UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

The Influence of Approach and Avoidant Emotion on Pro-environmental Action

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Executive Summary

Prior researches have found that emotions and subsequent behaviours are closely bonded. Following that, in the context of global warming, this study examines how approach-oriented emotions (e.g. happiness) and avoidant emotions (e.g. sadness) influence the preference of energy, choice of diet and willingness to recycle. Thus, we have two conditions (i.e. happy and sad) in the study and each condition is asked to complete a survey regarding the pro-environmental behaviors. The result reveals that happiness makes people more likely to recycle and sadness has the opposite effect. However, no results are found in the willingness to use green energy and plant-based diet. This result contributes to the previous finding and give a dimensional perspective on how to analysis the effect of emotions on global warming actions. Limitations and implication are also discussed.

Keywords: emotions, behaviors, global warming

Introduction

Global warming is one of the world's most concerning problem. The withdrawal of the U.S. from the Paris Agreement (UNFCCC, 2015) two years ago has ignited a fierce debate on global warming. Obviously, the reckless decision was driven by lots of factors, such as economics (Smith & Leiserowitz, 2013) and the emotional president of the U.S. While the economic factors are beyond the purpose of this paper, our study aims to examine the impact of emotions as one-dimensional scale of valence, characterized as approach versus avoidant, on the action of global warming. Following by the work of Wynes and Nicholas (2017) that individual actions are the most effective way to reduce green gas emissions despite the work of government, our motivation are to raise awareness of every individual to be a part of the campaign of environment protection and to give more specific advices on how to improve the actions. Research has shown that approach-oriented emotions (e.g. anger and hope) and avoidant emotions (e.g. fear) have distinct impacts on information processing (de Los Santos & Nabi, 2019) and decision making (Pfister & Böhm, 2008). Regarding global warming, Smith and Leiserowitz (2013) have noted that discrete emotions, in particular, worry, interest, and hope are strong predictors of increased global warming policy support. However, there is little research examined global warming action, using the approach versus avoidant emotion scale. Moreover, noted by Wynes and Nicholas (2017), using more efficient energy, switching to plant-based diet and recycle are three of influential individual actions on emission reductions. Therefore, our study aims to clarify the role of approach-oriented emotions (e.g. happiness) and avoidant emotions (e.g. sadness) on these behaviors. Specifically, how happiness and sadness influence people's action on using more efficient energy, switching to plant-based diet and recycling garbage. Our hypothesis is that happiness is predicted to facilitate people's willingness to use more efficient energy, switching to plant-based diet and recycle, whereas sadness has the opposite effect on these three actions.

Method

Participants

There are 104 participants who had engaged into our study and were randomly assigned into two versions of the survey. There are 52 of the participants who received the happy version survey, where the other half were given the sad version. In the sad version, the majority of the participants (88.5%) are in the range of 18-24 years old (Appendix Figure 1), where 63.5% of them are female, and 37.5% are male (Appendix Figure 2), whereas, in the happy condition, 96.2% of the participants are within the age of 18- 24 (Appendix Figure 3), along with 57.7% of them are female, 38.5% of them are male, and 3.8% of them remain anonymously (Appendix Figure 4). Overall, the

majority (92%) of the participants are in the range of 18 - 24 years old, and 61% of them are female, 37% of them are male, and are in the level of year 3.

Conditions

In terms of the method of our study, in order to investigate the intertwining relationship between participants' emotions (independent variable) and the decisions that the participants would make (dependent variable), we have designed a two-conditional study. According to our excerpt title, the approach versus the avoidant emotion in this case is represented by two typical, yet essential emotions, happy and sad.

Measures

we have designed two conditions of self-report survey using google form, a questionnaire which was capable of collecting large amount of data, and computing them into graphs, charts and percentile information. We posted our research survey link on social media, and asked people to participate in filling out the survey online voluntarily. The two versions of survey were determined by the happy and sad conditions of our study design, yet these two versions used the same pre-test and post-test questions that apply to their decision making. Their decision making was to rate their willingness on a five-points Likert scale from 0, a point that indicates not at all, to point 5, which stands for extremely, on all questions, including the score that can best represent their emotional status. Even though the questions in the two versions of survey are distinct, the pre-test and post-test within each condition remain aligned in terms of the content, for instance, we asked "how much would you like to change your diet into plant-based dietary for three months" in the pre-test, then we asked " If the study asks you to be a vegetarian for a semester for real, how much are you willing to be." in the post-test. While the only difference is that the priming process in happy condition directed them to recall 3 occasions that made them happy the most, whereas the sad condition leads them to recall 3 things that made them feel extremely depressed.

