

UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

**Understanding Framing and Educational Effects on Climate Action**

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**Themes: Climate, Community**

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### **Executive Summary**

Framing is often used to elicit particular behaviours and attitudes. This paper examines whether educational framing of environmental issues impact participants' willingness to engage in pro-environmental behaviour. We investigated local and global framing effects. Environmental issues are often perceived as abstract concepts and psychologically distant. Participants were randomly assigned to three conditions (local vs. global vs. control). We found no significant effects from both the local and global educational framing conditions. Instead, our results indicate that the control condition with no educational blurbs and quiz had the highest response rate and elicited the most pledge responses. The results did not support our hypothesis. Our findings suggest that using framing and educational blurbs are not effective on their own to elicit pro-environmental behaviours. Previous research further explains our results, which illustrated that neither local or global framed messages raised individual concern for environmental issues strong enough to change their behaviour. We conclude that our results are reflective of an ineffective methodology for the purpose of our study.

*Keywords:* pro-environmental behaviour, educational blurbs, framing, psychological distance

## Introduction

Environmental degradation poses a threat to the well-being of all organisms. The complexity and size of the issue makes it difficult for individuals to feel a sense obligation. Psychological distance is a theoretical construct that refers to a subjective distance an individual perceives between the self and some entity. Previous research has found that there is a negative correlation between psychological distance and concern about environmental issues (Scannell & Gifford, 2013; Schoenefeld & McCauley, 2016; Wang et al., 2019). These findings suggest that greater psychological distance lowers willingness to engage in pro-environmental behaviours. Leiserowitz stated an effective strategy to communicate issues is to frame them through a local lens (as cited in Scannell & Gifford, 2013). A study illustrated that subjects who attended workshops about local climate change reported more awareness towards environmental impacts and an increased willingness to support climate change policies (Sheppard, 2005, as cited in Scannell & Gifford, 2013, p.64). For example, a survey conducted by Kates and Wilbanks found that despite the decreased public concern about climate change, citizens took action towards a local environmental issues (as cited in Scannell & Gifford, 2013, p.64). Conversely, other research suggests that locally and globally framed messages do not significantly contribute to public concern regarding climate change (Devine-Wright, 2013; Scannell & Gifford, 2013).

In this study, we examined whether people are more inclined to engage in pro-environmental behaviour when educated on local environmental issues, relative to when educated on global environmental issues. We recruited people who are currently residing in Vancouver and its surrounding areas. We then randomly assigned participants to read either local or global information about the negative environmental effects of styrofoam. Afterwards, we provided local and global petitions and pledges to all of our conditions and measured their willingness to support. We hypothesize that participants who read about local environmental issues would be more likely to support local petitions, and that participants who read about global environmental issues would be more likely to support global petitions.

## Methods

### Participants

We had 100 participants involved in our study (62 female, 35 male, 3 prefer not to say;  $M = 22.1$  years). We recruited participants online from March 2nd to April 1st through social media platforms. Our participants had varying connections to UBC campus. Our sample included 54 participants reported being from the Lower Mainland (Vancouver and its suburbs), 10 from British Columbia, 11 from outside of British Columbia, and 25 from outside of Canada.

### Conditions

Participants were randomly assigned to one of three conditions: control group ( $n = 31$ ), local experimental group ( $n = 33$ ), and global experimental group ( $n = 36$ ). The control group did not receive an educational blurb nor a quiz, they were simply exposed to local and global petitions followed by pledges. The local experimental group were presented with a locally framed educational blurb about the impacts of styrofoam (**Appendix A**). After the educational blurb, the participants of the local experimental group were given a quiz consisting of 5 questions to test their knowledge (**Appendix C**). The global experimental group were presented with a globally framed educational blurb about the impacts of styrofoam (**Appendix B**). After the educational blurb, the participants of the global experimental group were given a quiz consisting of 5 questions to test their knowledge (**Figure 8**). Both the local and global experimental groups were given the option to sign a local and global petition followed by a pledge. Our independent variable was the effect of

education framing. Our dependent variable was participant's willingness to sign the petitions and make a pledge to change their behaviour in support of the environmental issue.

## Materials

### *Framed Educational Blurb*

The local educational blurb consisted of information regarding an environmental issue about styrofoam waste taking place in and around the city of Vancouver (**Appendix A**). The global educational blurb consisted of information regarding an environmental issue about styrofoam waste happening in the world (**Appendix B**).

### *Quiz*

The quiz consists of five questions regarding the educational blurb (**Appendix C & D**). Participants were required to take the quiz in order to assess whether they read the educational blurb.

