

**THE EFFECTS OF FRAMING ON SUPPORT FOR POLITICAL ACTION ON
CLIMATE CHANGE**

by

Gabrielle Schittecatte

B.Sc., The University of British Columbia

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES

(Forestry)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

July 2015

© Gabrielle Schittecatte, 2015

Abstract

The scientific community has come to a consensus that immediate action is necessary to arrest the deleterious effects posed by anthropogenic climate change. However, widespread public support for climate mitigation policies has been seriously lacking. The literature has identified that the way climate change is being communicated and individual characteristics both pose barriers to increased support for political action on climate change.

This study investigates the potential role of sociological and psychological factors affecting an individual's support for political action on climate change. This study also evaluates how various climate change frames are perceived by different individuals, and how that perception may alter political support for climate change action. To do so individuals' values and worldviews are assessed and related to their perception of economic and moral frames are more effective at stimulating people to support the fossil fuel divestment campaign that is sweeping across North America. The sample for this study was students from four research-based Canadian universities. Data was collected via an online survey hosted by FluidSurveys.com. Univariate and OLS multiple regressions were used to analyze the data.

This study found that framing climate change as a moral issue was more effective at motivating support for political action than framing that climate change as an economic issue. It was also discovered that environmental and communitarian worldviews play a role in a person's support for political action on climate change. These findings provide insight into how best to communicate the risks of climate change to enhance support for political action, and specifically the fossil free divestment campaign. Our findings also shed light on which worldviews should be targeted to by communication to foster support for climate action.

Preface

In addition to myself, Dr. George Hoberg, Dr. David Tindall, and Dr. Shannon Hagerman played integral roles in the research project. In the naissance of the project I expressed my interest in performing a studying of the effects of framing relating to climate change. Dr. Hoberg identified the fossil fuel divestment campaign as a possible avenue to study this field. Dr. George Hoberg and Dr. David Tindall provided guidance in the creation of the survey instrument. Dr. David Tindall played a vital role in assisting with the statistical analysis of the data. All three additional members provide support and commentary in the writing of this thesis. I conducted and wrote the literature review, wrote up the methods, results, and discussion. Approval was required from the UBC Behavioural Research Ethics Board. This approval was granted, the certificate number is H14 – 00465.

Table of Contents

Abstract.....	ii
Preface.....	iii
Table of Contents	iv
List of Tables	vii
List of Figures.....	viii
Acknowledgements	ix
Dedication	x
Chapter 1: Introduction	1
1.1 Climate Change.....	1
1.2 Relevance.....	2
1.3 Literature Review.....	5
1.3.1 Climate Action Barriers	5
1.3.1.1 Scientific	5
1.3.1.2 Cultural	7
1.3.2 Environmental Values.....	11
1.3.3 Overcoming Barriers to Climate Change.....	14
1.3.3.1 Framing.....	15
1.3.3.1.1 Framing Conceptualization	15
1.3.3.1.2 Framing: Concept versus Process	16
1.3.3.1.3 Climate Change Framing	19
1.3.3.1.4 Moral and Economic Framing of Climate Change	23

1.3.3.2	Social Movement Framing and Policy Change	25
1.4	Case Study	27
1.4.1	Divestment Campaign.....	27
1.4.1.1	Canadian University Campaigns.....	28
1.4.1.2	Campaign Framing.....	30
1.5	Research Question and Hypotheses	34
1.5.1	Research Question	34
1.5.2	Hypotheses	34
Chapter 2: Methods	38
2.1	Data Collection	38
2.2	Sampling	39
2.3	Project and Survey Instrument Development	43
2.4	Variables and Measures	44
2.4.1	Dominant Independent Variables: Moral and Economic Frames.....	45
2.4.2	Dependent Variable: Support for Political Action on Climate Change.....	49
2.4.3	Independent and Control Variables: Composites	51
2.4.4	Independent and Control Variables: Demographics	56
2.5	Ethics.....	61
Chapter 3: Results	63
3.1	Sample Overview and Descriptives	63
3.2	Statistical Results: Multivariate Analyses	69
3.2.1	Support for Political Action on Climate Change	70
3.2.2	Support for Political Action on Climate Change mediated by Framing.....	74

Chapter 4: Discussion	81
4.1 Predictor of Support for Climate Action Given Framing	81
4.2 Limitations	89
4.2.1 The Sample	89
4.2.2 The New Environmental Paradigm Scale	90
4.2.3 Framing Dynamics	91
4.3 Future Research Possibilities	92
4.4 Conclusion	95
Bibliography	96
Appendices	105
Appendix A : Questionnaire	105
Appendix B : Contact Documents	113

List of Tables

Table 2.1: Economic Frame Index Construction	47
Table 2.2: Moral Frame Index Construction.....	48
Table 2.3: Support for Climate Action Index Construction.....	50
Table 2.4: Egalitarian – Hierarchical Index Construction	53
Table 2.5: Communitarian – Individualistic Index Construction	55
Table 2.6: New Environmental Paradigm Scale Index Construction	57
Table 2.7: Means/frequencies & Standard deviations for Variables	59
Table 3.1 Percentage Distribution for Economic Frames	65
Table 3.2: Percentage Distribution for Moral Frames	66
Table 3.3: Percentage Distribution for Support for Political Action on Climate Change	68
Table 3.4: Multiple Regression Predicting Support for Political Action on Climate Change (all respondents)	73
Table 3.5: Multiple Regression Predicting Support for Political Action on Climate Change for Individuals Exposed to Only Economic, and Economic and Moral Frames	76
Table 3.6: Multiple Regression Predicting Support for Political Action on Climate Change – Individuals Exposed to Economic and Moral Frames	77
Table 3.7: Multiple Regression Explaining Support For Political Action on Climate Change – For Individuals Exposed to Economic and Moral Frames.....	80
Table 4.1: Summary of Main Findings of Hypothesized Variables	82

List of Figures

Figure 1.1: Orthogonal Relationship of Cultural Worldviews.....	9
Figure 1.2: Relational Diagram Depicting Hypotheses	35

Acknowledgements

I offer acknowledgement to Dr. George Hoberg, Dr. David Tindall, and Dr. Shannon Hagerman who support helped in no small part in the completion of this research project. I want to acknowledge Dr. George Hoberg specially, who dedicated hours of work helping me develop my understanding of framing and policy, and whose mentoring developed my skills as a researcher. His unfailing provided guidance and support through all steps in this project, and endured my many questions. A special thanks to Dr. David Tindall for the hours of help he provided in running statistical analysis. His patience in working with me on my statistical analysis was truly appreciated. Finally, a word of recognition to Dr. Shannon Hagerman, whose holistic understanding of environmental resource issues and keen eye when it comes to writing enhanced the quality of this work.

Dedication

I want to dedicate this work to the unfailing support of my father, Olivier Schittecatte, who dedicated his graduate research to me twenty years ago. He provided support in managing the often conflicting obligations of research, teaching, and community involvement. His hours of counseling me in balancing these commitments kept me sane throughout this process. A special thanks to my sister, Pascale Schittecatte, who, while also writing her thesis in the UK, never hesitated to pick up a call to discuss the process with me. Both of your unwavering support helped me have faith in myself, and drove me to persevere.

Chapter 1: Introduction

1.1 Climate Change

The Intergovernmental Panel on Climate Change in its fifth assessment report (AR5) deemed that “warming of the climate system is unequivocal” (pg. 2)(IPCC, 2013). The most recent climate data demonstrate that greenhouse gas concentrations have increased, the atmosphere and the oceans have warmed, and ice and snow cover has decreased. Each of the last three decades has been warmer than any decade since 1850. Finally, scientists have determined that the influence of humans on the climate system, and their role as a driver of climate change, is extremely likely (IPCC, 2013). These changes in the system are expected to have effects environmentally, socially, and economically (Dunlap, 2013). A major contributor to climate change is the combustion of fossil fuels. Continued use of fossil fuels will likely amplify the negative consequences associated atmospheric greenhouse gas concentration. The reduction of greenhouse gases will be necessary to mitigate the effects of climate change (IPCC, 2013; 2014).

Despite the consensus of anthropogenic climate change in the scientific community, and strong scientific evidence, it still lacks salience amongst the public when compared to other societal issues like world poverty or terrorism, or issues of a personal nature, such as health or finances (Pidgeon 2012a, Nisbet & Mooney 2007). Some proposed sources of prevailing lack of salience where it is observed include lack of scientific understanding, cultural worldviews, and environmental worldviews (discussed below). Communication about climate change, its effects as well as solutions, and differing individual characteristics are often seen as the cause of this skepticism. The way in which climate change is framed and discussed often marginalizes groups of the population because of differing worldviews, beliefs, and values. Scholars working from fields relating to climate change communication propose that there needs to be a greater

understanding of how the current communication strategies for climate change are affecting the support for political action on the issue, given that there is a need for decisive political action to mitigate its effects. Despite a rich literature on the influence of individual characteristics such as worldviews and political ideology on policy preferences in other problem domains, to date, little attention has been given to interactions between individual characteristics and the moderating effects on message framing related to climate change (Bertolotti & Catellani, 2014; Gifford & Comeau, 2011). Insights from the social sciences, specifically the fields of political science, framing and communication sciences, and social movement studies can play central role in understanding these effects. This understanding in turn, can be leveraged to inform political strategies, communication strategies, as well as campaign tactics so as to ameliorate key human-behavioral barriers to climate action.

This study focused on the interrelated roles of individual characteristics (e.g. cultural worldviews, environmental worldviews, climate change belief) and framing (economic versus moral rationales) on relative support for political action on climate change. This was explored through a case study of a prominent social movement relating to climate action, the fossil free divestment campaign. The study collected data on individuals' worldviews, acceptance of frames, and willingness to support political action on climate change via an online survey.

1.2 Relevance

Consensus regarding the gravity of climate change in the scientific community is the strongest it has ever been (Cook, 2013). At present, most people know and believe global warming is happening and are worried about it, yet environmental issues rank relatively low in importance when compared to other social, financial or personal issues (Roser-Renouf, Maibach, Leiserowitz, & Zhao, 2014; Smith & Leiserowitz, 2014). Further, climate issues rank low in

importance relative to other societal, personal, and even other, more concrete environmental issues such as water pollution (Nisbet & Mooney, 2007; Pidgeon, 2012a). There seems to be a gap in the rising concern and the salience of the issue in the political arena given the indication of the concern on climate change in polls like the Gallup (US). However, compared to other social issues people rank climate change of less importance (Leiserowitz, 2006; Pidgeon, 2012a). In other words, in North America people often rate their concern for climate change as high yet the outcomes of elections or support for policies is lower because they consider other economic or social issues as priorities. Thus, there is discrepancy between this concern surrounding climate change and how individuals are voting in elections.

In democratic political institutions the primary objective of politicians is to be reelected (Hoberg and Harrison 1994). As such, there is intense pressure to follow public preference to ensure reelection. Politicians fear of electoral retribution has been identified as a barrier to taking action on climate change (Pidgeon, 2012b). Framing, as a political tactic, can be used, in some circumstances, by actors within a political arena to highlight or deemphasize certain aspects of the issue of climate change (Chong & Druckman, 2007). Framing can alter the way the public perceives an issue, and thus the solutions they are willing to support. As such, public opinion can often be a considerable catalyst prompting political change. Public opinion, and increased salience of an issue such as climate change, can move an issue onto a governments' decision agenda, which may lead to policy change. Public opinion can also contribute to politicians' overcoming normative beliefs that may go against climate action (Harrison, 2012). Furthermore, changes in public opinion in regards to climate change can help to overcome barriers posed by political institutions, such as federalism, which, in Canada, can cause significant delay in positive climate policy adaptations (Harrison and Sundstrom 2010b; Harrison 2013).

For meaningful change to occur there will need to be a broader, sustained climate movement (Roser-Renouf et al., 2014). The mechanism by which climate change has been framed has significant implications on the discourse that surrounds the issue (Nisbet 2009). If climate policy reforms are to be initiated there needs to be an increase in public support and salience for such policies, so as to incentivize politicians to enact them. The communication of climate change is not the only variable that influences an individual's support of political action on climate change. There are likely other socio-economic factors that have a substantial effect on support for action. However, the communication of climate change cannot be discounted as an important factor.

This research examined how individuals' cultural and environmental worldviews, and their perceptions of different climate change frames, affected the level of support an individual lends to political action on climate change. Specifically, this study observed the effects of economic and moral frames on expressed political support awarded to the fossil fuel free divestment campaign.

The divestment campaign was used as a case study for the research in question. Social movements and framing are strongly related to one another, with framing now being viewed as an important dynamic that helps understanding social movements (Benford & Snow, 2000). Since the campaign utilizes both economic, and moral frames and is currently gaining public attention, it allowed the researcher to test how different frames affected individuals with different worldviews, and how these variables then affected the individual's support for political action on climate change. Findings from this research can provide insights for enhancing the effectiveness of campaign strategies. By providing a greater understanding of how factors such as individual characteristics and framing relate to support for political action the study not only adds to the

scholarly work on climate change framing and political support, but also has practical applications for informing the divestment campaign on the effectiveness of their framing strategies.

The following research question broadly focuses the study:

- What is the relative role of framing and individual characteristics in influencing support for political action on climate change?

The remainder of this chapter will first provide a literature review that will outline and substantiate the theories underpinning the overarching research question. Chapter 2 presents the project's research design. In Chapter 3 the results from data collection and statistical analyses will be explored and expanded upon. In Chapter 4 a detailed discussion of the results, their implications, and future directions will close this research thesis.

1.3 Literature Review

1.3.1 Climate Action Barriers

Several barriers hampering support for political action on climate change have been identified through previous research in the fields of sociology, political science, psychology, as well as environmental science. The barriers posed by inadequate scientific knowledge, cultural worldviews, and climate change framing will be discussed below. Then after having elaborated on these barriers the current research gap will be identified.

1.3.1.1 Scientific

Past literature relating to action on climate change has often focused on theorizing why and how the lack of scientific understanding among the public contributes to inaction on climate change (Sunstein, 2007; Weber and Stern 2011). One related theory is the public irrationality

thesis (PIT). The public irrationality thesis posits that lack of scientific literacy decreases the perception of risk that climate change poses. This theory is a combination of the scientific illiteracy theory and the bounded rationality theory (Kahan et al., 2014).

The scientific illiteracy theory posits that due to a lack of scientific understanding the lay population has an inability to comprehend the scientific evidence relating to climate change. This lack of comprehension within the lay population then leads to an inability to comprehend the scientific evidence that is put forth by actors within the policy arena to communicate the urgent need for action on climate change.

The bounded rationality theory has its basis in psychology. It reasons that humans have two information processing mechanisms, System 1 and System 2. System 1 relates to faster, more instinctual, visceral, decision-making processes. On the other hand, System 2 relates to slower, more rational deliberation. Between these two systems the System 1 process is thought to be less accurate than the System 2 heuristic model (Kahneman 2003). According to previous work the lay population relies more heavily on System 1 in their daily lives. This reliance on System 1 thinking leads to decisions regarding the importance of climate change based on an impetuous reasoning mechanisms. This then inclines the lay population to underestimate the risks and challenges that climate change poses, culminating in a diminished sense of importance of the issue, and a lack of action (Kahan et al., 2014; Stern 2007)

1.3.1.2 Cultural

The aforementioned aspects of the Public Irrationality Thesis have been challenged by multiple studies (Kahan, 2013; Kahan et al., 2014; 2012)¹. Kahan's studies evaluate the effect of increased scientific understanding and numeracy on the perceived risks of climate change. Their findings contradicted the underlying assumption of the Public Irrationality Thesis.

Kahan found that an increase in science literacy, as well as higher numeracy, actually resulted in a negative correlation with the perception of risk associated with climate change, not a positive one, as would have been found if the scientific illiteracy and bounded rationality theory held true. This negative correlation was attributed to the tendency of science literacy being positively correlated with motivated reasoning. In essence this means the more knowledgeable someone becomes about climate change or the more information which they are presented with relating to the issue, the more likely they are to assimilate this new evidence to support their preconceived ideas. The transference of more information to people in these studies did not lead to the formation of new ideas relating to climate change: the new knowledge instead led to a strengthening of the ideas the individuals already held, whether those were associated with a lack of importance of the issue of climate change or the reverse.