Procedure

Our study was shared using social medias online without any time and space restrictions, so participants then can clink on the links that have access to all the questions. These two versions of survey were shared over conductors' social media, and requires participants gone through the survey using their own personal electronic devices, and the whole process can be finished in approximately 5 minutes.

After all participants agreed to sign the consent form voluntarily, they were asked to fill the surveys which were consist in four parts. The first part of the study were the questions that related to their demographic information, for instance, their age, gender, as well to measure their current state in relation to happy and sad emotional score. For the pre-test, the second part, and the post-test, the forth chunk of the study,

they were designed to score on seven questions in each part, with a priming procedure and a remeasurement of their emotional states occurring in between.

Results

There are two emotion conditions in this survey. One is happy condition, and the other is sad condition. Meanwhile, there are three preference conditions: plant-based diet, types of energy, and recycle behavior. Two-way mixed-design ANOVA was used to compare participants' decisions of each subject with pretest and posttest on two emotion conditions. The overall results are shown in Appendix Table 1.

In the plant-based diet condition, there was a nonsignificant main effect between happy condition and sad condition, $F(1,100) = 1.642$, $p = .203$. However, there is a significant main effect of preference level of the pretest and posttest, $F(1,100) = 13.574$, $p < .001$. The participants' preferences on plant-based diet in the pretest were significantly lower than the preference scores in the posttest in both happy and sad conditions. No interaction was shown in plant-based diet condition, $F(1,100) = .004$, $p = .950$ (Appendix Figure 5). Furthermore, for eco-friendly energy condition, there was a significant main effect shown between two emotion conditions, $F(1,100) = 3.955$, $p = .049$. However, nonsignificant main effect was shown in the preference of eco-friendly energy with pretest and posttest, $F(1,100) = .914$, $p = .341$. There is also no interaction shown in this condition, $F(1,100) = 1.976$, $p = .163$ (Appendix Figure 6). And for the recycle behaviors condition, there was no significant main effect on happy and sad emotion conditions, $F(1,100) = .016$, $p = .899$. Moreover, a nonsignificant main effect was shown in the preference of choosing recycle behaviors between the pretest and posttest $F(1,100) = .311$, $p = .578$. However, there is a significant interaction between the preference of recycle behavior and two emotion conditions, $F(1,100) = 3.967$, $p = .049$ (Appendix Figure 7).

Overall, participants were more likely to make eco-friendly decisions in happy condition than sad condition. Moreover, they are more willing to make eco-friendly decision after recalling in the recycle behavior condition. The difference between pretest and posttest of three preference conditions are greater than the difference between emotion conditions.

Discussion

Our study aims to investigate the relationships between people's emotions and their decision making regarding to pro-environmental behaviors. Parts of our result showed alignment with the hypothesis, which was based on various of previous studies (Wynes & Nicholas, 2018). Through the analysis of our study, we found that the participants who stay in positive emotion states are more willing to show recycling behaviors but displayed a decline in becoming vegetarian or exhibiting recycling

behaviors, whereas those of whom occurred to have negative emotions revealed recession on every aspect. Ultimately, the interaction for garbage cycling can support our hypothesis. That is, emotions, such as happiness and sadness, can influence people's actions on global warming, reflected in the choice of food and recycling behaviour.

The experiment had some limitations. First of all, at the beginning of our study, there was a lack of communication with the client. There was a reciprocal misunderstanding of our study design in the process of proposal. The lack of communication with the clients is not the only restriction for our study, our study design itself required to enhance. The following factors may explain why this is so.

Besides, the sample we used is lack of representation of studies on whether the emotions can affect people's resistance to global warming. In this experiment, our main sample population is young people aged 18-25, most of whom are well educated. In our sample, they would have a better understanding towards the idea of global warming, as well they would have better conceptual agreements in relation to the idea of dealing with the concerns.