### *Demographic survey*

A small survey consists of five questions. These questions were used to gain information about the participants' age, gender, how often they attend UBC campus, if they live on campus and where they are from (**Appendix G**).

## Measures

We asked participants if they were willing to support the petitions. A participant's signature on the global/local petition would require a response to pledge to more sustainable action to help the global/local climate (**Appendix E & F**). The optional pledge was presented when participants agreed to support either a global petition, local petition or both. The pledges required the participants to engage in pro-environmental behaviour.

## Procedure

The survey was conducted online and distributed via an anonymous link on social media platforms. If participants agreed to consent, they were randomly assigned to one of three conditions. The survey took approximately 5 minutes to complete. The survey for the experimental groups consisted of four parts. First, the participants were asked to read a short educational blurb on the environmental harms of styrofoam on either a local or global scale, but not both. They then were given a short quiz consisting of five questions on the material in the blurb. Feedback on the quiz was then provided to both the local and global experimental conditions. Afterwards, both experimental groups were asked to read one locally, and one globally framed petition on styrofoam waste management, those who agreed to sign were then asked to type a pledge in support. Finally, participants filled out a few demographic questions (**Appendix G**.) In the case of the control group, they were given both petitions and both pledges, excluding the educational blurb and quiz. An optional debriefing was available to participants who inquired.

## Results

A chi-square contingency analysis showed that there was no significant relationship between the experimental conditions and petition signing. The percentage of participants signing the global petition and local petition in each condition is shown in **Figure 1** and **Figure 2**. The condition with the highest percentage of participants agreeing to sign either of the petitions was the control condition. Exactly 70% of the control condition participants signed the globally framed petition and 87% control condition participants signed the locally framed petition. **Table 1** and **Table 2** show the observed frequency of petition signing in the

globally and locally framed petitions. There was a slightly higher observed petition support for the global petition within the global condition. Similarly, in the local condition there was a higher observed petition support for the local petition. However, chi-square analysis showed that there was no significant relationship between experimental conditions and globally framed petition signing frequency,  $\chi^2(2, n = 100) = 0.728, p = .695$ . Chi-square analysis also showed that there was no significant relationship between experimental conditions and locally framed petition signing frequency  $\chi^2(2, n = 100) = 4.824, p = .090$ . We used an alpha level of .05 for all statistical tests.

A review of the pledge responses recorded in our study revealed that some of the actions that participants would take to reduce their impact on the environment included: decreasing usage of single-use items, taking public transit or carpooling, and changing to a plant-based diet.

The average quiz score of participants in the global and local frame conditions were very similar. The average score of participants in the global condition was 3.25 ( $SD = 1.05$ ) and the average score of participants in the local condition was 3.30 ( $SD = 1.26$ ). The most common score in the global condition was 3 out of 5, and the most common score in the local condition was 4 out of 5.

### Discussion

The purpose of our study was to determine whether educational framing with local narratives would influence participants' pro-environmental behaviour more when compared to the global framing group and control. The results of our study did not support our hypothesis. Our findings suggest that educational framing is not an effective tool for motivating pro-environmental behaviours when applied in settings like our survey. Our control condition was the most effective at eliciting pro-environmental behaviour, which has important implications for our study. We found no significant effects from global or local educational framing conditions. Instead, our results show that the control condition with no educational messages had the highest response rate and elicited the most pledge responses. We attribute this to the pledge being time consuming for the participants, as they were required to pledge two different pro-environmental behaviours in order to sign both petitions they were given. Because of this we suspect that the control condition participants were more likely to sign the petition and fill out the pledge because they weren't required to take an educational quiz. The quiz would have made their survey more time consuming and would have taken longer to get to the pledge section. Since the control condition did not have a quiz, it left them more time to come up with answers to the pledge. We also observed that participants' pledge responses were often of items and actions that had minimal impact on their current lifestyle and/or behaviours that they might already partake in, such as reducing their usage of single-use items or taking public transit. These are responses that require minimal effort to think of and pledge. Our results suggest that time and convenience was the most important factor in people filling out the pledge.

Considering our results with the control condition, it seems that convenience and ease of compliance are what should be focused on when tackling climate change. Our results suggest that people are eager to help and hold largely pro-environmental views (as at least 50% of participants did sign the petition), but struggle with sacrifice or the extra burden that comes from personal sustainable behaviour. This can be seen through the UBC implemented garbage sorting stations in every building around campus; these stations help promote pro-environmental behaviours by eliciting/helping students to recycle and compost, without the disproportionate effort that would be required of a student to do that on their own without an initiative from UBC.