These preconceived ideas held by individuals are often associated with cultural and political beliefs, leading to what Kahan terms as *cultural cognition*, which is a form of protective cognition (Kahan 2012a; Kahan 2010). As such, Kahan concluded that scientific understanding of climate change did not increase people's perception of risk. People are adequately informed

¹ It should be noted that it is now widely accepted by those studying communication science that various members of the public can adequately debate on scientific issues they have little practical experience with (Corner *et al.* 2014).

about climate change, they possess all that they need to in terms of factual information (Kahan, 2014). Thus the barrier to understand climate change as a pressing issue must stem from other barriers beyond scientific literacy. These barriers will be reviewed in greater detail below.

Cultural cognition is a process that accounts for a specific form of polarization relating to an individual's cultural group values and the influence of those values on risk perception. These group values relate to how individuals view themes such as equality, authority, individualism, and community (Kahan, 2010). Cultural cognition influences individuals through a form of protective cognition that affects how we view discourses on different issues, as well as other elements of communication such as the communicator, or the message itself (Kahan, 2010).

Kahan's work on cultural cognition stems from past research on *cultural theory of risk perception*, which posits that an individual's perception of risk relates directly to how that individual perceives society, and their beliefs of how society should be (Kahan, Braman, Gastil, Slovic, & Metz, 2007). Based on Mary Douglas's work on cultural worldviews (Douglas, 1970) Kahan and colleagues (Kahan et al. 2007) created a two dimensional grid which can be used to plot the competing norms of these worldviews (see Figure 1). The spectrum ranges from hierarchism to egalitarian for "grid". Grid denotes the degree to which, and importance of, social differentiation figures in one's worldview. People with high grid or hierarchal orientation believe resources should "be distributed based on explicit social classification", whether that be race, sex, socioeconomic status, or heritage (Gross & Rayner, 1985, pg.6). As such, these individuals strongly believe that people should be stratified based on characteristics such as race, sex, and income. On the opposite side of this spectrum are egalitarians, who strongly believe that no one should be segregated or dismissed due to these characteristics.

The “group” quality denotes the level that an individual’s group is implicated in their life. This spectrum ranges from communitarian to individualist (Douglas, 1970). Those closer to the communitarian worldview interact with and depend heavily on their group relative to those who hold a more individualistic worldview. Alternatively, those that have a low group score, or in other words are individualistic in orientation, usually fend for themselves, and are thus more competitive individuals (Rayner, 1992).

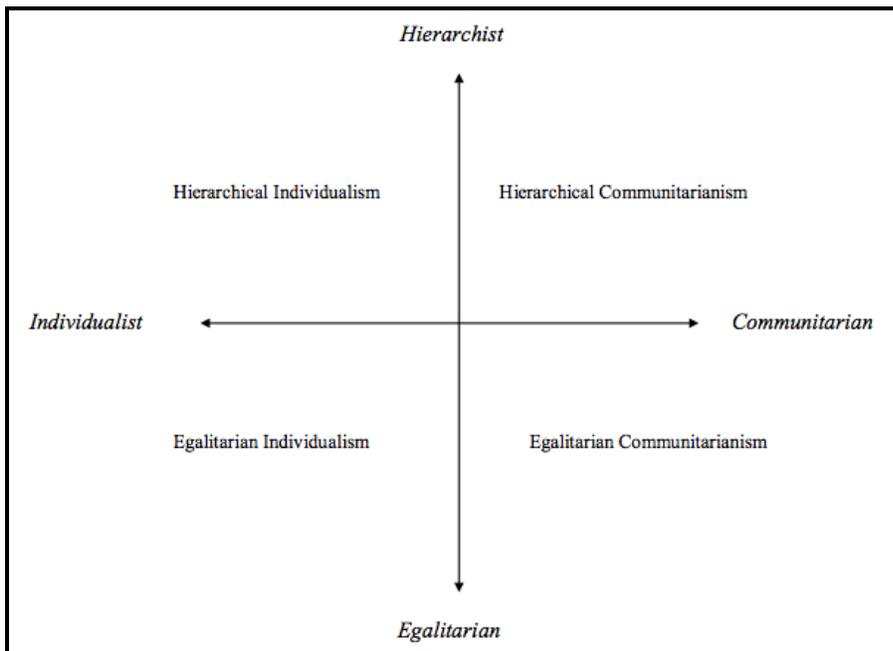


Figure 1.1: Orthogonal Relationship of Cultural Worldviews

Groups of similarly minded individuals, who are committed to the same beliefs in both grid and group scales, form groups within this two dimensional scale (Thompson, Ellis, & Wildavsky, 1990). These groups of like-minded people will express an unconscious desire to affirm their group’s beliefs because of a deep investment, both emotional and psychological, in confirming those beliefs (Kahan et al., 2007). This desire to affirm their beliefs associated with cultural worldviews, and the group’s beliefs, lead individuals to engage in cultural protective cognition when interpreting and analyzing information. In other words, people with different

cultural-identities perceive the same information in different ways in order to preserve their cultural well-being (Kahan 2012b).

Through his work Kahan (2007) found that perception of risk is culturally bound. Those who hold hierarchical and individualistic worldviews are least concerned with environmental risk when compared to those who hold communitarian and egalitarian worldviews. This differing perception of risk amongst cultural groups can affect the way individuals interpret message framing and discourses (Nan & Madden, 2013). Since climate change is an environmental issue it follows that individuals with different cultural worldviews will perceive the same climate change frames differently.

The altered perception of frames because of different worldviews is due to the inability of individuals to both express the knowledge they have acquired and uphold their cultural identity simultaneously. People, when forced to make a decision on an issue will generally choose based on their cultural group values, rather than what they know about the issue in question. This is because if an individual's disagreement with their cultural group's values is more socially costly than upholding beliefs that do not align with their knowledge. Thus, peoples' belief in climate change is generally an expression of who they are, and what group they fit in on the cultural-identity scale, rather than their knowledge (Kahan et al., 2014).

This inability to overcome cultural cognition when processing information on climate change has effects on public opinion, and thus policy support (Gastil, Braman, Kahan, & Slovic, 2011). Furthermore, since cultural identity shares strong similarities with political ideology, and has been shown to predict political opinions on policy options better than a political ideology scale, individuals' worldviews and related protective cognition could affect support for policy action on climate change (Gastil et al. 2011). Therefore, when seeking to understand how people

are motivated to support political action on climate change, and how different frames may affect this support, it will be essential to understand their individual worldviews. This understanding will be integral if the communication failure associated with different cultural worldview's perception of climate change is to be mended.

1.3.2 Environmental Values

As cultural worldviews can affect the perception of climate change, so can environmental worldviews. Values, including those relating to the environment (environmental worldviews), have been seen to influence decision-making through their influence on one's behaviour (Dietz, Fitzgerald, & Shwom, 2005). As such, a person's worldviews relating to the environment may impact their decisions related to supporting certain political actions on climate change given those values. So, although environmental worldviews do not constitute as a barrier to perceiving climate action as necessary, they may predispose individuals to accept frames advocating for climate action or climate action itself.

However, it should be noted that pro-environmental values are not necessarily directly related to pro-environmental behaviour. There are numerous other variables at work. For example, ease of an action can be an important factor in pro-environmental behaviour. People who live in a city that collects recycling with garbage pick-up are generally more likely to recycle. Another variable that could influence pro-environmental behaviour is socio-economic status. Regardless, it is evident that some values enhance and predispose people to more environmentally minded behaviour (Corner, Markowitz, & Pidgeon, 2014).

In their work on environmental values Dietz et al. begin by defining values in a colloquial way as "what something is worth, opinions about that worth, and moral principles (Dietz et al., 2005). This definition allows the term 'values' to encompass the intrinsic worth of something,

that is “a value independent of the value that humans assign it” (pg. 340), as well as the extrinsic worth of something, such as the monetary value someone assigned to a national park, and the way we value the world through our actions and social group. Attitudes, alternatively, are defined as an opinion about something more specific. Comparatively, beliefs are the way an individual’s perceived the world. Beliefs then relate to how an individual perceives facts and evidence and therefore have an impact on their interpretation of the world around them. Related to beliefs are worldviews, such as cultural ones discussed in previous sections, which are conceptualized as a set of generalized forms of beliefs, which stem from our values (Dietz et al., 2005).

In Dietz’s research on environmental ethics this definition of value becomes more focused by stating that: “values help us make choices when there are trade-offs” (pg. 340). This definition can then be related to many of the decisions individuals make concerning their interaction with the environment. Often choices regarding the environment, whether political or not, require trade-offs. For example, people may be asked to pay a high tax on certain fossil fuels given their impact on the environment, or people may be asked to pay a higher discount rate now for the benefit of generations to come. These choices involving trade-offs are therefore linked to our values through our decision – making processes. Thus, we can conceptualize pro-environmental values in this study as values which through their use lead to decisions that favour the integrity, health, and well-being of their environment.

Some values predispose individuals to make decisions that are more pro-environmental than others. There have been a multitude of studies done that relate certain values to higher concern for the environment, as well as pro-environmental behaviour. Altruism, self-transcendence, and anti-anthropocentrism are some of the most common characteristics

associated with pro-environmental behaviour (Corner et al., 2014; Dietz et al., 2005; Dunlap, 2008). Altruism is defined in the Merriam – Webster dictionary as “unselfish regard for or devotion to the welfare of others”. Dietz (Dietz et al., 2005) specifies that this altruistic tendency can be directed towards the ecosystem, as well as being directed towards individuals within a person’s own social group to the entire global community. Self-transcendence in Corner’s work is defined as the opposing value for self-enhancement, which relates to power, ambition, materialism, as well as self-indulgence (Corner et al., 2014). Anti-anthropocentrism, which appears dominantly in Dunlap’s New Environmental Paradigm, is defined as “the rejection that nature exists primarily for human use” (pg. 6, Dunlap, 2008).

Over time several mechanisms have been developed to measure values in individuals which are tied to pro-environmental attitudes. One prominent measurement tool of an individual’s environmental values is the New Environmental Paradigm scale designed by Dunlap and Van Liere, which has been altered and revised since its conception in the 1980s. The original intent of the scale was to measure what Dunlap believed was a shift in the Dominant Social Paradigm, which he believed was occurring at the time of the scale’s creations. The Dominant Social Paradigm is defined as society’s dominant worldview or frame through which their world is interpreted (Dunlap, 2008). In other words, the Dominant Social Paradigm of the time is a way to describe the dominant way society thinks about the world around them, or a worldview.

The New Environmental Paradigm scale’s most recent revision measures five facets of the environmental social paradigm: the existence of ecological limits to growth, maintaining the balance of nature, anti-anthropocentrism, industrial society’s exemption to ecological limits to growth, and likelihood of an eco-crisis (Dunlap, 2008). Grounded in social-psychological theory the scale’s intent is to measure human’s relationship to their environment through their beliefs

(the way they perceive the world around them). The New Environmental Paradigm scale will be used to assess how environmental beliefs influence the level of support an individual gives to political action on climate change, as well as their interpretation of climate change discourse.

1.3.3 Overcoming Barriers to Climate Change

If policies to mitigate the effects of climate are to be pursued, elected decision-makers will need to be pressured by the public. Social movements can be a way to generate increased pressure from the public. However, individuals will not participate in a movement unless selective incentives motivate them to do so (Klandermans, 1984). When people choose to participate in a movement it is by weighing the costs and the benefits of participation (Klandermans, 1984). There are several ways to change the costs versus benefits of participation: choosing the action, choosing the science, or influencing the motives to participate (Klandermans, 1984). To increase participation incentives to participate can be increased or barriers to participation must be overcome (Klandermans, 1987). The more motivated an individual is the better they can overcome barriers to participation (Klandermans, 1987). It follows that to have increased social pressure, the aforementioned barriers will need to be overcome, and more individuals will need to be motivated to participate. Through framing, social movements can construct and perpetuate communications that can galvanize increased concern and political mobilization around an issue (Benford, 1997). As such, framing climate change to adapt the message to existing values or perceptions could be a mechanism to overcome the lack of social pressure for policies that attempt to mitigate the effects of climate change (Nisbet, 2009).

1.3.3.1 Framing

Framing is a multifaceted concept with multiple definitions. Given its prevalence in multiple fields it is essential to review and specify what is meant by “framing” in this research. Several concepts of framing will be reviewed below, after which the importance of framing in social movements and politics will be briefly addressed. The links between these different types of framing and the hypotheses will be detailed. Finally the conceptualization of framing utilized in this study will be outlined.

1.3.3.1.1 Framing Conceptualization

This study focuses primarily on *emphasis* or *amplification framing*. This type of framing refers to the practice of placing emphasis on certain aspects of an issue, while removing prominence from other aspects (Druckman, 2001a). This can be contrasted to other types of framing such as *frame bridging*, *frame extension*, or *frame transformation* (Vliegenthart & van Zoonen, 2011). Further, as Gamson and Modigliani’s (Gamson & Modigliani, 1989) work states, framing is the way ideas are organized so as to define a controversy in order to make the controversy reverberate with core values and assumptions of certain individuals. For instance, the divestment campaign examined in this study deliberately emphasizes moral and economic aspects of responding to climate change (discussed below). In other words, the frames analyzed here emphasize certain aspects of an issue in order to help the public identify what the problem is, why this issue matters, who may be responsible, and what solutions may be possible. Here conceptualizations of framing across several fields of study will be reviewed. These definitions of framing were used to construct the conceptualization of framing used in this study.

First, the Narrative Policy Framework, from the field of political science, (Jones & Mcbeth, 2010a) sees narratives as a way of framing an issue. These narratives have qualities

such as a setting, plot, characters, and a moral lesson. Through the narrative the speaker's desired meaning is communicated to the audience. Second, Goffman (1974), whose definition is used prominently in the study of social movements (Benford & Snow, 2000), defines frames as "schema" that allow people to recognize, distinguish, and label occurrence in their lives. Third, Benford and Snow (Benford & Snow, 2000), also within a sociological context, build on this definition by stipulating that frames allow an individual to simplify the world they experience, which can "render events or occurrences meaningful, and thereby function to organize experience and guide action." (pg. 614). They go further and state that within social movements collective action frames can be used to "mobilize potential adherents and constituents, to garner bystander support, and to demobilize antagonists" (pg. 614). Finally, within the field of communication science, Nisbet (Nisbet & Scheufele, 2009) argues that frames not only help simplify issues, but can also aid actors selectively cover the issue at hand. In turn this allows actors propagating a frame to lend greater weight to certain elements of the issue they wish to highlight. These conceptualizations of framing, although from different fields, all speak to how framing allows individual's to interpret the world in a specific way. This leads us to the definition of framing used in this study: In this study *framing is a process by which issues are discussed by adding or removing emphasis on elements of an issue in order to communicate a different understanding of that issue to the public. Actors within a policy arena use this as a strategy to gain support for their policy issue.* The use of framing as a strategy will be detailed below in the discussion of framing as a process.

1.3.3.1.2 Framing: Concept versus Process

Framing, however, is not just a concept it is a dynamic process. By dynamic process we mean it has different elements, purposes, with different effects, that may change over time. As

scholars working within the field of communication have noted, a framing message that is used as a strategy to convince is not necessarily immediately accepted, and it is not the only important factor in the process.

As a process we can see framing as having four locations in the communication process, the communicator, the text, the receiver and the culture (Entman, 1993; 2010). This study focuses on the text, and the receiver. It is important to note however that ‘text’ does not mean the message communicated by the frame has to appear in written form. Images can also communicate meanings. As recently reported in a study on political conflict photographs, “understandings of what images represent can shape ‘public consciousness and national memory’, as well as public opinion” (pg.2, Wilkes, 2015). The term framing can refer to the frame itself, framing process, and the effects of the frame (Vliegenthart & van Zoonen, 2011).

