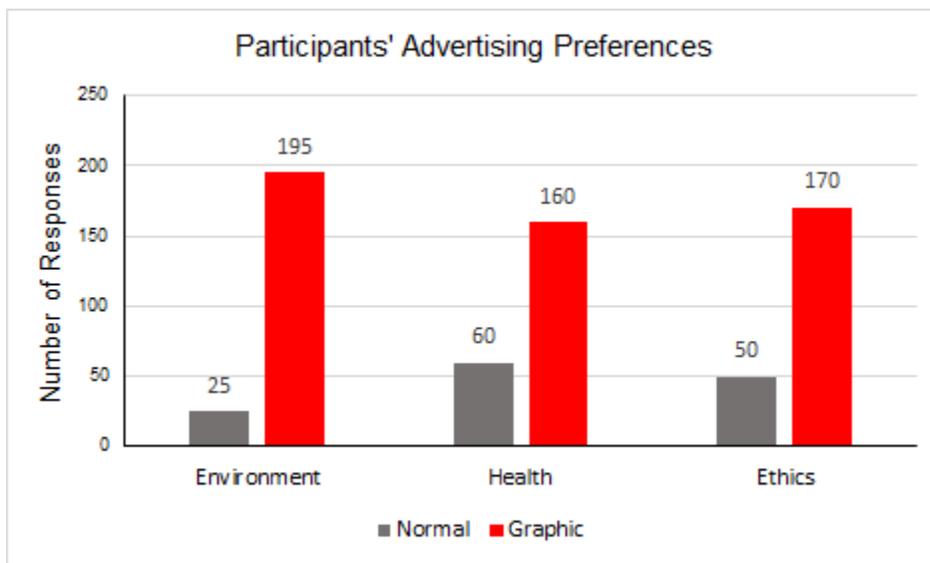


Figure 5. Advertising preferences between normal and graphic images for three topics based on Google survey results from 220 participants. Data was collected between March 18, 2018 and April 6, 2018.

Which subject resonated with you the most?

220 responses

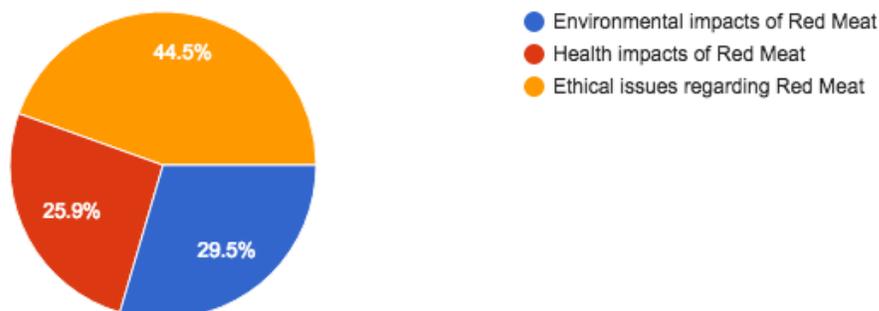


Figure 6. Concluding the survey, participants indicated which topic they were most impacted by. Data was collected between March 18, 2018 and April 6, 2018.

Discussion

From our study, we found that the majority of the participants in our survey felt the graphic advertisements were most impactful as they resonating with them more than the normal ads. While our findings reinforce the majority of data - which finds most topics' shock advertising and graphic warning statements to be more impactful - our results suggest that media presenting red meat and its associated issues is most effective when displayed in a shocking manner. By studying the most influential topic amongst the participants, ethical issues (compared to environmental and health issues) proved to be the most impactful. Collectively, this suggests that when exposed red meat industry's implications, the community of Vancouver is most influenced by graphic and shocking images which favor ethical issues.

Implications

As advertisements prove to be a subtle way to influence and provoke behavioral changes, research has proven to find shock advertising as a highly effective form. The advertisement itself both grabs attention and contributes to memory retention while it has been found to encourage

awareness and acknowledgement of the associated message (Dahl, Frankenberger, & Manchunda, 2003). As it possesses the ability to promote elements of cognition (McGuire, 1978), engagement from the received feedback has further proved its active influence (fig. 7). Despite inevitable disapproval of meat reduction campaigns from some participants, the majority of feedback encouraged support due to the fundamental lack of exposure and awareness of the issues.

Though direct advertising is not an expected outcome from this study, we suggest the results from this study could possibly be utilized to encourage awareness of the issues associated from the red meat industry. Complementing the research by Hoogland, de Boer, and Boersema (2005), which found a direct reduction in consumption by re-establishing the association of meat with its animal origin, enacting uncensored, realistic media and messages regarding ethical issues will provide undeniable influences.

Limitations

While the university Facebook groups included a diverse range of age, a majority of our respondents were presumed to be young adults, which provided more liberal responses, bringing into question the representation of and applicability to the community of Vancouver.