Framing has had mixed research in the past, although studies have suggested that framing is most effective when the wording is strong and delivery is robust and repeated (Goldschmied et al., 2017). Framing in situations where something is phrased differently for a short time or only once or twice seem to have had the most trouble being replicated according to meta analysis on framing (Goldschmied et al., 2017). These results are consistent with our findings that framing is ineffective at influencing behaviour in the short-term. Future studies may require long-term educational framing messages to accurately assess the effectiveness of framing. However, other factors, such as the use of voice or video could have a greater impact. If in the future framing is something deemed worth exploring, the use of compelling videos or audio may have more of an effect.

Framing might work better in a long-term study with repeated exposure to framed messages. Education might also have more success with repeated exposure and with more authority, such as being taught in a school curriculum. Both of these ideas face additional issues, as framing studies have usually been based around neutral events such as car crashes or hockey hits. We think that if future studies were to be conducted they should be focus on primary school-aged children.

A future study with a larger and more general population might have significant results. Furthermore, our educational blurb was focused on the negative effects of styrofoam waste. Research has shown that people were more likely to exhibit pro-environmental behaviour after exposure to gain framed messages relative to loss-framed messages (Spence & Pidgeon, 2010). It is possible that gain-loss framing is more effective than local-global framing. It would be interesting to compare results of gain-loss framing to local-global framing, and also see the effect of using both types of framing concurrently. We should have included more specific demographic questions regarding place of residence. Residence data might have played a role in the effects of local-global framing. Additionally, there might be possible effects of place attachment on effects of local framing. Participants in our control condition were not required to take a neutral quiz, which led to these participants finishing our survey quicker and thus had more time to sign and fill out the pledge sections. A future study where survey length is controlled may show more significant results with local vs. global educational framing interventions. Despite the presence of the educational blurb, the low scores on the quizzes are indicative of the lack of attention from participants. Future studies using visual aids (e.g. videos, posters) may be more effective in capturing participants' attention.

### **Recommendations for UBC**

We recommend to our client that efforts focused on local-global framing effects be directed elsewhere. We do not believe local-global framing to be an effective tool in the fight against climate change for an institution with the size and scope of UBC. Our results show that students care about the environment and want to be sustainable, but need help from institutions in order to make the burden of being sustainable reasonable. Because of this we believe that even if it slightly inconveniences students, the university can enact many green policies that will have high effectiveness and high participation rates, without much backlash. We recommend that UBC also reconsider the type of education they use as a tool to encourage pro-environmental behaviours. Students are already quite knowledgeable on the environment and education might have a minimal effect. We believe that local-global framing and loss framing are not ideal for promoting pro-environmental behaviour. Instead, the use of gain framing may have a larger impact. The biggest takeaway from our study is that it must be as easy as possible for individuals to engage in pro-environmental behaviour, and that ease of compliance is the single biggest determinant in exhibiting pro-environmental

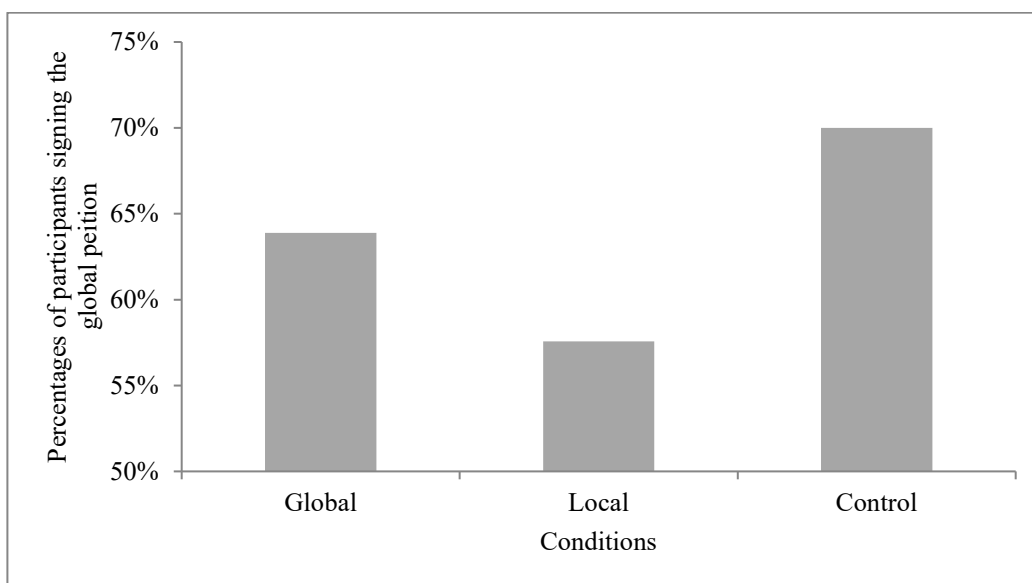
behaviour. To encourage this UBC should spearhead change that students can follow with little to no changes to their current lifestyle.