Here we are analyzing the effects of the frame on support for political action, given the receiver. As discussed above, the frame itself can be seen, in its most basic definition, as the way an issue is discussed in the chain of communication. The framing processes are the mechanisms by which the frame is created by the communicator. In our study the communicators are the individuals involved in the divestment campaign. Communicators could also be politicians or leaders, academics, or other activists. The effects of framing are the way the framing alters the discussion, or perception of an issue (Huttunen & Hilden, 2014). The possible effects of a frame are dependent on the ideological make-up of the group, as well as the individual differences amongst members of the group (Shen & Edwards, 2005; Vliegenthart & van Zoonen, 2011). Researchers have found that framing is more effective when the frame that is received aligns or resonates with the audiences’ pre-existing ideologies (Fielding, Hornsey, & Swim, 2014). As

Sniderman, Brody and Tetlock (1991) wrote, “The effect of framing is to prime values differentially, establishing the salience of one or the other.” (p.52).

Given the information presented above, we conceptualize framing as a continuous process from production of a frame by the communicator presented by a medium of communication, to the consumption of that frame by the audience, which is dependent on their individual characteristics, as well as the cultural context of the group that shapes the discussion of that frame (Entman, 1993; 2010; Gamson & Modigliani, 1989; Huttunen & Hilden, 2014; Vliegenthart & van Zoonen, 2011). It is important to note that the audience is not a blank slate that can be manipulated into believing whatever is presented to them (Druckman, 2001a). An individual’s characteristics and predispositions have an effect on the acceptance of a frame, among other variables (Fielding et al., 2014; Gifford & Comeau, 2011; Guy, Kashima, Walker, & O’Neill, 2014).

To conclude this subsection, framing ultimately revolves around creating discourses, symbolism, and rhetoric, and how framing is used to call attention to certain aspects of reality. The elements that are represented in a certain frame can alter the reality of the intended audience (Kahneman & Tversky, 1984). This allows for different levels of importance amongst issues, and a plethora of different solutions, depending on the frame. Frames determine how people notice, understand, and remember an issue, and thus how they evaluate and then plan to take action on that issue. Understanding how different individuals react to different frames, and which frames resonate the most with these individuals will be of the utmost importance if we are to find a political solution to climate change. Only by understanding how the frames that are generated by certain communicators affect their intended audiences, given the audiences’ characteristics, can we grasp how people’s perception can be altered so that those individuals with different cultural,

political, and moral perceptions can comprehend the need for action on the pressing issue of climate change. Shifting the realities, perception, and salience of climate change of the public at large will be needed to cause a shift in politics to allow for ameliorative climate policies to be put in place.

1.3.3.1.3 Climate Change Framing

Over time public understanding of climate change has evolved, as have the frames used by leaders, politicians, activists, and academics to communicate the issue. Climate change framing also differs in the message that is communicated to the public and in the way that research studies its effects. Since this research's aim is to understand the effects of different kinds of frames on political support for climate change, a brief review of past climate change message framing will be conducted to situate the framing evaluated within this study. We will also briefly discuss how climate change message framing has been researched in terms of persuasiveness.

The general trend in climate change discourse and framing has been from a heavy concentration on the specific physical aspects of the issue, to a more general communication of the impacts across multiple sectors on a global scale (Moser, 2010). Initially, prior to the 1960s, there was a heavy focus on local impacts centered largely around weather events in regards to climate change (Miller, 2000). At this time the global risk associated with the rising carbon dioxide level was not framed as a threat to the global environment. During the 1970s to 1980s there was a shift to viewing, and conceptualizing, the problem of climate change as an issue with global impacts. Since the 1980s climate change has been discussed as a global problem, predominantly referring to a planetary issue of pollution (Miller, 2000).

Recently, researchers have focused on the persuasiveness of climate change framing across four broad domains (Bertolotti & Catellani, 2014).

1. First, whether the consequences of climate change will be high or low (Morton, Rabinovich, Marshall, & Bretschneider, 2010).
2. Second, personal appeals to self-sacrifice or self-motivation (Gifford & Comeau, 2011).
3. Third, the role of risk-based communication (Pidgeon, 2012b), as well preventing or succeeding in halting the effects of climate change (Bertolotti & Catellani, 2014).
4. Fourth, the “concern for environmental and health risks versus the promotion of economic or social well-being” (pg. 475) (Bertolotti & Catellani, 2014).

Climate change has been discussed by actors in the policy arena in terms of physical environmental problems, current and future energy options, an economic and investment dilemma, as well as a moral plea to mobilize on the issue. Some discussions relating to climate change frame the issue as one of overuse of limited environmental resources, where people are trying to benefit over one another, a form of a global tragedy of the commons where each individual, state, or country fears that if they do not profit from development or if they agree to binding regulation others will benefit in their stead (Harrison & Sundstrom, 2010). International reports, such as those produced by the Intergovernmental Panel on Climate Change, frame climate change as an issue of atmospheric greenhouse gas concentration resulting in increasing global mean temperature, which has a slew of cascading physical effects such as sea level rise from receding global ice cover, ocean acidification, and extreme weather events (IPCC, 2007; 2013; 2014).

Another sphere of the discussion on climate change has focused on our current and future energy options. Given that a majority of the physical effects of climate change come from our

use of fossil fuels as a dominant energy source, options for diverging from this pattern of energy use has been the focus of much discussion (International Energy Agency, 2013; Pidgeon, Lorenzoni, & Poortinga, 2008; Pidgeon, Demski, Butler, Parkhill, & Spence, 2014; Pralle & Boscarino, 2001; Spence, Poortinga, Pidgeon, & Lorenzoni, 2010). There has been discussion relating to the benefits and drawbacks of different renewable energy options. This discussion often places in juxtaposition different options such as nuclear, wind, or geothermal (Huttunen & Hilden, 2014; Pidgeon et al., 2014; 2008; Pralle & Boscarino, 2001).

Another emergent economic take on climate change has been the discussion of carbon budgets and carbon bubbles (Lee & Ellis, 2013). These concepts have become more prevalent since the Carbon Tracker Initiative's report on the global carbon budget, as well as prominent climate activist Bill McKibben's Rolling Stone article *Global Warming's Terrifying New Math*. The concept of a carbon budget is that if humanity wishes to remain under the 2°C threshold there is a limited amount of carbon that can be released into the atmosphere. The amount that can be released into the atmosphere differs given the probability of staying under the designated threshold. The Carbon Tracker Initiative, along with the International Energy Agency, have made calculations predicting how much carbon can be released (Lee & Ellis, 2013). There estimates are that between 500 and 1000 Gigatonnes (Gt) of carbon can be released for an 80 – 50% probability of remaining under the 2°C threshold. The carbon budget is that forecasted global emissions, given the reserves that are currently invested to be removed, are far larger than the carbon budget to remain under the threshold. These two frames are generally thought to be helpful because they deal with concepts that the lay population is familiar with. Budgets are familiar because most people are familiar with household budgeting and how actions are constrained by resources. The use of a “bubble” is familiar because of the term's use in other

financial bubbles such as the dotcom or housing, which have led to dramatic collapses of value of assets.

Often related to the discussion surrounding energy choices and climate change are the economic components to the issue. Recently, the investment and use of fossil fuels has been deemed an unwise choice (Initiative, 2013). Not only has climate change been characterized as a negative externality resulting from an unrealistic pricing of fossil fuels, but also the investment in fossil fuels has been negatively portrayed due to their effects on the global climate. The latter has been posited due to the fact that if the globe is to remain within a safe climatic boundary the exploitation of fossil fuels must come to a halt (Initiative, 2013). A final economic discourse related to climate change has been that of stranded assets. This discussion primarily revolves around the implications of investments in assets related to anthropogenic climate change. As defined by a report from the Canadian Centre for Policy Alternatives, they are “financial assets whose value under certain circumstances or policy scenarios, such as a reasonable price on carbon, have the potential to be reduced significantly” (pg. 13, Lee & Ellis, 2013). This discussion frames such investments as a negative risk to dissuade people from continuing to invest in a way that may contribute further to anthropogenic climate change. This relatively emergent framing of ameliorative climate action through economics is especially interesting given that in the past climate change mitigation and adaptation, and especially pro-environmental behaviour, has been framed as an economic harm (Brown & Kasser, 2005).

A final, and perhaps more traditional, framing of climate change is the moral plea. These frames of climate change are those that have historically focused on harm, responsibility, pro-social behaviour and justice (Jamieson, 2009; Markowitz & Shariff, 2012). For example this type of framing relating to climate change often discusses harms to people, either across space or

time, harm to the environment, as well as our duty as responsible stewards of the Earth (Environmental Justice Foundation, 2009; Gardiner, 2010; Jamieson, 2009; Markowitz & Shariff, 2012).

1.3.3.1.4 Moral and Economic Framing of Climate Change

The way in which climate change is framed alters public support towards ameliorative action on climate change (Gastil et al., 2011). Thus, framing climate change in a way that highlights economic or moral rationalization may also alter the support for political action on climate change.

In literature on motivation (Deci, 1971; Deci, Koestner, & Ryan, 1999) frames that seek to motivate based on moral rationales are often termed to be intrinsic, and those economic in nature are deemed to be extrinsic. In other words, moral frames motivate us from an internal desire to do something, and economic frames motivate us with external forces. The definitions of intrinsic and extrinsic will be reviewed briefly to outline their conceptualization for the purpose of this study.

Intrinsic motivation often relates to themes such as personal growth, relationships, community involvement (Brown & Kasser, 2005). Intrinsic frames are conceptualized in this study as relating to themes tied to internal motivation (prosocial behaviour for example), and ones morally related to the five moral foundations established by moral psychologist Jonathan Haidt: care, fairness, in-group loyalty, purity, and authority (Doppelt, Huber, Mazze, & Stockard, 2013; Haidt, 2007). Extrinsic motivation often focuses on themes such as financial success, image, and popularity (Brown & Kasser, 2005). In this study extrinsic frames are frames that specifically focus on economic themes related to climate change. These economic these

primarily focus on externalities, investments in fossil fuels and renewables, and the theory of the carbon bubble.

In environmental discourse, there is often a tension painted between our moral values (intrinsic) and economic desires (extrinsic). Environmental values are frequently framed in a manner that illustrates the need for economic sacrifice to attain the fulfillment of such environmental values (Brown & Kasser, 2005). However, since the global economic downturn there appears to be an increase in climate change frames related to the economic benefits to climate action (Markowitz and Shariff 2012). This brings to light questions on the possible differences in economic and moral frames ability to motivate individuals to support political action on climate change. In their work on barriers to climate change Markowitz and Shariff (Markowitz & Shariff, 2012) found that employing extrinsic values may encourage pro-environmental behaviour, and therefore increase support for political action on climate change. However, the strategy may be more likely to backfire than it first appears since once the extrinsic motivator is removed the individual may no longer continue engaging in pro-environmental behavior without a stronger motivator.

The literature shows that our attitudes and behaviours are deeply rooted in morality, as such morality can be a powerful tool to persuade and influence (Feinberg & Willer, 2013; Haidt, Graham, & Joseph, 2009). Research has demonstrated that individuals, whether liberals or conservatives, develop higher pro-environmental attitudes when issues are framed in a moral way (Feinberg & Willer, 2013). Alternatively, conservatives will develop pro-environmental attitudes to a greater extent when presented with moral appeals that target their moral foundations, as opposed to the moral foundations that are more generally held by liberals (Haidt et al., 2009; Kahan et al., 2014). To shed light on any difference between these two types of

frames that usually oppose one another this study will look at the differing effects of moral and economic frames.

1.3.3.2 Social Movement Framing and Policy Change

This research looks at the effects of framing on support for political action through the lens of the fossil fuel divestment campaign. The divestment campaign is a social movement called “Fossil Free Divestment” (350.org, n.d.). Since this study deals with a social movement, elements of social movements within the realm of framing and policy change will be reviewed below in order to situate the case study of divestment within the project.

A social movement can be defined as a collective of individuals who, working together, are trying to foster or repress social change (Tindall, 2002). Social movements and framing are strongly related to one another, with framing now being viewed as an important dynamic that helps understanding social movements (Benford & Snow, 2000). Social movements are linked to framing, as well as policy change, since individuals embroiled in a social movement are often the individuals who construct, perpetuate, and alter the framing dynamics around an issue. These dynamics can alter the manner other individuals, the public for example, conceptualize an issue, possibly leading to increased mobilization, or concern (Benford, 1997).

Snow and Benford define social movement framing as dynamic “processes associated with the assigning meaning to or interpreting relevant events and conditions in a way intended to mobilize potential adherents and constituents, to garner bystander support, and demobilize antagonists” (Snow and Benford, 1998, p. 198). A social movement is successful if it meets its objectives. Mobilization is not the measure of success for a social movement but it is a necessary element for a social movement if they wish to meet their objectives (Tindall, 2002). Relating to combating the cause and effects of climate change through ameliorative policy, enactment of

such policies are unlikely unless a broad social movement develops (Roser-Renouf et al., 2014). Within a social movement framing can be conceptualized as a tactic that fosters the success of a social movement by engaging citizen action and participation where before there was none. By being able to engage in what is often called “social marketing”, in which values that individuals or groups hold are targeted and match the campaign framing to those values, social movements can gain support of individuals that were previously impartial bystanders (Corner et al., 2014). Since this study evaluates the possible effects of framing of support for political action it is important to expand on how framing relates to citizens and political action on climate change.

Framing and citizen motivation are inextricably linked, and are therefore important to consider in democratic political processes. Framing is important in political communication because it is how actors in the political realm competing with one another espouse their interests and actions relating to an issue (Entman, 1993). Through this communication competing actors can attempt to make their issue salient by selecting different attributes that resonate with the audience in question. Through the successful support of a frame an audience can be mobilized to take action, opponents discouraged, and support of an image associated with a policy issue can be adopted (Benford & Snow, 2000; Nisbet & Scheufele, 2009). The way an actor in a policy arena frames an issue can help the intended audience form a perception regarding what the issue is, its importance and what should be done (Nisbet & Mooney, 2007). In essence framing can help determine public opinion (Shen & Edwards, 2005). It follows that framing is essential to policy change given its importance in shaping public opinion which, in a democratic system may lead to changes in the placement of an issue on the agenda (Baumgartner & Jones 2009). If framing can alter the current policy monopoly by presenting a new, and salient, policy image,

there may exist enough support and momentum to incentivize politicians to create new policy on the matter being framed given the accepted frame (Baumgartner & Jones 2009)

1.4 Case Study

The following subsections detail the social movement used as a case study in this research.

Below the background of the divestment campaign will be detailed, the campaigns at the universities sampled will be examined, and the campaign's frames will be discussed.

1.4.1 Divestment Campaign

The fossil fuel divestment campaign, a social movement occurring around the world, has been called the fastest growing divestment campaign (Ansar *et al.* 2013). There are campaigns on every continent except South America.² There are over 500 campaigns in North America, almost 100 campaigns across 7 nations in Europe, as well as the campaigns found in Australia, New Zealand, South Africa, India, and Bangladesh (350.org, n.d.).³ At present divestment commitments have been made by institutions in North America, Europe, Australia, and New Zealand (350.org, n.d.).⁴

The social movement, started by 350.org in 2012, a US based climate activist group, seeks to encourage institutions such as post-secondary schools, religious organizations, and municipal government to remove their investment from fossil fuels. The central goal of this campaign is to have far reaching effects on the fossil fuel industry, both socially and economically. The current trajectory of the energy system poses a significant threat to the goal to stay below a 2-degree temperature increase. This is because current investments in the fossil fuel

² This excludes Antarctica.

³ For a complete list and map of global campaigns see <http://campaigns.gofossilfree.org>

⁴ For a complete list of institutions that have made divestment commitments see <http://gofossilfree.org/commitments/>

industry will result in extraction of an amount of fossil fuels that far exceeds the global carbon budget. In order to remove those investments, and try to force fossil fuel companies to keep their reserves in the ground, the movement is advocating for the removal of investments in the fossil fuel industry. Further, by pushing for the removal of investments in fossil fuels, proponents of this campaign seek to stigmatize the use of fossil fuels, as well as cause potentially harmful economic effects to the industry. The movement seeks to underline the culpability of the fossil fuel industry for their role in the climate crisis, and remove their financial hold over institutions through investments in their industry. The moral stigmatization of fossil fuels leveraged by the movement is aimed at reducing the social acceptability of fossil fuel use. Supporters hope to encourage society to move away from the extraction and use of fossil fuels in order to stay within our carbon budget and to deflate the carbon bubble.