Due to the constraints of a semester, we were unable to determine any long term behavior change from the voluntary participants. Thus, further research is needed to study whether the use of graphic images and/or images addressing ethical issues of red meat lead to long term change in the community. Additionally, further research about advertisement retention would aid in selecting the most effective type of media to appeal to the public.

Acknowledgements

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Appendix

Definitely elicits a strong reaction
Impactful but not in a tasteful way
Would love to see this ad campaign implemented
I've never been a big fan of red meat and have always preferred lean white meats but after this I want to be more active in not supporting this industry. Real life photo evidence showing the impacts of red meat production and consumption should be more widespread, advertising companies should stop using tame informational posters that don't elicit any feelings, cuz how else will people want to change?
I'd say although this is more impactful it is unlikely to deter red meat consumption. Most people are aware of the conditions in the livestock industry and would rather seek improvement in that regard than boycott red meat for such a reason. In this case you may just be showing disturbing photos for the sake of showing disturbing photos, much like "pro-life" activists. Is that an effective strategy? Who knows.
Right poster is too much of a shock factor which makes the message more off-putting.
Instead of asking people to stop eating red meat. Figure out a way to fix the problem i.e change cattle diet, genetic modifications (artificial selection), if indoor farm then filter the air. Plenty of things that could be possible other than asking 7 billion human beings to stop eating red meat.
Again pressure our politicians to do something about it not the consumer

Figure 7. Sample comments from participants of the survey. Data was collected between March 18, 2018 and April 6, 2018.



REDUCING RED MEAT



Researching for the Most Effective Form of Communication

Purpose

To combat the trend of rising red meat consumption, we've teamed up with CityStudio and the City of Vancouver to conduct studies on the local community to determine the best way to communicate the issues with the public. From our collected data, we are able to propose both the best format and the best subject to concentration communication.

Outcomes

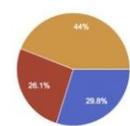
An overwhelming amount of participants expressed greater influence from the graphic and fear-provoking photos. Amongst the three issues, the majority of respondents indicated that ethical issues invoked the greatest amount of impact.

Process

With a focus on the three main issues from red meat (environment, health, and ethics), we conducted a study for university students in British Columbia. By posing anonymously online, we compared the impact from UBC, SFU, and UVIC students' response from 'normal' advertisement with a graphic or fear-provoking advertisement.

Which subject resonated with you the most?

218 responses



- Environmental impacts of Red Meat
- Health impacts of Red Meat
- Ethical issues regarding Red Meat

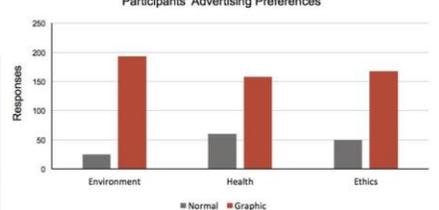
I've never been a big fan of red meat and have always preferred lean white meats but after this I want to be more active in not supporting this industry. Real life photo evidence showing the impacts of red meat production and consumption should be more widespread, advertising companies should stop using tame informational posters that dont elicit any feelings, cus how else will people want to change?

Overall, I think if a poster's primary goal is to raise awareness, it needs to have an image that shows the "impact". For example, on cigarette packages, it shows scary effect of smoking rather than a normal cigarette image.

Impactful but not in a tasteful way

Instead of asking people to stop eating red meat. Figure out a way to fix the problem i.e change cattle diet, genetic modifications (artificial selection), if indoor farm then filter the air. Plenty of things that could be possible other than asking 7 billion human beings to stop eating red meat.

Participants' Advertising Preferences



Issue	Normal	Graphic
Environment	~25	~190
Health	~60	~150
Ethics	~50	~170



The Livestock Industry Actively Inflicts Violence, Cruelty, and Abuse to their Animals.
(Monson, 2005)

Stop Consuming Red Meat: Try White Meat or Plant-Based Protein



The Livestock Industry Actively Inflicts Violence, Cruelty, and Abuse to their Animals.
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Stop Consuming Red Meat: Try White Meat or Plant-Based Protein

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Course: SCIENCE 420
Instructor: Gunilla Öberg

CityStudio Vancouver is an innovation and experimentation hub for the City of Vancouver in collaboration with seven of Vancouver's post-secondary institutions (BCIT, ECUAD, Langara, SFU, UBC, VCC and NCC). Since 2011, CityStudio has contributed more than 100,000 hours of experiments, projects and skills training to support City goals and strategies like the Greenest City Action Plan and Healthy City for All strategy. Learn more @CityStudioVan.

Figure 8. Poster for Hubbub #10 at Vancouver City Hall on April 6, 2018.