### References

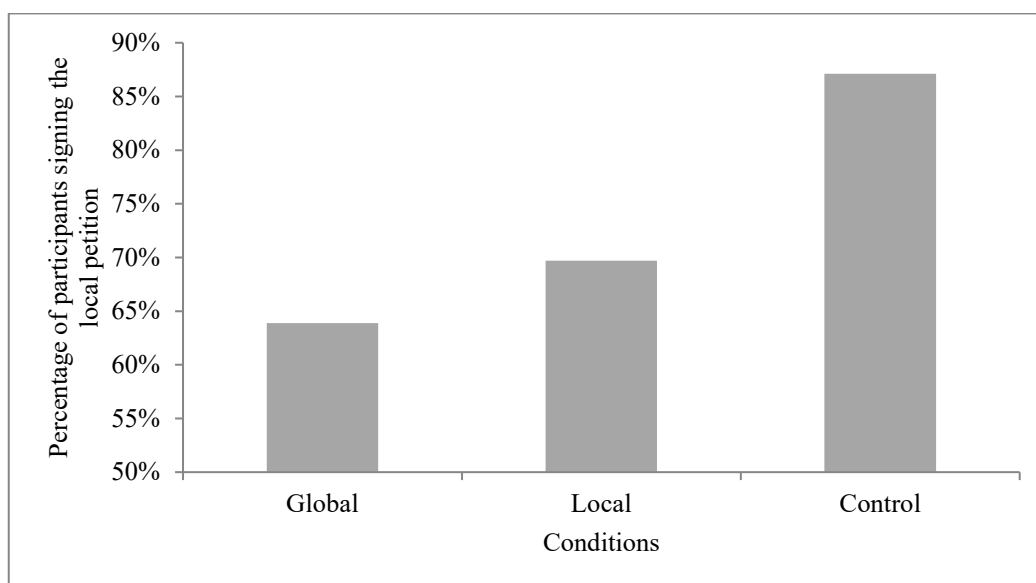
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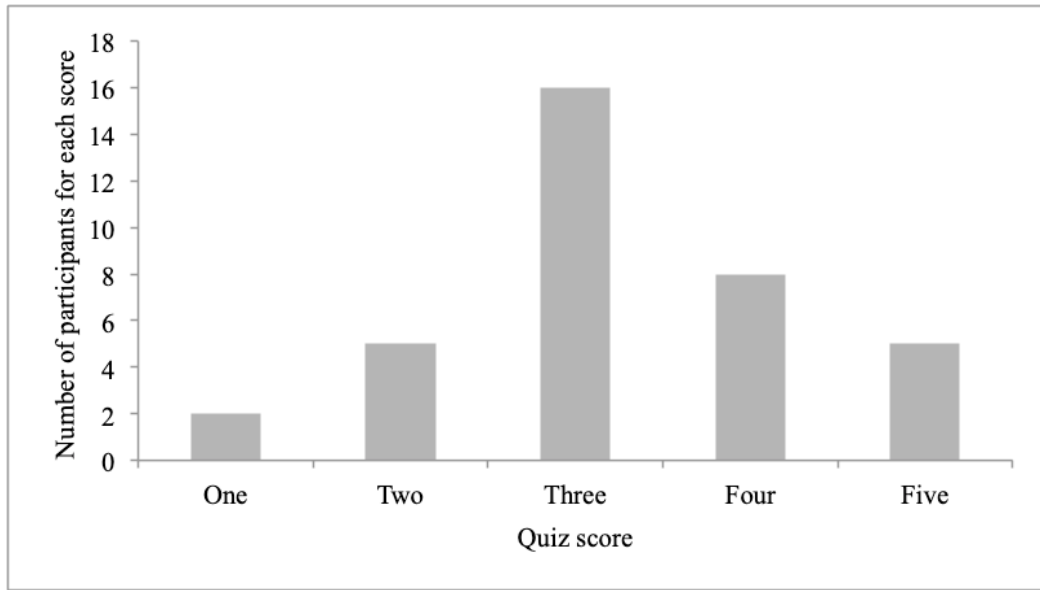
Appendix