1.4.1.1 Canadian University Campaigns

Four different schools with active divestment campaigns were included in the study's sample. The University of British Columbia, McGill University, University of Toronto, and Queen's University were the four institutions with active divestment campaigns that were included in the sample. The sampling method will be discussed in more detail below. In this subsection we will briefly review the four campaigns to contextualize the study.

The divestment campaign at the University of British Columbia was started by an on-campus climate activist group, UBCC350, which is composed of students, faculty and staff. The group has run numerous campaigns in the past but have been primarily working on divestment since the fall of 2013 (UBCC350, n.d.). Since September 2013 the campaign has led to a student referendum voting in favour of divestment (77%), and a faculty referendum with 62% in favour of divestment. Since the faculty vote this past winter the students and faculty, as relevant

stakeholders, have submitted proposals regarding the schools investment strategy to the Board of Governors and are currently awaiting a response.

The McGill University divestment campaign began in the fall of 2012 and now has over 1400 signatures from students, faculty, and staff on a petition endorsing fossil fuel divestment (Divest McGill, n.d.). The group presented to the Board of Governors Committee to Advise on Social Responsibility in the spring of 2013. The Board then ruled against their request to divest, with the rationale that there was insufficient evidence that the current investment strategy was causing social injury. In early 2015 the group submitted a new 150-page report to the Board of Governors along with a second petition and are currently waiting for a second opportunity to present to the Board.

The University of Toronto divestment campaign was started by an on-campus climate activist group 'Toronto350.org' prior to September 2013 (Toronto350.org, n.d.). The group has produced two briefs arguing the case for fossil fuel divestment. Their latest brief is a 190-pages and was written by 20 different members of the group. Their campaign has been endorsed by both student organizations and faculty. Their brief was recently presented to an *ad hoc* committee on the school's investment strategy and the group is currently awaiting a response.

Queen's University is the smallest of the four schools campaigns in terms of outreach. The online presence is quite small (in terms of website capacity, twitter activity, and social media outreach) and they have not submitted briefs comparable to the other campaigns. The group backing the campaign is called 'Queen's Backing Action on Climate Change'. The campaign is registered with 350.org and several articles have been written by students involved in the campaign on campus (Buttery, 2013; Rosen, 2015). At present, a petition made by the group has resulted in the Principal of Queen's University forming the Advisory Committee on

Fossil Fuel Divestment (Leroux, 2015). The committee will engage in consultation and research in order to decide whether the investment of the endowment in fossil fuels causes social injury, and whether the investment in fossil fuels is within the school's Statement on Responsible Investing.

1.4.1.2 Campaign Framing

The framing being employed in this campaign has been determined as twofold for the purpose of this study. The first centers on a moral plea to halt destructive actions contributing to climate change. The second focuses on the argument that fossil fuels investments are economically unwise. A central rationale from the campaign, which has been disseminated by 350.org “if it's wrong to wreck the planet then it's wrong to profit from that wreckage” (350.org n.d.). Along with this central conceptualization of fossil fuel use the movement also concentrates on speaking to the harms and inequalities that climate change, as a result of fossil fuel use, produces. The economic frames, and resulting discourse, concentrate primarily on the concept of a “carbon bubble”, alternative energy investments, and the externalities of fossil fuel use that are not encompassed by their current prices. This movement's aim in framing climate change in these ways is to alter the conceptualization, and thus discussion, about the use of fossil fuels and their role in our society. Their overarching goal in reframing the dominant discourse of fossil fuels is to delegitimize what is currently a commonly accepted exploitation and use of these resources. Communications materials by the four divestment campaigns examined in this study indicate the use of two dominant frames: a moral and economic rationale (see Table 1.1 and 1.2).

The basis of the moral frames associated with this social movement center on social and environmental harm and the inequality of the distribution of benefits and harms associated with the exploitation of fossil fuel resources (Table 1.1). As we can see from the table below the

arguments often emphasize the inequality of benefiting from exploiting fossil fuel resources now while disadvantaging in other spaces or times. The moral frames also highlight the discrepancy of these institutions' sustainable practices or schools' mission statements when compared to their investment practices. The frames focus on harm caused to citizens, civilizations, species, and ecosystems. Finally, the frames emphasize the injustice associated with benefiting from something which we know for certain is causing harm and destruction.

The economic framing associated with this social movement (Table 1.2) departs from their moral pleas in several ways. Firstly, it focuses dominantly on the "carbon bubble" argument against fossil fuel use. This argument states that the fossil fuel industry's business model is based on reserves of unburnable fossil fuels. By unburnable they mean fossil fuels that if burned would cause the Earth's mean global temperature to exceed the 2°C cap (Initiative, 2013). This then leads to the conclusion that investing in a resource that will not be able to be used is an unwise financial choice because it will produce stranded assets. Given this risk the campaign argues that institutions should cease such investment for their financial wellbeing. A second focus of the economic framing of divestment emphasizes the economic impacts of divesting away from fossil fuels. Many groups have cited studies that prove that the divestment from fossil fuels will not harm the given institutions' financial return. In fact some campaigns have cited work that suggests that the given institution would already be financially better off if they had divested from fossil fuels.

The combination of these two types of framing, moral and economic, which are often viewed in tension in past climate change framing, is what makes the fossil fuel divestment case such an interesting one. This interesting case study presents us with several interesting questions.

Table 1.1: Moral Frames from Canadian Divestment Campaigns

Campaign	Campaign Excerpt
McGill	<p>“From mountaintop removal in Appalachia, where entire communities live below tailing ponds that could wash their homes away, to pipeline and oil tanker spills and leaks across the planet, to natural gas extraction techniques that contaminate the groundwater that people drink, the production and extraction of fossil fuels leaves the land scarred and poisoned.” pg. 9 (Divest McGill, 2013)</p>
	<p>“The consequences of fossil fuel use are tremendous, and they impact every person on the planet.” Pg. 9 (Divest McGill, 2013)</p>
	<p>If future generations are to enjoy the same opportunities that current generations possess they cannot inherit a planet that has been impoverished by runaway climate change. Similarly, the principles of equity and justice forbid us from ignoring what we know about the harms of GHG pollution by continuing to impose risk and suffering on innocent people around the world both today and in the future” (Divest McGill, 2015)</p>
UBC	<p>“UBC cannot live up to that promise when it is invested in an industry that poses a direct threat to the well-being of future generations, including our own students. If it is wrong to wreck the planet, then it is wrong to profit from doing so.” (UBC C350 2014)</p>
	<p>“At the end of the day, as discussed above, the decision to divest is a moral one, an opportunity to do what we can to address a shared problem with the resources we have at our disposal.” (UBC C350 2014)</p>
	<p>“Implicit in UBC’s responsible investment policy’s call for a ‘proven social, political, economic, or environmental rationale,’ is a system of values, a moral code. UBC should not continue to profit from investments that contribute significantly to environmental harm and social injustice.” (UBC C350 2014)</p>
	<p>“Similarly, it is wrong for a university committed to global citizenship to profit from companies whose core enterprise will exacerbate global disparities in health and well-being.” (UBC C350 2014)</p>
University of Toronto	<p>“Likewise, those who use fossil fuels enjoy the benefits while imposing these costs on others. In order to avoid severe global injury, the total quantity of fossil fuels burned by humanity must be capped far below the level of fossil fuels available to be burned.” pg. 3 (Toronto 350 2014)</p>
	<p>“Climate change is a defining example of social injury. Firms that produce fossil fuels do not bear any economic burden as a result of the many forms of harm they are imposing on other people, including agricultural impacts, sea level rise, damage to human health, and more severe extreme weather.”pg 3 (Toronto 350 2014)</p>
	<p>“Having benefited for decades from behaviour that we now know to be extremely damaging, the university also has a special moral obligation to be part of the solution.”pg.4 (Toronto 350 2014)</p>
	<p>“All the social injuries described above are imposed on innocent parties by fossil fuel companies in the course of their fundamental business activity of extracting coal, oil, and gas. These harms are inseparable from the continuation and expansion of these core business activities.” Pg. 55 (Toronto 350 2014)</p>
Queen’s University	<p>“Because these fossil fuel companies have done everything they can to block and frustrate attempts to confront climate change, the time has come to reveal them as dangerous radicals whose business plan threatens our ecosystems, other species, and our very civilization.” (Go Fossil Free n.d.)</p>
	<p>“The moral urgency in this case is equally pressing, and indeed the climate crisis comprises the greatest moral and political issue of our time.” (Buttery, 2013)</p>

Table 1.2: Economic Frames from Divestment Campaign

Campaign	Campaign Excerpt
McGill	“Establishment economists such as the Bank of England governor Mark Carney and Canadian economist Jeff Robin have already warned of the tremendous risk of investing in those companies [fossil fuel]” (Divest McGill 2013)
	“The International Energy Agency expects \$37 trillion to be spent on energy supply infrastructure between 2012 and 2035. We must decide whether to spend this money digging ourselves deeper into a pit of fossil fuel dependence or to direct it towards moving beyond fossil fuels”
	“In addition to the moral implications of favouring divestment the university can protect itself from the risk that fossil fuel stock value will fall substantially when the ‘carbon bubble’ bursts, by accepting that most remaining fossil fuel reserves are unburnable and beginning to sell its hold” pg.12 (Divest McGill 2015)
	“The economic valuation of fossil fuel companies is based on the outdated assumption that fossil fuel extraction and use can continue without limit” pg. 12(Divest McGill 2015)
UBC	“Fossil fuels reserves are included in today’s valuation of fossil fuel companies, and the idea that we cannot afford to burn most of them is a major risk to the long term profitability of the industry and, thus, a major financial risk to its investors.” (UBC C350 2014)
	“Given the risks of stranded fossil fuel assets and the accumulating evidence that there is unlikely to be a penalty on returns , the case for divestment is even more formidable.” (UBC C350 2014)
	“In all four comparisons, the difference in returns is was very small but in all four, the fossil free indices outperformed the standard indices. ” (UBC C350 2014)
	“We call on the university to embrace divestment as an investment opportunity rather than cost.”
University of Toronto	“The renewable energy sector has strong growth potential and is starting to match conventional fossil-fuel energy prices (let alone unconventional energy prices).” Pg. 82 (Toronto 350 2014)
	“[T]he stock market value of fossil fuel companies is based on the outdated assumption that fossil fuel extraction and use can continue without limit.” pg. 4 (Toronto 350 2014)
	“Fossil fuel divestment offers considerable potential to mitigate important risks, while creating only negligible new ones. In addition, the historical returns of a portfolio that excludes fossil fuel stocks are comparable to those with no such exclusion , and there are good reasons to believe that the future returns of non-fossil-fuel investments will be competitive.” Pg. 70 (Toronto 350 2014)
	“As the injury caused by climate change has become more obvious, governments have become increasingly willing to regulate fossil fuel use. This progression can be expected to continue in the future, eventually compelling fossil fuel companies to leave significant reserves unburned. If the damage from fossil fuel burning amounts to \$50 per tonne (the low end of Lee and Ellis’ estimate) then the damage that burning all Canadian fossil fuels would do amounts to \$844 billion, equivalent to two-and-a-half times the market capitalization and nearly twice the total assets of Canadian fossil fuel companies. Based on a high damage estimate of \$200 per tonne, burning Canada’s fossil fuel reserves would cause \$5.7 trillion in damage — a figure 17 times larger than the market capitalization of these 144 firms and 13 times larger than their assets. [...] [T]he prospect of strengthened regulations on greenhouse gas pollution threatens the profitability and stockmarket value of fossil fuel companies ” pg 74 (Toronto 350 2014)
Queen’s University	“Fossil-fuel intensive technologies are a thing of the past and it’s time to promote new directions. By divesting from fossil-fuels and reinvesting in green technologies , Queen’s has an opportunity to show its students that it’s ready to promote innovation.” (Go Fossil Free n.d.)
	“Fossil-fuel companies are basing their stock prices on burning five times more carbon dioxide than scientists have agreed we can “safely” burn.” (Buttery, 2013)

1.5 Research Question and Hypotheses

The following subsections review the overarching research question, and present the hypotheses for this research. Each hypotheses will be accompanied by a rationale built upon the literature review.

1.5.1 Research Question

This research seeks to understand how framing and individual characteristics, like worldviews, effect support for political action on climate change. In doing so this study will make both scholarly and applied contributions. From the former we hope that the findings from this research will contribute to the fields of political science, communication science, and discourse analysis. From the later we hope that insights can provide guidance to the current divestment campaign to increase their effectiveness at altering the social license of fossil fuel use.

1.5.2 Hypotheses

This study aims to understand the implications of individual characteristics such as cultural and environmental worldviews, as well as different framing of divestment (the independent variables) have in motivating support for political action on climate change (the dependent variable). To do so the effects of economic (external or extrinsic motivators) and moral (internal or intrinsic motivators) framing strategies, as well as individual characteristics (cultural worldviews, environmental worldviews, and political ideology) on self-reported support for political action will be analyzed in the context of the current fossil free divestment campaign.

Our overarching research question that guides this study is:

- What is the relative role of framing and individual characteristics in influencing support for political action on climate change?

The following subsections summarize elements from the literature review to help contextualize the study’s hypotheses. Below is a diagram that presents an overview of the relations between the different hypotheses that will be discussed below.

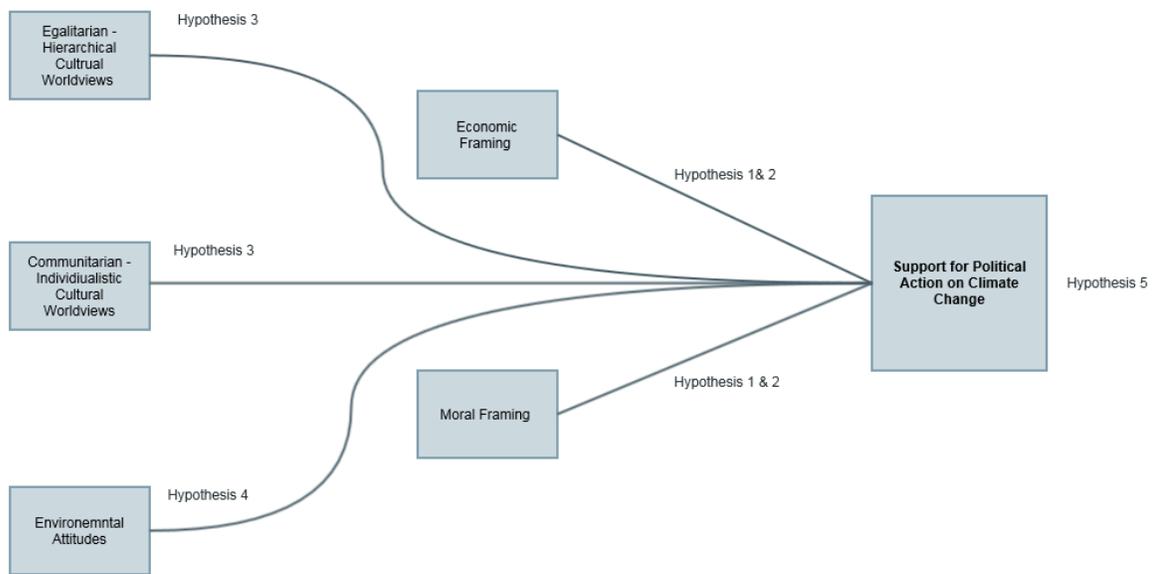


Figure 1.2: Relational Diagram Depicting Hypotheses

Framing and Support for Political Action

Framing is a manner in which an issue can be communicated through a certain storyline or narrative in which certain aspects may be made more prominent and others less (Entman, 1993; Gamson & Modigliani, 1989; Jones & Mcbeth, 2010b). The discourse presents the issue in a certain frame that allows individuals to then interpret the issue given that frame. If the frame in question resonates with the individual’s values, or the frame accurately primes their values, the

individual is more likely to support that frame (Bertolotti & Catellani, 2014; Poortinga, Spence, Whitmarsh, Capstick, & Pidgeon, 2011; Sniderman, Brody and Tetlock, 1991). If the frames relating to the support of divestment are accepted by individuals they will be more likely to agree to support certain aspects of political action on divestment since they have accepted the frame propagating the idea that divestment is a useful strategy to combat climate change. This leads us to the following hypothesis:

H₁: An individual who has higher agreement with divestment framing will be more likely to express support for political actions on climate change.