Furthermore, in terms of the study design, even though we have used pre and posttest in study construction, and inserted some unrelated questions as well, the demand characteristics might be the reason why our intention of the questions can be too straightforward to be interpreted. Not to mention that the whole component is created to be an online survey, which might not be interesting enough for participants to take the whole experiment seriously. Moreover, comparing to a real lab room setting, our study was lack of authenticity, where people could finish the survey in any circumstances, the participants were not provided with a quiet, non-destructed environment

Moreover, the original purpose of the priming procedure was to ask them to recall three things on either the happy or sad conditions accurately; however, the majority of the responds are considered too generalized.

It is challenging to eliminate all the confounding variables, but in relation to the future attempt, researchers could lead the communication with the clients more often and more efficiently, and recruit more participants with more diversity and more randomized, for instance, various backgrounds, divergent lifestyles and different education level that can make a study's result more reliable. Researchers could also design a lab study, which makes the whole experiment authentic. In the process of priming, we should have required them to explore deeper and provided with more time into their true emotional status, and to write a detailed paragraph. In other approach, we can show them stories that trigger their mood swing largely which was able to make the participants getting aroused by arranging the priming process close to reality. Lastly, an absent of debriefing will be needed in the future attempt.

Ultimately, people's emotions can affect their actions on global warming in areas of lifestyle branches. The phenomenon of global warming has attracted attention worldwide, and it has becoming particularly valuable to study how to promote people to actively carry out environmental management. Therefore, in the process of ecological

civilization improvement, in addition to increase pro-environmental behaviors publicity and improving public awareness of environmental protection, we can promote people's environmental protection behavior from psychological perspective. Taking the living surroundings as an example, we can design the color and appearance of the trash can and use warm colors and lovely shapes to adjust the crowd's mood. The improvement of the crowd's mood will greatly promote the efficiency of environmental protection.

Recommendations for UBC client

According to one of experimental results, participants in sad condition are less willing to choose to recycle behaviour but in happy condition they are more possible to involve in recycle behavior. Based on this result, we can apply some strategies to spread knowledge regarding to environmental protection, the campus can intentionally promote students to get them participate, for instance, giving little presents as an award when students sorted out garbage correctly in order to establish sorting and recycle mechanism.

Talking about the choice of types of energy, there is a nonsignificant result, which means whether participants are happy or sad, it does not influence their choices, so we think the crux to popularize environmental-friendly energy in campus is that informing students how important to use green energy can repair environmental issues. Through acquiring knowledge to help students changing their attitudes about using green energy. Also, the campus can set some courses designed to help students understand some blind spots about environment protection.

As for plant-based diet, participants are not inclined to choose plant-based diet no matter they are happy or sad. People may ignore the association between plant-based diet and environmental protection behaviour. If the professors could play some video explain the relationship between plant-based diet and environment at the beginning of the class, then some students would expand knowledge in this aspect. We also find a study that depicts negative anticipated emotion is a significant predictor to measure the desire of engaging in environmental action (Carrus, Passafaro, & Bonnes, 2008), which illustrates that the emotion status plays an important role in whether people involved in protecting the environment behaviour. Analyzing our study, we perceived that negative emotion does influence the results, so estimating one self’s mental status can forecast human behaviour of environmental protection.

However, it is hard to evaluate students’ emotions, but there is always a way to shift emotions. In campus, the staff can set some boxes named “free yourself” in the public place. Everyone could write unhappy things on scrip and throw it into the box, and no one knows what you write. Students can release their bad feelings through this approach in order to become happier.

References

Carrus, G., Passafaro, P., & Bonnes, M. (2008). Emotions, habits and ration al choices in ecological behaviours: The case of recycling and use of public transportation. *Journal of Environmental Psychology, 28(1)*, 51–62. doi:10.1016/j.jenvp.2007.09.003

De los Santos, T. M., & Nabi, R. L. (2019). Emotionally charged: Exploring the role of emotion in online news information seeking and processing. *Journal of Broadcasting & Electronic Media*, *63(1),* 39–58. doi:10.1080/08838151.2019.1566861

Maxwell, J. S., & Davidson, R. J. (2007). Emotion as motion. *Psychological Science, 18(12),* 1113–1119. doi:10.1111/j.1467-9280.2007.02033.x

Pfister, H., & Böhm, G. (2008). The multiplicity of emotions: A framework of emotional functions in decision making. *Judgment and Decision Making*, *3(1)*, 5-17.