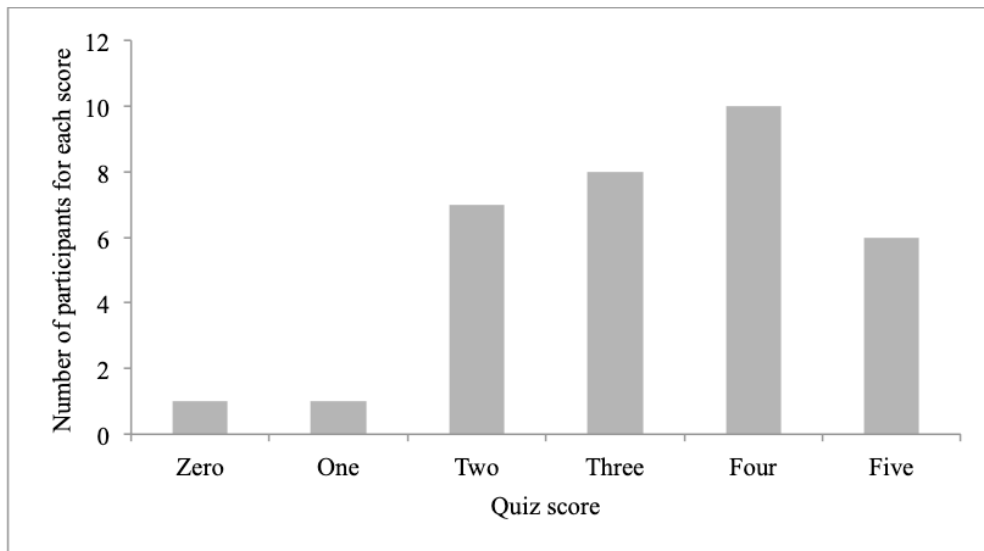
**Figure 1:** Percentage of participants in each of the condition that sign the globally framed petition (global condition n = 36, local condition n = 33, control condition n = 31).



**Figure 2:** Percentage of participants in each of the condition that sign the locally framed petition (global condition n = 36, local condition n = 33, control condition n = 31).



**Figure 3:** Score of participants in the global condition (n = 36).



**Figure 4:** Score of participants in the local condition (n = 33).

**Table 1:** Observed number of participants supporting the globally framed petition. Percentage of participants signing in each condition in square brackets.

Experimental Condition	Petition signing		Row Total	$\chi^2$	df	p-value
	Yes	No				
Global	23 [64%]	13 [36%]	36	0.728	2	.695
Local	19 [58%]	14 [42%]	33			
Control	21 [70%]	10 [30%]	31			
Column Total	63	37	100			

**Table 2:** Observed number of participants supporting the locally framed petition. Expected frequency found in parentheses, percentage of participants signing in each condition in square brackets.

Experimental Condition	Petition signing		Row Total	$\chi^2$	df	p-value
	Yes	No				
Global	23 [64%]	13 [36%]	36	4.824	2	.090
Local	23 [70%]	10 [30%]	33			
Control	27 [87%]	4 [13%]	31			
Column Total	73	27	100			

**APPENDIX A: Locally Framed Educational Blurb**

- Styrofoam is **not usually recycled** due to its lightweight nature and the high economic cost of transporting and degreasing the petroleum-based material.
- Vancouver has **very low recycling rate** of Styrofoam (21%).
- Styrofoam is 95% air yet **10,500 tonnes** are disposed per year in Vancouver.
- Hydrofluorocarbons (HFCs) are used in the production of Styrofoam which results in air pollution and causes **damage to the ozone layer**.
- **25% to 35%** of landfills are composed of Styrofoam. Styrofoam takes about **at least 500 years** to decompose.

**APPENDIX B: Globally Framed Educational Blurb**

- Styrofoam is **not usually recycled** due to its lightweight nature and the high economic cost of transporting and degreasing the petroleum-based material.
- The styrofoam recycling rate is **extremely low (0.2%)** in the world.
- Styrofoam is 95% air yet in the world **14 million tons** of Styrofoam are produced per year
- Hydrofluorocarbons (HFCs) are used in the production of Styrofoam which result in air pollution, and cause **damage to the ozone layer**.
- **25% to 35%** of landfills are composed of Styrofoam. Styrofoam takes about **at least 500 years** to decompose.