Moral versus Economic Framing and Support for Political Action

Morality translates into our values, and our values are used as criteria when coming to decisions. Past studies have shown that moral frames are more effective at motivating political action in relating to climate change (Gastil et al., 2011; Gifford & Comeau, 2011). Furthermore, economic incentives are often out of sync with long-term pro-environmental behaviour (Markowitz & Shariff, 2012). This creates disconnects between an economic rationale to behave in an environmental fashion. This leads us to the following hypothesis:

H₂: Moral frames will lead to greater support for political action than economic frames.

Cultural Worldviews and Support for Political Action

The hierarchical-egalitarian and individualistic-communitarian scales measure cultural worldviews. Differing cultural worldviews interpret risks in alternative ways (Kahan et al., 2007). Those with egalitarian-communitarian worldviews are more likely to view environmental problems as riskier. Furthermore, when making decisions individuals are more likely to rely on their cultural cognition than evidence that is presented to them (Kahan, 2010; 2014; 2013). This

means that people make decisions based more on their worldviews than what they know. It then follows that:

H₃: Individuals with hierarchical-individualistic cultural identities will be less supportive for political action on climate change than individuals with egalitarian-communitarian cultural identities.

Environmental Worldviews and Support for Political Action

The New Environmental Paradigm measures the strength of pro-environmental worldviews (Dunlap, 2008). Frames of an issue are more likely to be accepted when they are in line with one's values (Huttunen & Hilden, 2014). Worldviews are specific forms of attitudes, which stem from one's values (Dietz et al., 2005). As such, if an individual worldview already inclines them to pro-environmental worldviews they are more likely to accept frames related to divestment, as well as political action that advocate the for pro-environmental actions.

H₄: Individuals with a higher score on the New Environmental Paradigm scale will be more likely to support political action on climate change.

Chapter 2: Methods

2.1 Data Collection

This study sought to understand how different framing strategies (independent variables) affected the support for political action on climate change (dependent variable), and what type of mediating effect characteristics such as values, worldviews, and attitudes, (independent variables) have on this support. The fossil free divestment campaign was used as a case study for this research. Information was gathered via an online survey from March to April, 2014. The survey engaged respondents on topics such as political ideology, cultural worldviews, environmental attitudes, belief in climate change, acceptance of moral and economic frames propagated by the divestment campaign, and support for different political actions relating to divestment. The survey also queried participants on demographic information, such as age, ethnicity, institution of study, faculty of study. Further control questions were posed to respondents relating to belief in climate change and knowledge of the divestment campaign. Several existing scales were borrowed as survey instruments. Namely, the items measuring cultural worldview first developed by Mary Douglas, and more recently Kahan (2007), measuring egalitarianism and communitarianism (Douglas, 1970), and a shortened version of the New Environmental Paradigm Scale originally developed by Dunlap (Dunlap, 2008). The rest of the items and scales were developed in concert with the research team.

Due to the time and budgetary constricts the survey was a cross-sectional one. The data was collected at one time from one population. Thus the survey then explains the relationship of the respondents to the variables at one point in time (Babbie & Benaquisto, 2013). Although this does not allow for changes in the population in relation to time to be studied, it does satisfy the constraints posed by both financial and time.

Once the data was collected through FluidSurveys.com it was exported to IBM Statistics SPSS 22. Although 326 surveys were completed the final number of cases was 216 for the dependent variable *Support for Political Action on Climate Change*. Due to a glitch in the branching programming with the survey 1/3 of respondents who were meant to complete the framing section with only moral frames were filtered directly into section 8, bypassing their version of section 7. Thus the number of respondents who responded to the moral framing section was lower than those that responded to the economic frames.

2.2 Sampling

The respondents were all students at prominent research-based institutions across Canada. The four institutions chosen to be part of the sample were the University of British Columbia, Queen's University, University of Toronto, and McGill University. This selection was based on a ranking done by Maclean's magazine. Within the universities four arts and four science departments were chosen. This was done so as to counter any bias students enrolled in either arts or science may have relating to climate change, and to try to have the survey evenly distributed throughout the universities. Student respondents ranged from 17 to 41 in age, with the majority being young adults in their early twenties.

Universities and departments were sampled purposefully. A dual linear stratification was used: one to select the universities and one to select the departments within the selected universities. The following stratification criteria were used: research institution, ranked highly relative to other Canadian institutions, had an active divestment campaign. The respondents' sample was probabilistic: all students in the universities' departments selected had an equal opportunity to receive and fill the survey

A student population, and the sampling method were utilized in this research for several reasons. The purposive sampling technique for choosing the schools allowed the research team to select members of the sampling frame based on characteristics of the targeted population (Babbie & Benaquisto, 2013). This strategy was useful because it allowed the researcher to gain adequate representation of population members who have been exposed to the fossil free divestment campaign. However, there are some disadvantages to this sampling technique. First, the characteristics chosen to be representative of the target population may not be accurate and may be biased. Second, the sampling frame, which was composed of students at high-ranking universities, may be perceived as not representative of the general population, and could be seen as contributing to a lack of external validity (Sears, 1986).

Alternatively, it could be argued that because the students that form this study's sampling frame may be those citizens that are more likely to become future leaders in society and thus are more relevant to political leadership and decisions. Furthermore, Dunlap (Dunlap, 1975) found that student samples provide several benefits when researching social and political issues. First, students tend to be highly involved in environmental issues, as one can currently see with the scope of the divestment campaign at post-secondary institutions across North America. Second, students at universities form a highly educated population. It follows that in the future these individuals will have higher rates of social and political participation, and thus have a greater impact on the outcome of social and environmental issues (Dunlap 1975).

The response rate for the study was quite low by academic standards. The highest response rate was from the Department of Biology at the University of British Columbia, with 8% of students on the list-serve completing the questionnaire. The lowest response rate was from the Computer Science Department at University of Toronto, where only 0.1% of students

completed the questionnaire. Response rates also varied by institution. The University of British Columbia (4%) had the highest response rate, followed by McGill University (3%), University of Toronto (1%), and finally Queen's (< 0.1%). An adequate response rate for academic studies is about 50% (Babbie 1992).

There could be several factors influencing this low response rate. First, response rates have been declining in recent years (Baruch, 1999), and lower response rates are more common in North American studies (Baruch, 1999). Second, although studies have reported that younger respondents prefer online surveys to mail surveys, mail surveys generally promote a higher response rate (Hoonakker & Carayon, 2009). Additionally, reminders for online surveys seem to be less effective than those of mail surveys (Shih & Xitao Fan, 2008). The online nature of our survey could have prompted a lower response rate than if the surveys had been mailed. Third, computer users have learned to become skeptical and suspicious of emails with attachments or links that are not sent from a direct contact (Hoonakker & Carayon, 2009). Internet users are now more familiar with Trojan horses, viruses, and worms that could corrupt their software. This increased awareness has been posited to result in a lack of response to online survey whose links are distributed by mass email. A final explanation for the low response rates lies in the characteristics of the sample. Several variables affecting response rates were found when studying students' responses to satisfaction surveys tied to their university (Boyer, 2009). Students' mail is delivered to them by their department who serves as a conduit. Student satisfied with their department could gladly respond to the emails containing links to the survey. However, the reverse is also true. If students are not satisfied with their department or school they could be predisposed not to respond to the email. Altogether, survey fatigue, student

disengagement, and departmental crowding and lack of cohesiveness could also promote a low response rate among students (Boyer, 2009).

The major issues with low response rate are coverage, measurement and sampling error (Groves 1989). With low response rates it makes it difficult to generalize the results to the larger population. For example, if only individuals interested in climate activism or already involved in such a campaign participated it would be difficult to say that the responses represented the viewpoints or affect of the entire population. However, it was not the priority of this study to generalize to the larger population. Our sample of university students can be seen as a sample of elites who, by attending a research institutions, are more likely to occupy leadership and decision-making roles in the future. Thus, the results of this study provide an interesting opportunity to gain insights on the worldviews of these future leaders, and what the effects of framing are on their support for political action on climate change.

Despite the possible downsides, the online survey was chosen as a mean of distribution for several key reasons. Primarily it was chosen because, even with budget constraints, the sample consisted of individuals across the country it allowed questions to be posed to many respondents over a large geographic distance. Further, it allowed for greater anonymity for respondents compared to telephone or in-person interviews. This increased anonymity could encourage respondents to be more truthful and frank when answering questions related to sensitive topics tied to values, beliefs, and attitudes. An online survey also requires less time to administer than an in-person or phone interview. But this method may yield fewer in-depth responses than a telephone or in-person interview, where the respondent can be asked follow-up questions immediately. Regardless, this method was considered the most applicable course for the study at hand.

2.3 Project and Survey Instrument Development

Before the survey was developed a literature review of relevant literature was completed. Literature relating to framing, cultural cognition, moral foundations, climate change communication, and environmental attitudes, social movement framing, and the role of framing in political change was reviewed. Several survey instruments used in these past studies were employed in this research (Dunlap, 2008; Graham et al., 2011; Kahan et al., 2007).

Based off of this literature review the survey instrument was developed. We based the construction of the items in the survey on research relating to risk perception relating to cultural cognition, perception of communication and evidence relating to moral foundations as well as environmental values. We also took into consideration the current framing strategies of the divestment campaign, both moral and economic, as well as support for collective action.

The final version of the survey was subdivided into 8 sections, not including introductory messages, consent, and concluding remarks. Section 1 asked participants to respond to several demographic questions. These questions included questions relating to age, gender, ethnicity, as well as identification of their institution of study, faculty, and department. The information relating to their studies was used to ensure that only students within the sampling frame were participating in the survey. Section 2 asked respondents to rate their knowledge of divestment both in general terms and relating to their school's campaign. Section 3 asked respondents to identify their political ideology. Section 4, which measured cultural worldviews, contained two sections. The first measured worldviews relating to egalitarianism, the second that measured those relating communitarianism. Section 5 asked respondents a series of questions to gauge their environmental attitudes. Section 6 asked respondents a series of three questions relating to 'belief in climate change'. The respondents were asked if they believed climate

change was occurring, whether it was anthropogenic in nature, and whether they found climate change a worrying matter. Section 7 measured support of economic and moral frames related to the divestment campaign. The section has three components because the respondents were randomly filtered into three differing versions of the survey. In one section seven contained only economic frames, in another it contained both economic and moral frames, and the final version only moral frames. Section 8, the final section of the survey, asked respondents to rate their support of seven different actions related to political support of the divestment campaign. Each subsequent item in this section demanded more resources for support.

FluidSurveys.com, an online Canadian survey software, was used to distribute the survey. Before the survey instrument was distributed a word document version of the survey was submitted for approval by the University of British Columbia's Behavioural Research Ethic Board. After approval of the survey and distribution technology by the ethics board the survey was released.

2.4 Variables and Measures

The follow section reviews the variables and measures used in the study. Table 2.1 in this section presents a summary of the descriptive statistics of the relevant variables. Tables 2.2, 2.3, 2.4 presents descriptive statistics for the economic frame, moral frame, and support for political action indices. The remainder of this chapter will review the development of the different indices used in this study. The focus will be on the factor analyses and reliability analyses that were performed in the construction of the indices relating to framing, political action, worldviews, and attitudes.

Factor and reliability analysis are performed to ascertain the appropriateness of items being included together as a composite variable. A factor analysis is used in order to determine if

any dimensions exist within a set of variables. It can be used to in an analysis to reduce the number of items included in a composite variable or in order to analyze a subset of the scale relate to other variables in the study. The factor analysis functions by highlighting the correlations within a set of items. For the purpose of this research a Principle Component Analysis with varimax rotation was used for the factor analysis. An acceptable factor loading for this study was determined to be 0.4.

The reliability analysis chosen for this study was Cronbach's alpha. Reliability is whether, when something is applied repeatedly, it produces the same results each time (Babbie & Benequisto, 2014). A reliability analysis is used to the level to which respondents answer similarly to a range of question that are intended to measure the same thing. With Cronbach's alpha a 1 would indicate that all the items measure exactly what they were supposed to, and a 0 that they do not at all. For this study a value of Cronbach's alpha of 0.7 (on a 0-1 scale) was considered acceptable. The following section describe the creation of the indices related to frames, political action, worldview, and attitudes.

2.4.1 Independent Variables: Moral and Economic Frames

Table 2.1 and 2.2 present the items used in the questionnaire to gauge agreement with economic and moral framing strategies respectively. In each table the factor loadings for the items from a principle component analysis with varimax rotation are listed alongside the Cronbach's alpha value. The items are from section 7 of the survey instrument, subsection *a* and *b* respectively.

Subsections *a* and *b* of section 7 were developed by the research team by examining the current framing strategies related to economics or morality employed by those advocating for divestment. After a review of the strategies from multiple divestment campaigns briefs and

statements 6 items representing common economic and moral frames were constructed. The items were intended to encompass the sentiment and rationale behind the economic and moral framing used by the campaign. When possible exact wording related to campaign slogans or framing was used. Respondents were told at the beginning of the section that the statements presented represented some of the arguments from the fossil fuel divestment campaign. They were told to respond with their level of agreement to the item on a five-point Likert scale.

The factor analysis for the economic frame index yielded two factors. One which included Q07_03 and Q07_05 determined as 'Economic Frames – Future', and the second determined 'Economic Frames – Current'. The first represented items that related to arguments on fossil fuel investment and future effects, the second represented items that dealt with the current situation or effects of fossil fuel investments. Although this analysis indicated that the economic frame items could have been broken down into two factors it was decided to keep them within one scale based on the subsequent reliability analysis. The reliability analysis on the economic frame items produced an acceptable Cronbach's alpha of 0.70. It was also revealed that the removal of any of the items would not result in a higher reliability score.

Table 2.1: Economic Frame Index Construction

Questionnaire Item	Factor Loading	Cronbach's Alpha if Deleted (α)
Q07_01_b: The financial investment that goes into fossil fuel companies would be better off being invested in renewable energy technologies. (Factor 1)	0.86	0.66
Q07_02_b: If all the environmental effects are considered, the costs of fossil fuels exceed the benefits (Factor 1)	0.72	0.64
Q07_03_b: As renewable energy becomes cheaper fossil fuel companies will become less profitable (Factor 2)	0.82	0.69
Q07_04_b: Due to the high cost of environmental damage from fossil fuel exploitation it is financially unwise to invest in a resource whose price does not include this destruction (Factor 1)	0.60	0.67
Q07_05_b: Future climate change policies will make investment in fossil fuels unprofitable (Factor 2)	0.83	0.64
Q07_06_b: The fact that market prices of fossil fuels do not include negative environmental effects makes them over-valued. (Factor 1)	0.61	0.63
Variance explained by factor 1	34.0%	--
Variance explained by factor 2	26.1%	--
Total variance explained by factor 1 & 2 combined	60.1%	--
Model Summary	--	0.70

Table 2.2: Moral Frame Index Construction

Questionnaire Item	Factor Loading	Cronbach's Alpha if Deleted (α)
Q07_01_a: If it's wrong to wreck the planet then it's wrong to profit from doing so	0.87	0.83
Q07_02_a: It's acceptable to fund our education through resource extraction that will have negative consequences on our nation	0.58	0.88
Q07_03_a: It's wrong to destroy the purity of the planet for profit	0.85	0.83
Q07_04_a: Climate change from fossil fuel use will decrease the availability and supply of essential resources to many countries and future generations. Profiting from such an industry is wrong	0.91	0.82
Q07_05_a: It is wrong to destroy the planet and resources that God gave us through the extraction and use of fossil fuels for a profit	0.69	0.87
Q07_06_a: Receiving benefits from fossil fuels while disadvantaging people around the globe is wrong	0.81	0.85
Variance explained by factor 1	63.1%	--
Model Summary	--	0.87

The factor analysis for the moral frame index yielded only one factor. All items were sufficiently correlated with one another. The reliability of the items include in this indices indicated an excellent reliability, with a Cronbach's alpha of 0.87. An analysis of each item revealed that the removal of Q07_01_b would result in a Cronbach's alpha of 0.88. When this occurs and the removal of an item is indicated to result in a higher reliability score it is generally suggested that that item be removed from the scale. However, since there was only one factor for the scale, and since Cronbach's alpha for the scale in its entirety was quite high and the removal of the item would only result in a small increase it was decided that the item would be included in the moral frame index.