Smith, N., & Leiserowitz, A. (2013). The role of emotion in global warming policy support and opposition. *Risk Analysis, 34*(5), 937–948. doi:10.1111/risa.12140

UNFCCC 2015 Adoption of the Paris Agreement

Wynes, S., & Nicholas, K. A. (2018). Reply to Comment on 'The climate mitigation gap: education and government recommendations miss the most effective individual actions.' *Environmental Research Letters, 13(4)*, 048002.doi:10.1088/1748-9326/aab210

Appendix

Table

Table 1

The table of degree of freedom, F value for each condition, p value for each condition, main effects for within group, between group, and interaction.

		Plant-based Diet	Eco-Friendly Energy	Recycle Behavior
Within Group	df	102	102	102
	F	13.574	0.914	0.311
	p	< .001	0.341	0.578
Between Group	df	1	1	1
	F	1.642	3.955	0.016
	p	0.203	0.049	0.899
Interaction	F	0.004	1.976	3.967
	p	0.950	0.163	0.049

Figures

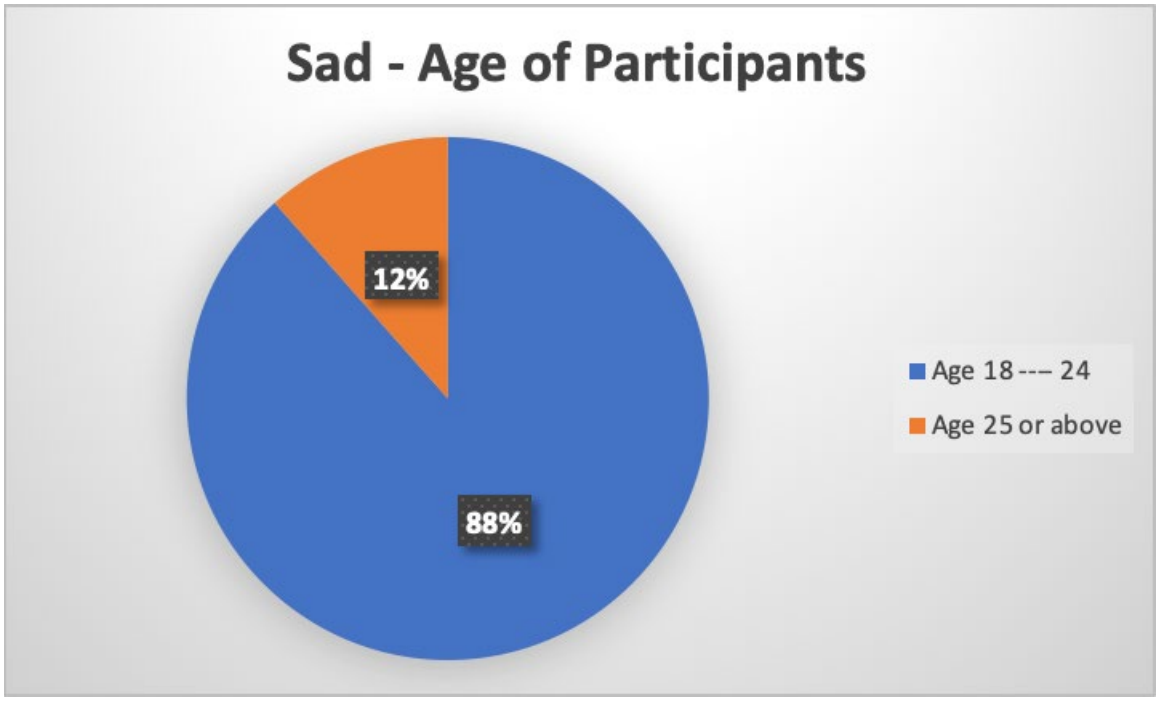

Figure 1. A pie graph of participants' gender of sad condition.