**APPENDIX C: Locally Framed Quiz**

Styrofoam is often recycled or composted in Vancouver, true or false?

True

False

If a male killer whale weighs 6 tons, how many male killer whales would equal to the amount of Styrofoam **disposed per year in Vancouver**?

100 Killer Whales (600 tonnes)

500 Killer Whales (3,000 tonnes)

1,000 Killer Whales (6,000 tonnes)

1,500 Killer Whales (9,000 tonnes)

1,750 Killer Whales (10,500 tonnes)

Hydrofluorocarbons (HFCs), a by-product of Styrofoam production, contributes more to global climate change than carbon dioxide and methane.

True

False

In Vancouver, what percentage of landfills are comprised of Styrofoam?

less than 5 %

5 - 15 %

15 - 25 %

25 - 35 %

more than 35 %

It takes at least 500 years for Styrofoam to decompose.

True

False

**APPENDIX D: Globally Framed Quiz**

Styrofoam is often recycled or composted in the world, true or false?

True

False

If an African Elephant weighs 7 tons, how many Elephants would equal the amount of Styrofoam **produced per year in the world**?

0.1 million African Elephants (0.7 million tons)

0.5 million African Elephants (3.5 million tons)

1 million African Elephants (7 million tons)

1.5 million African Elephants (10.5 million tons)

2 million African Elephants (14 million tons)

Hydrofluorocarbons (HFCs), a by-product of Styrofoam production, contributes more to global climate change than carbon dioxide and methane.

Yes

No

**Globally**, what is the percentage of landfills that are Styrofoam?

less than 5 %

5 - 15 %

15 - 25 %

25 - 35 %

more than 35 %

It takes at least 500 years for Styrofoam to decompose.

True

False

**APPENDIX E: Local Petition/Pledge****Reduce Vancouver & Metro Vancouver's Impact On Landfill & Waste**

Place attachment is ingrained in all of us. We often feel a sense of belonging to areas that we occupy and a sense of responsibility to our habitats. By signing this petition it will show your support for a UBC styrofoam ban, funding for additional garbage sorting stations, and willingness to increase annual funding for Sustainability Projects.

Vancouver's Park Board has already been investigating strategic tactics of how to eliminate styrofoam while UBC has lagged behind, especially in cups due to the chemical ingredient chlorofluorocarbons (CFCs).

Taking these steps will help us to:

- Protect local ecosystems.
- Decrease our region's amount of waste.
- Transition from styrofoam products to sustainable, eco-friendly products.

By agreeing to join this petition, it will show your support and strong action to reduce Vancouver & Metro Vancouver's impact on landfills:

Would you like to support the petition? If you select yes, you will be redirected to a pledge for you to fill out.

Yes

No

To do my part as a responsible citizen of Metro Vancouver and reduce my impact on our landfills and oceans, I pledge to reduce the consumption of single-use items by replacing \_\_\_\_\_ (e.g. take-out containers) with \_\_\_\_\_ (e.g. reusable containers) (please indicate what single-use item you will give up and what you will replace it with).

**APPENDIX F: Global Petition/Pledge****Help Save the Planet & Minimize Styrofoam Waste**

Over the past centuries, the human race has slowly began depleting our Earth's resources. Climate change is evident and is happening all around us. Our planet has started to deteriorate and ecosystems all around are suffering the consequences.

There is a chance for us to save our planet and to make a change for the better. We need to limit and/or ban the use and production of styrofoam products. The spread of chlorofluorocarbons (CFCs) a prominent chemical ingredient in styrofoam, is deadly for our environments.

Help us make a change for us and for the future generations of our planet.

Would you like to support the petition? If you select yes, you will be redirected to a pledge for you to fill out.

Yes

No

As a member of the global community I hereby recognize the interconnectedness of our planet and realize my responsibility to support sustainability not just locally but globally. To do this I pledge to stop \_\_\_\_\_(activity; e.g. I will stop buying meat once a week) or to help \_\_\_\_\_ (global cause; e.g. divestment from fossil fuels) and to do my part in making the earth a more sustainable ecosystem



### APPENDIX G: Demographic Survey Questions

What is your age?

What gender do you most identify with?

Man

Woman

Trans

Prefer not to say

Other

How often do you come to UBC Point Grey Campus?

7 days a week

3-5 days a week

Less than 2 days a week

Rarely

Never

Do you live on campus?

Yes

No

What best identifies where you are from?

The lower mainland (Vancouver and its suburbs)

British Columbia

Canada

North America

Outside of North America