2.4.2 Dependent Variable: Support for Political Action on Climate Change

Table 2.3 presents the factor analysis and reliability analysis for the support for political action scale. In the table the factor loadings for the items from a principle component analysis with varimax rotation are listed alongside the Cronbach's alpha value. The items are from section 8 of the survey instrument.

Section 8 asked respondents to rate their agreement to seven statements that were intended to measure their support of actions related to the fossil fuel divestment campaign. The section contained 7 items, which each subsequent item asked for higher resources demands of the respondent, whether time or money. The agreement with each item was measured with a five-point Likert scale. The items were intended to encompass different actions students could partake

Table 2.3: Support for Climate Action Index Construction

Questionnaire Item	Factor Loading	Cronbach's Alpha if Deleted (α)
Q08_01: I support political action on climate change through divestment from fossil fuel companies at post-secondary institutions (Factor 1)	0.84	0.86
Q08_02: I would vote for divestment from fossil fuels on a school referendum (Factor 1)	0.88	0.86
Q08_03: I would sign a petition endorsing divestment from fossil fuels (Factor 1)	0.87	0.86
Q08_04: I would write letters to the authority power at my school advocating for fossil fuel divestment. (Factor 2)	0.84	0.87
Q08_05: I would participate in a protest advocating for fossil fuel divestment (Factor 2)	0.84	0.87
Q08_06: I would volunteer my free time with a group that was working to promote fossil fuel divestment (Factor 2)	0.82	0.88
Q08_07: I would pay high tuition fees if it meant my institution would divest from fossil fuels (Factor 1)	0.64	0.89
Variance explained by factor 1	41.5%	--
Variance explained by factor 2	34.3%	--
Total variance explained by factor 1 & 2 combined	75.9%	--
Model Summary	--	0.89

Notes: (1) Respondents were told to rate their level of agreement with the statements found above (2) Factor loadings are based on the varimax rotation method (3) "Cronbach's alpha if deleted" represents the alpha if the given item were removed from the model. If "alpha if deleted" for an item is higher than the overall alpha, it is often an indication to drop the item. However, there exist reasons to rationalize keeping an item whose remove increase the alpha.

in or complete to show their support for the campaign with a mix of individual or group activities.

The factor analysis for the items relating to ‘support for political action’ yielded two factors. The first factor included items Q08_01, Q08_02, Q08_03, and Q08_07. The second included Q08_04, Q08_05, and Q08_06. After inspection of these items we distinguished between the two factors by describing factor one as ‘low-cost political activities’ and the second ‘high-cost political activities’. This was determined because the items belonging to the second factor all dealt with action that demanded a direct time commitment from respondent, such as writing letter, protesting, or volunteering free time, The first factor was composed of symbolic activities, such as general support, voting, and signing a petition. Interestingly, the final item, which asked respondents if they would be in agreement with paying higher tuition fees in order to have their institutions divest was shown to be correlated with the first factor. The different dimensions from this study may be interesting for future work, but for the purpose of this study we determined that it would be useful to analyze all the items grouped into one scale since these actions represented in the second factor were actions that the divestment campaign could be asking of its supports in many cases.

The reliability analysis for this index yielded a relatively high Cronbach’s alpha of 0.89. None of the items removal was indicated to result in a higher alpha for the model. Given these results it was determined that these items would be composed into an index to measure the respondents’ support of political actions relating to the divestment campaign.

2.4.3 Independent and Control Variables: Composites

There were three independent variables beside economic and moral frames that were included in the hypotheses. It was posited that these variables could have a mediating effect on

the acceptance of certain climate change framing strategies, as well as the willingness to support political action related to climate change. An explanation for the inclusion of these demographic variables will be detailed. The two cultural worldview scales, and the New Environmental Paradigm Scale construction, conducted with both a factor and reliability analyses, will be detailed in the following section. It should be noted however that the items included in these three scales were taken from previous research conducted by Kahan, as well as Dunlap.

Table 2.4 presents the results from the factor and reliability analyses on the egalitarian – hierarchical cultural worldview scale. Respondents' placement on this scale was measured through a series of 14 items assessing how they view the world as being organized, or how they believe it should be organized. Individuals responded to the items on a 4-point Likert scale, from strongly disagree to strongly agree, values from 1 – 4 respectively. Items Q04_08_a to Q04_14_a were negatively worded, and reverse coded during the construction of the scale. Thus, the higher an individual scored on the scale the more egalitarian they were said to be. The factor analysis yielded three factors. However, since the scale in its entirety was used to measure the cultural theory's effect on perception of risk relating to environmental issues, including climate change, in past research (Kahan et al., 2007; Nan & Madden, 2013; Pidgeon, 2012b). Cronbach's alpha for the reliability analysis was substantially high at 0.88. Item Q04_04a, if removed would have resulted in a higher score by less than 0.01. It was kept as part of the scale for this study because, as mentioned, the research team wished to use the egalitarian-hierarchical worldview scale in its entirety, as was done with past studies. It is expected that this item received this Cronbach alpha score if removed because the issue may be more relevant in the United States, where the scale has been used in previous studies. Further testing in Canada and other locations could be done to see if the results relating to this item are a commonality.

Table 2.4: Egalitarian – Hierarchical Index Construction

Questionnaire Item	Factor Loading	Cronbach's Alpha if Deleted (α)
Q04_01_a: It seems like the criminals and welfare cheats get all the breaks, while the average citizen picks up the tab. (Factor 1)	0.58	0.88
Q04_02_a: We have gone too far in pushing equal rights in this country. (Factor 1)	0.79	0.88
Q04_03_a: Society has become too soft and feminine. (Factor 1)	0.78	0.87
Q04_04_a: Nowadays it seems like there is just as much discrimination against whites as there is against blacks. (Factor 1)	0.68	0.89
Q04_05_a: It seems like blacks, women, and homosexuals and other groups don't want equal rights, the want special rights just for them. (Factor 1)	0.75	0.88
Q04_06_a: A lot of problems in our society today come from the decline in the traditional family, where the man works and the woman stays at home. (Factor 1)	0.60	0.88
Q04_07_a: The women's rights movement has gone too far (Factor 1)	0.75	0.88
Q04_08_a: Discrimination against minorities is still a very serious problem in our society. (Factor 3)	0.59	0.88
Q04_09_a: its old fashioned and wrong to think that one culture's set of values is better than any other culture's way of seeing the world. (Factor 3)	0.85	0.87
Q04_10_a: A gay or lesbian couple should just have much right to marry as any other couple. (Factor 2)	0.86	0.87
Q04_11_a: We need to dramatically reduce inequalities between the rich and the poor, whites, and people of colour, and men and women. (Factor 1)	0.64	0.87
Q04_12_a: Parents should encourage young boys to be more sensitive and less "rough and tough". (Factor 1)	0.42	0.87
Q04_13_a: Our society would be better off if the distribution of wealth was more equal. (Factor 1)	0.75	0.88
Q04_14_a: We live in a society that is fundamentally set up to discriminate against women. (Factor 1)	0.57	0.87
Variance explained by factor 1	29.0%	--
Variance explained by factor 2	16.5%	--
Variance Explained by factor 3	13.3%	--
Total variance explained by factor 1, 2 & 3 combined	56.7%	--
Model Summary	--	0.88

Notes: (1) Respondents were told that they were answering a series of questions about their values (2) Factor loadings are based on the varimax rotation method (3) "Cronbach's alpha if deleted" represents the alpha if the given item were removed from the model. If "alpha if deleted" for an item is higher than the overall alpha, it is often an indication to drop the item. However, there exist reasons to rationalize keeping an item whose remove increase the alpha.

Table 2.5 described the communitarian – individualistic scale items, as well as the related factor analysis and reliability analysis. Section 4(b) was centered on items measuring how important an individual feels their community is in their life. Respondents who score higher on this scale are said to be more communitarian, and thus rely more heavily on their community in daily life, while those who score lower are said to be individualistic, and are more independent of their group in daily life. Of the 17 questions, items Q04_13_b to Q04_17_b were reverse coded. Respondents could answer to items on a four point Likert scale ranging from strongly disagree to strongly agree. The factor analysis yielded four factors. However, as with the previous cultural worldview scale the research team decided to leave the scale in its entirety instead of analyzing the effects of the different factor groups. The reliability analysis concluded in a Cronbach's alpha of 0.89, which is relatively high, as well as previously analyzed cultural worldview scale. The reliability analysis did not indicate that any of the items from the scale should be removed.

The final scale included in the hypotheses that was analyzed was the New Environmental Paradigm scale. The related analyses can be found in Table 2.6 The scale, which was included in section 5 of the survey instrument, was a shortened version of the revised New Environmental Paradigm scale. The original and full length revised scale were created by Dunlap and van Liere, this shortened version was created by a member of the research team, Dr. David Tindall, and has been used in previous environmental sociology research instruments. The scale is composed of 8 items measuring the respondents' environmental attitudes relating to four facets of the environmental dominant social paradigm as identified by Dunlap. The facets are limits to growth, anti-anthropocentrism, exemption to limits to growth, and the likelihood of an eco-crisis. Although past studies have found that shortened versions of the scale result in too many factors

Table 2.5: Communitarian – Individualistic Index Construction

Questionnaire Item	Factor Loading	Cronbach's Alpha if Deleted (α)
Q04_01_b: People who are successful in business have a right to enjoy their wealth as they see fit. (Factor 2)	0.70	0.88
Q04_02_b: If the government spent less time trying to fix everyone's problems, we'd all be a lot better off. (Factor 1)	0.65	0.88
Q04_03_b: Government regulations are almost always a waste of everyone's time and money. (Factor 1)	0.68	0.88
Q04_04_b: The government interferes far too much in our everyday lives. (Factor 1)	0.85	0.88
Q04_05_b: Free-markets – not government programs – are the best way to supply people with the things they need. (Factor 1)	0.51	0.88
Q04_06_b: Too many people today expect society to do things for them that they should be doing for themselves. (Factor 1)	0.58	0.87
Q04_07_b: It's a mistake to ask society to help every person in need. (Factor 2)	0.50	0.88
Q04_08_b: The government should stop telling people how to live their lives. (Factor 1)	0.73	0.88
Q04_09_b: Private profit is the main motive for hard work. (Factor 2)	0.70	0.89
Q04_10_b: It's not the government's business to try to protect people from themselves. (Factor 3)	0.75	0.88
Q04_11_b: Society works best when it lets individuals take responsibility for their own lives without telling them to do so. (Factor 3)	0.56	0.88
Q04_12_b: Our government tries to do too many things for too many people. We should just let people take care of themselves. (Factor 1)	0.59	0.88
Q04_13_b: Sometimes government needs to make laws that keep people from hurting themselves. (Factor 3)	0.68	0.89
Q04_14_b: Government should put limits on the choices individuals can make so they don't get in the way of what's good for society. (Factor 4)	0.83	0.89
Q04_15_b: its society's responsibility to make sure everyone's basic needs are met. (Factor 2)	0.61	0.88
Q04_16_b: The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals. (Factor 4)	0.67	0.88
Q04_17_b: People should be able to rely on the government for help when they need it. (Factor 3)	0.50	0.88
Variance explained by factor 1	21.7%	--
Variance explained by factor 2	15.2%	--
Variance explained by factor 3	12.3%	--
Variance explained by factor 4	8.9%	--
Total variance explained by all factors	58.0%	--
Model Summary	--	0.89

Notes: (1) Respondents were told that they were answering a series of questions about their values (2) Factor loadings are based on the varimax rotation method (3) "Cronbach's alpha if deleted" represents the alpha if the given item were removed from the model. If "alpha if deleted" for an item is higher than the overall alpha, it is often an indication to drop the item. However, there exist reasons to rationalize keeping an item whose remove increase the alpha.

and lower reliability the choice was made by the research team to use the shortened scale to try to decrease the length of the survey instrument, which was already quite long due to the cultural worldview components.

The factor analysis for the scale yielded three factors. Factor 1 contained two items relating to anti-anthropocentrism and eco-crisis respectively. Factor two included items relating to anti-anthropocentrism and the exemption to limits to growth. The items represented in factor two were deemed to relate to ‘humans and their development or modification of their natural environment’. Factor 3 was deemed to represent items relating to ‘future consequences’, and contained items representing limits and an eco-crisis.

The reliability analysis yielded a relatively low Cronbach’s alpha of 0.67. However since it was considered to be close to the threshold of 0.70 the research team deemed the scale to be sufficiently reliable to be used in subsequent analyses. The research team also found the reliability score sufficient for the purpose of this research because of past evidence supporting that although shortened New Environmental Paradigm scales can be less reliable, it generally does not make them less effective at measuring environmental attitudes (Dunlap, 2008). An examination of the Cronbach’s alpha of each item if it were removed from the scale did not indicate that any of the items should be removed.

2.4.4 Independent and Control Variables: Demographics

A demographic and socioeconomic section was included in section 1 of the survey instrument. This section asked respondents to report on ethnicity, nationality, institution of study, department, faculty, age, and gender. In addition to these demographic variables the survey instrument included two sections with control questions. Section 2 asked respondents to report

Table 2.6: New Environmental Paradigm Scale Index Construction

Questionnaire Item	Factor Loading	Cronbach's Alpha if Deleted (α)
Q05_01: We are approaching the limit of the number of people the earth can support. (Factor 3)	0.84	0.67
Q05_02: Humans have the right to modify the natural environment to suit their needs. (Factor 2)	0.52	0.62
Q05_03: Human ingenuity will ensure that we do NOT make the earth unlivable. (Factor 2)	0.66	0.64
Q05_04: The earth has plenty of natural resources if we just learn how to develop them. (Factor 2)	0.65	0.64
Q05_05: Plants and animals have as much right as humans to exist. (Factor 1)	0.63	0.65
Q05_06: The so-called "ecological crisis" facing humankind has been greatly exaggerated. (Factor 1)	0.78	0.62
Q05_07: Humans will eventually learn enough about how nature works to be able to control it. (Factor 2)	0.71	0.65
Q05_08: If things continue on their present course, we will soon experience an ecological catastrophe. (Factor 3)	0.48	0.62
Variance explained by factor 1	22.0%	--
Variance explained by factor 2	21.8%	--
Variance explained by factor 3	15.1%	--
Total variance explained by factor 1, 2 & 3 combined	58.9%	--
Model Summary	--	0.67

Notes: (1) Respondents were told that they were answering a series of questions related to their attitudes towards the environment (2) Factor loadings are based on the varimax rotation method (3) "Cronbach's alpha if deleted" represents the alpha if the given item were removed from the model. If "alpha if deleted" for an item is higher than the overall alpha, it is often an indication to drop the item. However, there exist reasons to rationalize keeping an item whose remove increase the alpha. (4) Items (X) were reverse coded.

on their knowledge of divestment, and section 6 asked respondents a series of questions on their belief of climate change. These variables were also examined post-data collection and used as controls in the following analyses.