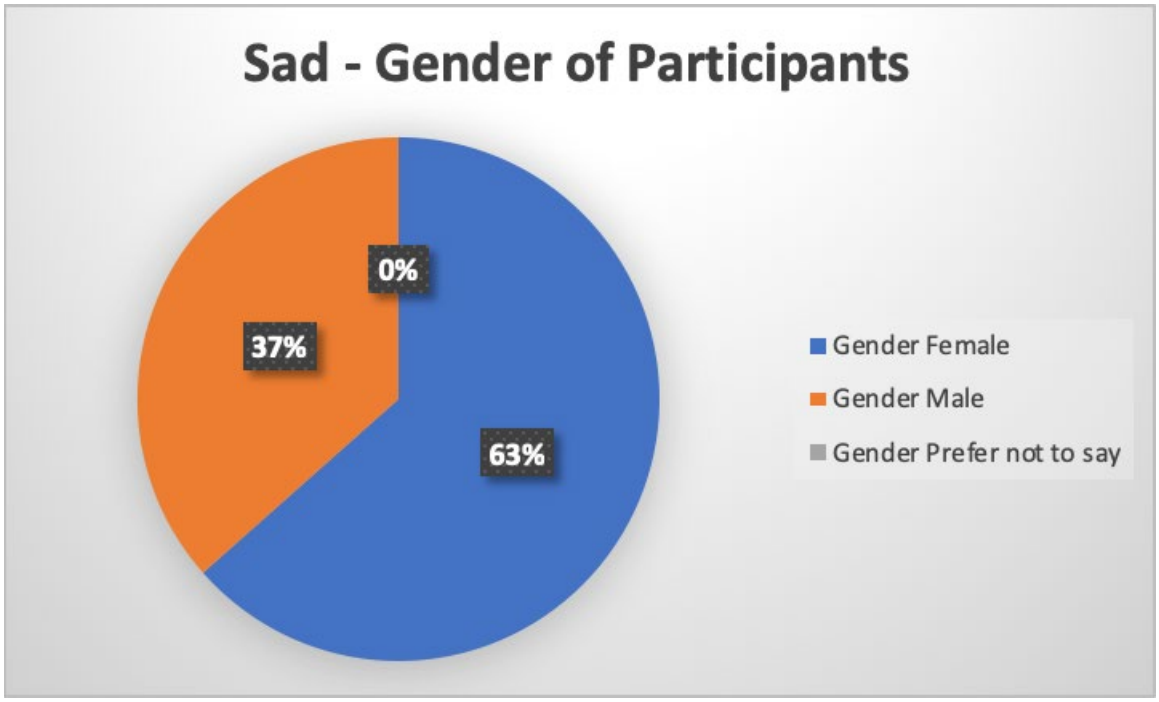

Figure 2. A pie graph of participants' age of sad condition.