Dummy variables were created for gender, institution of study, faculty, and ethnicity. The gender dummy was created for female = 1 and male = 0. Four dummy variables were created for each institution included in the sample. This was done by listing each institution as 1 and all other institutions as 0, for example, UBC = 1, others = 0. The dummy variable for faculty was created by programming Arts = 1 and Science = 0. Finally, three dummy variables were made for ethnicity based on the distribution of reported ethnicities. Since the majority of respondents indicated themselves as Caucasian or Asian a dummy variable was created for each of these ethnicities. The remaining mix of reported ethnicities were grouped into a dummy variable labeled 'Other Minorities'. This does not imply that the research team believes that all other minorities are the same. This was done because the number of respondents that reported several different ethnicities that did not fit into the categories Asian or Caucasian were too small to be analyzed separately with their own dummy variables.

Scales were created of the series of questions measuring both knowledge of divestment and belief in climate change. Knowledge of divestment represented both understanding of the concept of divestment, as well as knowledge of the divestment campaign currently underway at the respondent's institution. Belief in climate change was measured as belief in the occurrence of climate, belief of its anthropocentric nature, and the feeling that it was a worrying issue. These aspects of divestment and climate were considered to be pertinent to possible effecting the

Table 2.7: Means/frequencies & Standard deviations for Variables

Variable	Mean%/(S.D)	Description
Independent Variables		
Gender (N = 220)	62%	Dummy variable where female = 1 and male = 0 (62% female, 38 % male)
Age (N = 215)	22.5/(4.2)	Self-reported age of the respondents.
University – UBC (N = 216)	66.7%	Dummy variable measuring what institution the respondents attend. UBC = 1 others = 0
University – McGill (N = 216)	19.9%	Dummy variable measuring what institution the respondents attend. McGill = 1 others = 0
University – University of Toronto (N = 216)	7.9%	Dummy variable measuring what institution the respondents attend. University of Toronto = 1 others = 0
University – Queen’s (N = 216)	5.6%	Dummy variable measuring what institution the respondents attend. Queen’s = 1 others = 0
Faculty (N = 216)		Dummy variable for faculty of respondents. Arts = 1 Science = 0
Ethnicity – Caucasian (N = 215)	63.7%	Dummy variable for self-reported ethnicity. Caucasian = 1 others = 0
Ethnicity – Asian (N = 215)	27.4%	Dummy variable for self-reported ethnicity. Asian = 1 others = 0
Ethnicity – Other Minorities (N = 215)	8.8%	Dummy variable for self-reported ethnicity. Minorities = 1 others = 0
Knowledge of Divestment (N = 212)	2.8 (1.3)	Composite variable formed of two related questions. One on familiarity with concept of divestment, the second with knowledge of current campaign.
Climate Change Belief (N = 214)	4.6 (0.55)	Composite variable that measures with a 5-point Likert scale, whether climate change is occurring, is anthropogenic in nature, and is worrying.
Political Ideology – conservatism (N = 218)	2.8 (1.3)	Seven point scale ranging from very conservative (7) to very liberal (1). Measurement for moral foundations.
Egalitarianism (N = 189)	3.0 (0.43)	Composite variable measuring the egalitarian – hierarchical aspect of worldview. Measured with a four point Likert scale ranges from strongly agree (1) to strongly disagree (4). High values indicate predisposition to egalitarianism.
Communitarianism (N = 176)	2.8 (0.44)	Composite variable measuring the communitarian - individualistic aspect of worldview. Measured with a four point Likert scale ranges from strongly agree (1) to strongly disagree (4) High values predict predisposition to communitarianism
New Environmental Paradigm (N = 203)	3.8 (0.58)	Composite variable measuring environmental attitudes. Measured with five point Likert scale. High values indicate more environmental worldview.
Dependent Variables		
Economic Frame Index (N = 135)	3.9 (0.63)	Composite variable measuring agreement on a five point Likert scale with economic frames related to the divestment campaign. Strongly agree = 5 strongly disagree = 1
Moral Frame Index (N = 61)	3.8 (0.84)	Composite variable measuring agreement on a five point Likert scale with moral frames related to the divestment campaign. Strongly agree = 5 strongly disagree = 1
Support for Climate Action (N = 203)	3.2 (0.89)	Composite variable measuring support of seven different political actions relating to the divestment campaign. Measured with a five point Likert scale.

Notes: A full questionnaire with the original wording of all items can be found in the appendices.

perception of framing relating to divestment, as well as to the support of political action and were thus included by the research team.

Table 2.7 provides a summary of the descriptive statistics for relevant variables. The mean or percentage, and standard deviation, as well as description of each variable, can be found in the following table. The sample was 62% female, with an average age of 22.5. The majority of the respondents at the time of data collection attended the University of British Columbia (66.7%), approximately 19.9% of the sample are students from McGill University in Québec, and the remainder of the sample are students from the two universities in Ontario, 7.9% from University of Toronto, and 5.6 from Queen's. In terms of ethnicity, the majority of the population identified as Caucasian (63.7%). The remainder of the sample identified as Asian (27.4%) or other minorities (8.8%).

The average knowledge of divestment was 2.8 (SD = 1.3, range = 1 – 5), which the research team determined as 'moderately knowledgeable' on divestment. When looked at in more detail most respondents were familiar with divestment as a concept, but less familiar with the ongoing campaign at their university. The other non-demographic control variable, climate change belief, had an average of 4.6 (SD = 0.55, range 1-5). The research team deemed that this indicated that the majority of the sample believed in climate change. Upon closer inspection the majority of the sample believed climate change is occurring and that it is anthropogenic in nature. A lower proportion believed that it was worrying, but a majority still believe that it was a concerning issue.

In terms of independent variables of direct relevance to the hypotheses, the sample tended towards egalitarianism, communitarianism, and more environmental attitudes. The average for the egalitarianism was 3.0 (SD = 0.43, range 1 – 4). The average for communitarianism was 2.8

(SD= 0.44, range 1 – 4). The average for the sample on the New Environmental Paradigm scale was 3.8 (SD = 0.58, range 1 – 5)

2.5 Ethics

This study is relatively non-intrusive, and posed minimal risk to participants. However, there are several ethical considerations that were be taken into account. As the questions did not relate to topics that are overly sensitive, illegal in nature, or activities that would embarrass respondents there was little potential risk or harms in completing the survey. Although, the survey could have provoked new thoughts or emotions from respondents, that they could have found disturbing. Thus, if any of the questions made the respondents uncomfortable they had the ability to skip any of the questions throughout the survey. The topics presented in this survey could have been construed as politically controversial to some respondents, but they should not have been personally distressing in nature.

Although there were risks associated with the study, benefits also existed. Benefits from this study exist in the form of collective benefits. By spending time completing the survey the respondent contributed to knowledge in the fields of political science, moral psychology, and social movements. Moreover, the respondents' participation helped increase understanding as to what frames associated with climate change could contribute to the persuasion of individuals to support political action on climate change. This increase in understanding will help interest groups gain support for political action on climate change, which may help create incentives for politicians to enact ameliorative climate policies.

Given that the research posed some social risks to participants, and that the respondents were students several special measures were taken to enter into contact with potential participants. First, student emails are protected information, and thus could not be accessed

directly. Therefore, initial contact and recruitment had to be made through faculties and departments at the four universities. An initial contact letter was sent to the Dean and the head of student administration of the department in questions.⁵ If the Dean agreed to allow their students to participate, the administrator in student services in each given department emailed their student body an invitation letter with an email link for the online survey.⁶ They followed this email with reminder emails once a week for three weeks. In each email students were made aware of the purpose and scope of the study and its possible contributions to multiple fields of study. They were also informed that participation was entirely voluntary and that they had the right to refuse to answer any question, and they could choose to not complete the survey even once they had begun.

The method of contact was chosen as the best method to contact students because it respected their rights as participants, but also allowed direct contact through email as opposed to a general advertisement for participation. The downside to this approach is that with the increasing use of requests via email people often ignore the email requests they receive. Risks also had to be minimized in terms of data and its storage. During the data collection process FluidSurveys was chosen as a distribution tool because its server resides in Canada, and thus is not subject to the same open privacy laws as in the United States. After data collection to ensure that no personal information of respondents would be compromised the data was stored on an external hard drive that was kept in a secured office. Furthermore, the data on the hard drive was encrypted.

⁵ The document may be found in the appendices.

⁶ A copy of the student invitation letter can be found in the appendices

Chapter 3: Results

This study is guided by the following research question:

- What is the relative role of framing and individual characteristics in influencing support for political action on climate change?

Through an analysis of relevant literature we expect that respondents with egalitarian-communitarian worldviews, or cultural identities, would be more likely to perceive climate change as a risk relative to individuals with a hierarchical-individualistic cultural identity, and thus be more likely to support political action on climate change (Kahan 2012a; Kahan 2013; Kahan et al. 2014). Also, that respondents who score higher on the New Environmental Paradigm (NEP) scale generally have a higher regard for the environment and services it provides (Dunlap, 2008). As such, we believe that these individuals will be more susceptible to the risks of climate change, than those individuals that have a lower NEP score. Finally, we expect that support of moral frames would induce a stronger level of support for climate action than economic frames.

As previously mentioned there were three versions of this survey. A version in which individuals were exposed to only economic frames, one in which they were exposed to both moral and economic frames, and one in which they were exposed to no frames. For clarity these three different sub-samples will be referred to as sub-sample 1, sub-sample 2, and sub-sample 3 respectively. These sub-sample classifications will be used in the results and discussion section in order to delineate from which sample the results in question originated.

3.1 Sample Overview and Descriptives

The average support for economic frames relating to divestment is 3.9 (SD = 0.63, range 1 – 5).

Table 3.1 shows the percentage distribution, the mean, standard deviation, and N for each item in

the scale. We can see from table 3.1 that the majority of respondents supported the different economic frames. Notable, items Q07_01_a and Q07_02_a had the largest percentage of agreement. These two frames related to investing current fossil fuel investments into renewables, and the negative externalities associated with fossil fuels. Also interesting is how the seemingly least effective frame given percentage distribution, Q07_05_a, deals with future climate policies and their effect on fossil fuel investments. It appears that this frame was least effective given the amount of uncertainty the frame used.

The average support for moral frames relating to divestment is 3.9 (SD = 0.63, range 1 – 5).

Table 3.2 shows the percentage distribution, the mean, standard deviation, and N for each item in the scale. In comparison to economic frame percentage distribution in the preceding table the agreement with moral frames was not as strong. The most effective frame (the frame with the strongest agreement and highest percentage distribution at this agreement), Q07_01_b, is the moral frame that is regularly used as the fossil free divestment campaign slogan. Similarly to the economic frames reception the frame associated with the least amount of support was the frame that contained the most uncertainty. The average support relating to the scale ‘support for political action’ is 3.2 (SD = 0.89, range 1 – 5). Table 3.3 shows, the percentage distribution, the mean, standard deviation, and N for each item that was used in the scale. When looking at the percentage distribution for the items an interesting pattern emerges. There is very strong agreement for participation in action such as voting, signing a petition, as well as general support. The majority of respondents even reported they would be willing to increase their tuition fees to enable divestment. Alternatively, there not only is a lack of support, but a disagreement, with engaging in activities that require higher time commitment such as writing letters, participating in protests, or volunteering free time. Where approximately 36% of

Table 3.1 Percentage Distribution for Economic Frames (Sub-Sample 1 and 2)

Statement	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree	Mean	SD	N
Q07_01_a: The financial investment that goes into fossil fuel companies would be better off being invested in renewable energy technologies.	-	5.7	5.7	32.9	55.7	4.39	0.83	135
Q07_02_a: If all the environmental effects are considered, the costs of fossil fuels exceed the benefits	-	11.4	14.3	25.7	48.6	4.11	1.04	135
Q07_03_a: As renewable energy becomes cheaper fossil fuel companies will become less profitable	-	12.9	11.4	41.4	34.3	3.97	1.00	135
Q07_04_a: Due to the high cost of environmental damage from fossil fuel exploitation it is financially unwise to invest in a resource whose price does not include this destruction	5.8	15.9	18.8	27.5	31.9	3.64	1.25	135
Q07_05_a: Future climate change policies will make investment in fossil fuels unprofitable	4.4	17.6	39.7	25.0	13.2	3.25	1.04	135
Q07_06_a: The fact that market prices of fossil fuels do not include negative environmental effects makes them over-valued.	2.9	7.1	12.0	41.4	35.7	4.00	1.02	135

Represents distribution from individuals who were exposed to only economic frames and those exposed to economic and moral frames

Table 3.2: Percentage Distribution for Moral Frames (Sub-Sample 2)

Statement	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree	Mean	SD	N
Q07_01_b: If it's wrong to wreck the planet then it's wrong to profit from doing so	-	12.9	1.4	38.6	47.1	4.20	0.99	61
Q07_02_b: It's acceptable to fund our education through resource extraction that will have negative consequences on our nation	21.4	41.4	11.4	21.4	4.3	3.54	1.18	61
Q07_03_b: It's wrong to destroy the purity of the planet for profit	-	14.7	4.4	48.5	32.4	4.00	0.99	61
Q07_04_b: Climate change from fossil fuel use will decrease the availability and supply of essential resources to many countries and future generations. Profiting from such an industry is wrong	1.4	17.4	4.3	44.9	31.9	3.88	1.10	61
Q07_05_b: It is wrong to destroy the planet and resources that God gave us through the extraction and use of fossil fuels for a profit	12.3	18.5	33.8	16.9	18.5	3.11	1.26	61
Q07_06_b: Receiving benefits from fossil fuels while disadvantaging people around the globe is wrong	1.4	5.8	2.9	49.3	40.6	4.22	0.87	61

Represents distribution of moral frame response from individuals who were exposed to economic and moral frames

respondents strongly agreed that they supported the campaign, 40% strongly agreed they would vote for divestment, and 38% strongly agreed that they would sign a petition supporting divestment. In contrast, 34% of respondents disagreed that they would write letters in support of the movement, 36% disagreed that they would participate in protests relating to divestment, and 32% disagreed that they would volunteer free time to a group to the campaign. Additionally, the majority of the respondents felt negatively towards the three aforementioned actions.

Table 3.3: Percentage Distribution for Support for Political Action on Climate Change (All Sub-Samples)

Statement	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree	Mean	SD	N
Q08_01: I support political action on climate change through divestment from fossil fuel companies at post-secondary institutions	2.3	6.0	14.7	41.0	35.9	4.02	0.98	217
Q08_02: I would vote for divestment from fossil fuels on a school referendum	3.7	7.3	17.0	32.1	39.9	3.97	1.09	218
Q08_03: I would sign a petition endorsing divestment from fossil fuels	6.0	5.1	16.7	34.7	37.5	3.93	1.14	216
Q08_04: I would write letters to the authority power at my school advocating for fossil fuel divestment.	12.4	34.1	25.3	19.8	8.3	2.77	1.15	217
Q08_05: I would participate in a protest advocating for fossil fuel divestment	15.8	36.3	20.9	17.2	9.8	2.69	1.21	215
Q08_06: I would volunteer my free time with a group that was working to promote fossil fuel divestment	14.2	31.7	21.1	24.8	8.3	2.81	1.20	218
Q08_07: I would pay high tuition fees if it meant my institution would divest from fossil fuels	18.4	17.5	20.7	32.3	11.1	3.00	1.30	217

Represents distribution of moral frame response from individuals who were exposed to only economic frames, economic and moral frames, as well as those not exposed to any frames

3.2 Statistical Results: Multivariate Analyses

In this section the results from multivariate analyses will be examined. Tables 3.4, 3.5, 3.6, and 3.7 show a series of multiple regressions that statistically detail the support for political action on climate change given different framing. A statistical method of OLS multiple regression was used for the following models. This regression technique allowed additional blocks of analytically related variables to be added in with each model. This allows conceptually related variables to be entered simultaneously and in sequence. To begin control variables were entered, after which cultural worldview, then environmental values, and then framing scales were added. This technique was used through the data analysis to explore the relationships between these different blocks of variables, as well as amongst the variables themselves. This method allows one to see how each set of variables affects the dependent variables, support for climate action. A significant relation on the dependent variables given the independent variable was determined to be $p \leq 0.05$. Models also depict R^2 and Adjusted R^2 values. These values indicated the variation in the dependent variable given the independent variables.