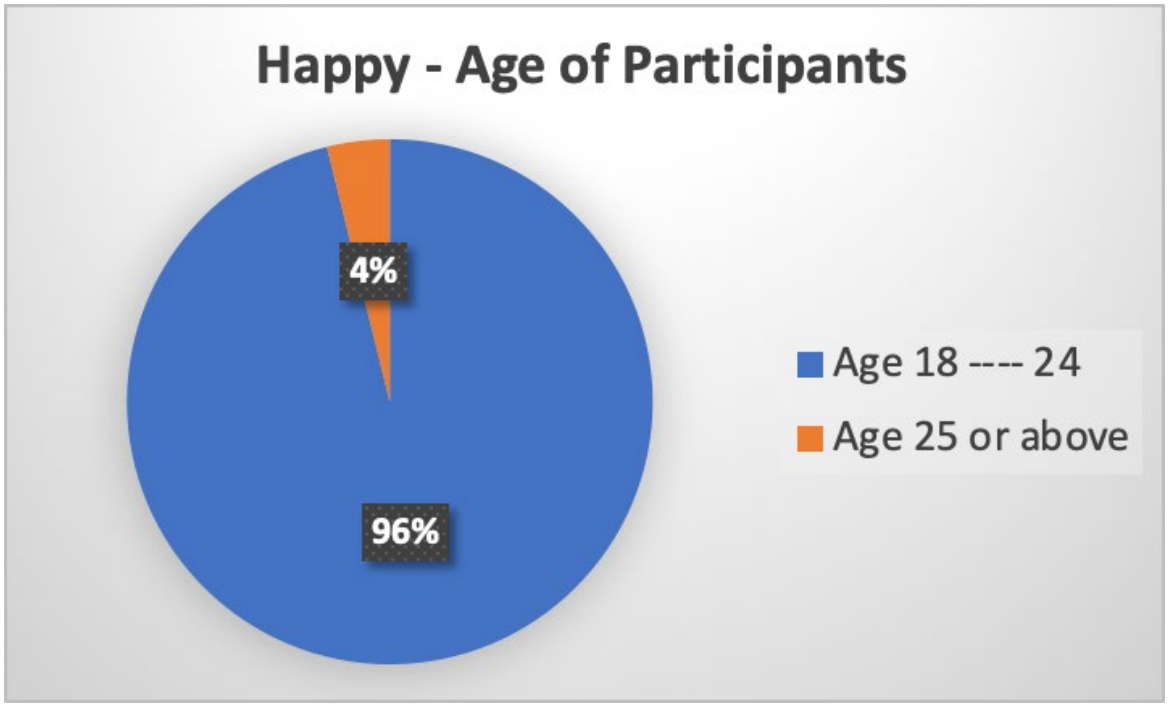

Figure 3. A pie graph of participants' gender of happy condition.

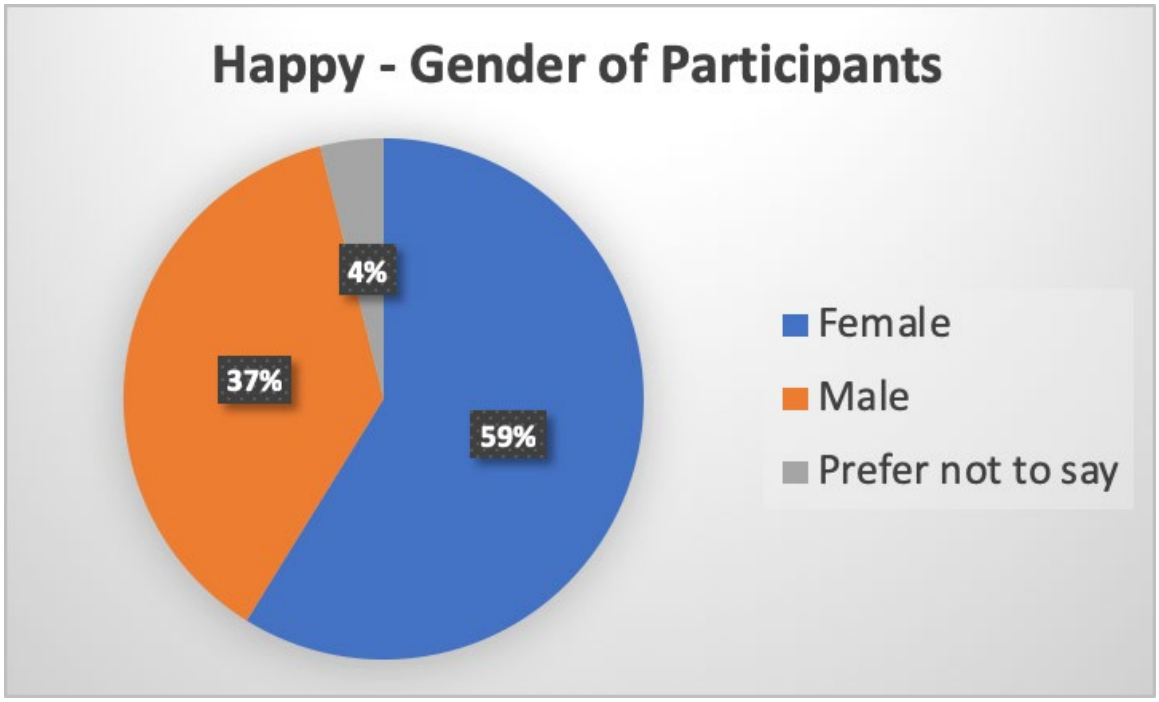

Figure 4. A pie graph of participants' age of happy condition.

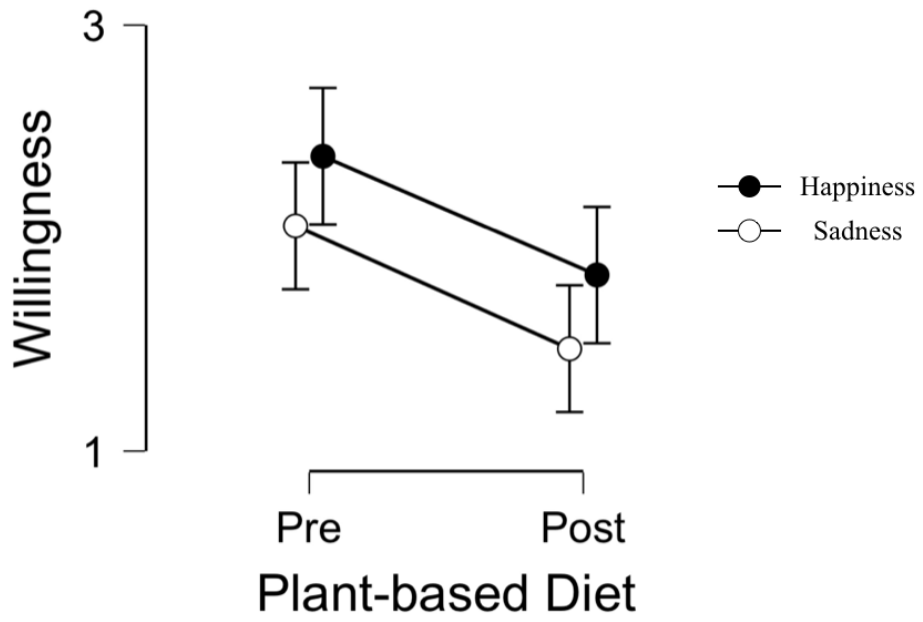

Figure 5. A line graph of the willingness to plant-based diet before and after emotion manipulation between happy and sad condition.

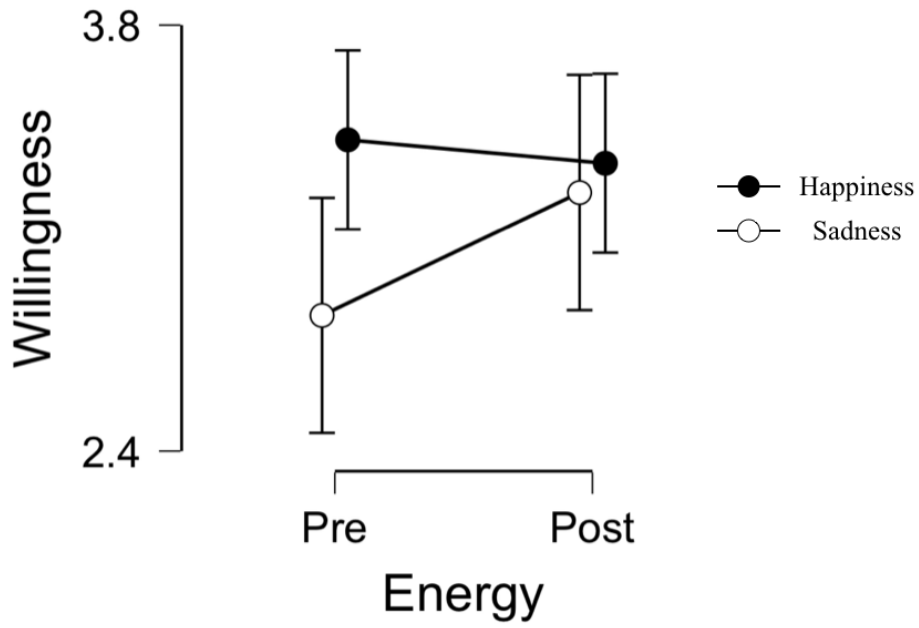

Figure 6. A line graph of the willingness to eco-friendly energy before and after emotion manipulation between happy and sad condition.

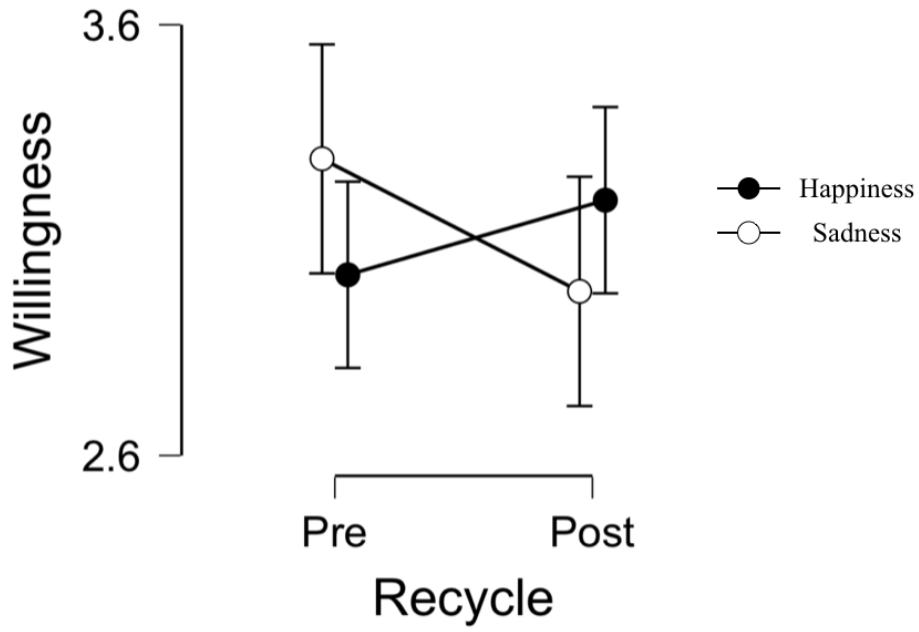

Figure 7. A line graph of the willingness to recycle behaviors before and after emotion manipulation between happy and sad condition.

Questionnaire

1. What is your gender? *

- ○ Female
- ○ Male
- ○ Prefer not to say

2. What is your age? *

- ○ Under 18
- ○ 18 ----- 24
- ○ 25 or above

3. What year are you in UBC? *

- ○ Year 1
- ○ Year 2
- ○ Year 3
- ○ Year 4
- ○ Others

4. Please choose the number that best fits your current state *

	0	1	2	3	4	5	
Not happy at all	○	○	○	○	○	○	Extremely happy

*

	0	1	2	3	4	5	
Not sad at all	○	○	○	○	○	○	Extremely sad

Please choose the number that best fits your experience.

1. How much do you feel tender-hearted when you see a cute kitten? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

2. How much are you willing to drink a diet coke? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

3. Did you categorize your waste in the trash bin? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

4. What is the most frequent form of transportation you use to go to school in this term? *

- ○ public transportation
- ○ Driving
- ○ Bike
- ○ 其他: _____

5. How much would you like to change your diet into plant-based dietary for three months? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

6. How much are you willing to eat instant noodle when you are hungry? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

7. Comparing with price-friendly light bulb, how much are you willing to purchase the higher price LED light bulb? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

8. Recall and list 3 things that currently made you very sad, please be as real and accurate as possible. *

您的回答

8. Recall and list 3 things that made you very happy, please be as real and accurate as possible. *

您的回答

Please choose the number that best fits your experience.

Please choose the number that best fits your current state after recall. *

	0	1	2	3	4	5	
Not happy at all	○	○	○	○	○	○	Extremely happy

*

	0	1	2	3	4	5	
Not sad at all	○	○	○	○	○	○	Extremely sad

Please choose the number that best fits your experience.

1. In the past few times that you dumped waste, how often did you sort them out? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

2. If this study asks you to be a vegetarian for a semester for real. How much are you willing to be? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

3. Consider if you see a baby crying, to what extend do you feel tenderness? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

4. To what extend are you willing to eat a cake? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

5. To what extend are you willing to eat a pizza? *

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

6. Regardless of the price, how much are you willing to buy electrical cars, compared to conventional vehicles (oil-fueled automotive)

	0	1	2	3	4	5	
Not at all	○	○	○	○	○	○	Extremely

7. Rank your preference for your daily commute. *

	Most often	Sometimes	Rarely
Bus	○	○	○
Driving	○	○	○
Bike	○	○	○