The tables below explore the results from the regression analyses in further detail. The tables below present each step in adding in the different blocks of variables for each OLS regression analysis. This is presented to demonstrate how the significance of different independent variables change relative to the dependent variable with the addition of different elements into the model, culminating in the final regression model.

There are four tables included in the section below, one support for political action on climate change without frames included (Table 3.4), one with economic frames as an explanatory variable (Table 3.5), one with moral frames as an explanatory variable (Table 3.6),

and one with both economic and moral frames as explanatory variables (Table 3.7). The sample for each of these regressions is not the same. This is because different individuals were exposed to different frames (discussed in Chapter 2). Table 3.4, which evaluated support for political action without the inclusion of frames, includes data from all respondents, including those who were not exposed to any of the frames. The regression including economic frames (Table 3.5) as explanatory variables include data from respondents who were exposed to only economic frames, as well as respondents who were exposed to the questionnaire version with both economic and moral frames. Table 3.6 and 3.7, which include moral frames as explanatory variables, include data from respondents who received the questionnaire with both economic and moral frames. The values represented below are standard regression coefficients.

3.2.1 Support for Political Action on Climate Change

Table 3.4 shows the models (1 thru 5) relating to the relationship between the independent variables and the dependent variable support for political action on climate change. The independent variables that are included are the control variables of gender, Asian ethnicity dummy variable, knowledge of divestment, climate change belief scale, cultural worldviews, and environmental attitudes, but not framing variables (either moral or economic). The Asian ethnicity dummy variable was included where others were not because initial correlation tests showed strong, highly significant correlations between this variable, the dependent variable, as well as the independent variables relating to worldviews, beliefs, and attitudes. The other ethnicity variables showed no discernable relationship, and thus the research team decided to focus on the Asian ethnicity variable.

In model 1 only gender and ethnicity are entered. The gender dummy variable has a small positive, but still significant relationship with the dependent variable ($\beta = 0.195, p \leq 0.05$). There

is a negative but non-significant association between the Asian ethnicity dummy variable. However the model only explains about 3% of the variation in the dependent variable given the Adjusted R^2 value. In model 2 gender still has a positive significant relationship, with the coefficient value $\beta = 0.21$. There are no significant relationships with ethnicity or knowledge of divestment. The relationship with Asian ethnicity remains negative. This model still only explains a small amount of the variation in the dependent variable (Adjusted $R^2 = 0.04$). Model 3, which explains a much higher proportion of variation in the dependent variable, approximately 31% given the R^2 value, also shows a significant relationship between the independent variable belief in climate change and the dependent variable ($\beta = 0.53, p \leq 0.001$). The gender variable is no longer significant with the addition of the independent variable 'belief in climate change'. Essentially, the predictive value of the variable gender is not significant for political action when an individual's belief in climate change is considered. This is why the variable gender loses significance with the addition of the 'belief in climate change' independent variable. In model 4 both cultural worldview scales are added. There is no significant relationship with either of the scales and support for political action on climate change. There is still a significant positive relationship with the dependent variable and belief in climate change but the regression coefficient is lower ($\beta = 0.40, p \leq 0.001$).

In the final model, model 5, the independent variable measuring environmental attitudes is added. There still a significant, positive relationship between environmental attitudes as measured by the New Environmental Paradigm scale and 'support for political action' ($\beta = 0.18, p \leq 0.05$). There is also still a positive and significant relationship between belief in climate change and the dependent variable ($\beta = 0.312, p \leq 0.001$). The final model also has a high R^2

value. The model given this value explains approximately 37% of the variation in the dependent variable.

Table 3.4: Multiple Regression Predicting Support for Political Action on Climate Change – using standard regression coefficient (All Sub-Samples)

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Socio - demographic					
Gender (1 = female)	0.20*	0.21*	0.10	0.08	0.05
Ethnicity (Asian)	-0.13	-0.12	-0.08	-0.05	-0.03
Knowledge of Divestment	-	0.12	0.09	0.09	0.07
Belief in Climate Change	-	-	0.53***	0.40***	0.31***
Values, Attitudes, Beliefs					
Egalitarianism	-	-	-	0.18	0.17
Communitarianism	-	-	-	0.12	0.11
NEP	-	-	-	-	0.180*
R²	0.04	0.06	0.33	0.39	0.41
Adjusted R²	0.03	0.04	0.31	0.36	0.37
N	131	131	131	131	131

Note: – Variable not included in equation; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .005$

3.2.2 Support for Political Action on Climate Change mediated by Framing

The following section discusses the models that include the variables relating to framing. Table 3.6 shows a series of regression models leading to the effect of economic frames on support for political action. Table 3.6 lays out the results of the hierarchical regression relating moral frames to the dependent variable. Finally, Table 3.7 depicts the regressions that include the combined effects of both moral and economic frames relating to the divestment moment and their effect of support for political action relating to the fossil fuel divestment campaign.

Table 3.5 reviews the six models that comprise the hierarchical regression predicting support for climate action given the relation with control variables, mediating variables, and economic frames. In model 1 there are no significant relationships between the control variables gender and ethnicity, although the Asian ethnicity variable still has a negative relationship with the dependent variable. In model 2, knowledge of divestment is included. The new variable, as well as gender (female = 1, $\beta = 0.25$, $p \leq 0.05$), have significant positive relationships.

Knowledge of divestment has a beta of 0.25 at the 0.05 significance level. The model however only explains 6.5% of the variation in the dependent variable given the Adjusted R^2 value. In model 3, where belief in climate change is added, both gender and knowledge of divestment lose their significance. Belief in climate change has a positive relationship in predicting support for climate action ($\beta = 0.58$, $p \leq 0.001$). In model 4 the cultural worldview scales are included, neither of which are significant predictors of support for political action on climate change. However, belief in climate change remains significant ($\beta = 0.4$, $p \leq 0.001$), and knowledge of divestment becomes significant again ($\beta = 0.18$, $p \leq 0.05$). In the fifth model environmental attitudes are added. Both environmental attitudes ($\beta = 0.30$, $p \leq 0.01$) and the cultural worldview scale measuring communitarianism ($\beta = 0.26$, $p \leq 0.05$) have a significant

positive relationship with the dependent variable. This model predicts 55% of the variation in the dependent variable. In the final iteration of these hierarchical regression the economic frames scale is added to the model. In this model communitarianism ($\beta = 0.31, p \leq 0.01$), environmental attitudes ($\beta = 0.24, p \leq 0.05$), and economic frames ($\beta = 0.30, p \leq 0.001$) have a significant positive relationship with the dependent variable. Economic frames have the strongest predictive value, followed by communitarianism, and finally environmental attitudes as measured by the New Environmental Paradigm scale. This final model predicts over 55% of the variation in the dependent variable given its Adjusted R^2 value.

Table 3.6 reviews the regressions evaluating the predictive nature of the control variables, mediating variables, as well as moral framing in terms of support for political action in climate change. This hierarchical regression is comprised of six models. For the first four iterations of the models there are no significant relationships between the control variables and the dependent variable. In model 5 when the New Environmental Paradigm scale is added both this variables ($\beta = 0.35, p \leq 0.05$), and communitarianism ($\beta = 0.46, p \leq 0.05$) have a significant, positive association with the dependent variable. This model has an Adjusted R^2 value of 0.348, indicating that the model predicts approximately 35% of the variation in the dependent variable. The final step in this hierarchical regression adds the moral frames scale, which measures agreement with a set of moral framing strategies relating to divestment. In this model knowledge of divestment ($\beta = 0.36, p \leq 0.01$), communitarianism ($\beta = 0.47, p \leq 0.01$), and the moral frame scale ($\beta = 0.61, p \leq 0.001$) have strong positive relationships with support for political action. Moral frames have the strongest predictive value in this model, followed by communitarianism, and then knowledge of divestment. This model predicts approximately 60% of the variation in the dependent variable given the Adjusted R^2 value.

Table 3.5: Multiple Regression Predicting Support for Political Action on Climate Change for Sub-Sample 1 and 2 – using standard regression

coefficient

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Socio-demographic						
Gender (1 = female)	0.20	0.25*	0.12	0.14	0.10	0.17
Ethnicity (Asian)	-0.12	-0.08	-0.08	-0.02	0.01	-0.01
Knowledge of Divestment	-	0.245*	0.15	0.18*	0.14	0.14
Belief in Climate Change	-	-	0.58***	0.39***	0.22*	0.17
			-			
Values, Beliefs, Attitudes						
Egalitarianism	-	-	-	0.14	0.08	-0.04
Communitarianism	-	-	-	0.22	0.26*	0.32**
NEP	-	-	-	-	0.30**	0.24*
Economic Frames	-	-	-	-	-	0.30***
R²	0.05	0.10	0.41	0.49	0.54	0.60
Adjusted R²	0.02	0.07	0.07	0.44	0.49	0.55
N	81	81	81	81	81	81

Note: – Variable not included in equation; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .005$

Table 3.6: Multiple Regression Predicting Support for Political Action on Climate Change for Sub-Sample 2 – using standard regression coefficient

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Socio - demographic						
Gender (1 = female)	-0.04	0.01	-0.06	0.04	-0.01	0.12
Ethnicity (Asian)	-0.07	-0.03	-0.05	-0.01	-0.02	0.03
Knowledge of Divestment	-	0.31	0.17	0.24	0.19	0.36**
Belief in Climate Change	-	-	0.29	0.12	-0.01	-0.15
Values, Attitudes, Beliefs						
Egalitarianism	-	-	-	0.138	0.07	-0.16
Communitarianism	-	-	-	0.384	0.46*	0.47**
NEP	-	-	-	-	0.35*	0.12
Moral Frames	-	-	-	-	-	0.61***
R²	0.01	0.10	0.17	0.40	0.47	0.68
Adjusted R²	-0.05	0.03	0.07	0.27	0.35	0.60
N	40	40	40	40	40	40

Note: – Variable not included in equation; * $p \leq .05$; ** $p \leq .01$; * $p \leq .005$**

The final table in this chapter, Table 3.7, reviews a series of regression that were performed to evaluate the relationship between the control variables, the mediating variables, and both economic and moral frame scales. This hierarchical regression consists of a series of 7 regressions. In the first four regression models none of the control variables have significant relationships with the dependent variable. In the fifth model there is a significant relationship between the dependent variable and communitarianism ($\beta = 0.46, p \leq 0.05$), as well as environmental attitudes ($\beta = 0.35, p \leq 0.05$). In model 6 when the economic frames scale is added as a predictor environmental worldviews cease being significant. Communitarianism remains a significant predictor of support for political action ($\beta = 0.45, p \leq 0.05$), and economic frames has a significant relationship with the dependent variable as well ($\beta = 0.32, p \leq 0.05$). It is interesting to note that in this model the cultural worldview scale measuring communitarianism has a stronger predictive value than agreement with economic framing of divestment. In the final model, model 7, the moral frame scale is added as a predictive variable. In this final iteration knowledge of divestment becomes significant ($\beta = 0.33; p \leq 0.01$). Communitarianism remains significant and as a strong relationship with the dependent variable given the higher level of significance than the previous iteration ($\beta = 0.46, p \leq 0.01$). Agreement with moral framing relating to divestment also has a very strong positive, significant relationship with the dependent variable ($\beta = 0.55, p \leq 0.001$). Interestingly, agreement with economic frames relating to divestment loses significance with the addition of the moral frames scale. In other words, when an individual's agreement with moral frames is considered the predictive value of economic frames relative to support for political action on climate change is no longer significant. The ability of agreement with moral frames to predict support for political action on climate change

is stronger than that of the economic frames. This final model has an Adjusted R^2 of 0.60 indicating that the model explains approximately 60% of the variation in the dependent variable.

Table 3.7: Multiple Regression Explaining Support For Political Action on Climate Change for Sub-Sample 2 – using standard regression coefficient

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Socio-demographic							
Gender (1 = female)	-0.04	0.01	-0.06	0.04	-0.01	0.07	0.14
Ethnicity (Asian)	-0.07	-0.03	-0.05	-0.01	-0.02	0.17	0.04
Knowledge of Divestment	-	0.31	0.17	0.24	0.19	0.22	0.35**
Belief in Climate Change	-	-	0.29	0.12	-0.02	-0.06	-0.15
Values, Beliefs, Attitudes							
Egalitarianism	-	-	-	0.14	0.07	-0.01	-0.18
Communitarianism	-	-	-	0.38	0.46*	0.45*	0.46**
NEP	-	-	-	-	0.35*	0.28	0.11
Economic Frames	-	-	-	-	-	0.32*	0.14
Moral Frames	-	-	-	-	-	-	0.55***
R²	0.01	0.10	0.17	0.38	0.47	0.55	0.69
Adjusted R²	-0.05	0.03	0.07	0.27	0.35	0.43	0.60
N	40	40	40	40	40	40	40

Note: – Variable not included in equation; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .005$

Chapter 4: Discussion

The framework for this study is grounded in the following premises:

- Climate change is occurring and is a serious threat socially, economically, and environmentally. Mitigation policies will be needed to combat the deleterious effects associated with anthropogenic climate change. Politicians are motivated by reelection and thus public support of climate policy changes are essential.
- Peoples' perception and acceptance of evidence and arguments relating to climate change are effected by individual characteristics such as cultural worldviews, morality, and environmental attitudes.
- Certain methods of communicating climate change alienate groups of people depending on characteristics relating to worldviews, values, and attitudes. Finding a way to communicate climate change effectively could help in persuading people to support political action relating to climate change.

4.1 Predictor of Support for Climate Action Given Framing

Table 4.1 provides a brief summary of the study's hypotheses and the results given the regression analyses. The results from our analyses supported all hypotheses except hypotheses 3 relating to the effect of egalitarianism on support for political action on climate change. The implications of these results summarized in the table below will be detailed throughout the following subsections.

The first two hypotheses that we presented related to the support an individual lent to a frame, the content of the frame and its effect on political action on climate change.

Table 4.1: Summary of Main Findings of Hypothesized Variables

Hypothesis	Independent Variable	DV: Support for Political Action	Conclusion
H.1.A. Increased agreement with moral framing related to divestment will lead to increased support for political action	Moral frame scale	Significant	In regression analysis models with moral framing indicated that agreement of moral framing significantly predicts support for political action. Moral frames have a larger standard regression coefficient. Moral frames are then associated with support for political action on climate change H.1.A is supported.
H.1.B Increased agreement with economic framing related to divestment will lead to increased support for political action	Economic frame scale	Significant	In regression analysis models with economic framing indicated that agreement of moral framing significantly predicts support for political action. Economic frames have the largest standard regression coefficient. Economic frames are then associated with support for political action on climate change H.1.A is supported
H.2. Moral framing related to divestment will lead to higher support for political action than economic framing	Moral frame scale, economic frame scale	Significant	When both economic and moral frames were included in analysis moral frames had a higher level of significance than economic frames. When both frames are included moral frames and then associated with support for political action on climate change, H.2 is supported
H.3.A. Higher levels of egalitarianism will lead to greater support for political action	Egalitarian – hierarchical worldview scale	Not significant	None of the analyses indicated that egalitarianism had any effect on support for political action. H.3.A is not supported.
H.3.B. Higher levels of communitarianism will lead to great levels of support for political action	Communitarian – individualistic worldview scale	Significant	The models in which frames, both economic and moral were included, communitarianism had a significant predictive effect on support for political action. H.3.B is supported.
H.4. Higher pro-environmental worldviews as measured by the New Environmental Paradigm will lead to increase support for political action	New environmental paradigm scale	Significant	In models which moral framing was not included environmental worldviews were a significant predictor of support for political action on climate change. H.4 is supported in specific cases.

H₁: An individual who has higher agreement with divestment framing will be more likely to support political actions on climate change.

H₂: Moral frames will lead to greater support for political action than economic frames.

Both of these hypotheses were supported by the hierarchical regression. When evaluating the support for both economic and moral frames separately there was a significant effect of agreement with frames and support for political action on climate change. This finding is consistent with the theory that framing strategies that emphasize certain elements of an issue, can make certain aspects of an individual's perception more salient than others (Entman, 1993). Framing, in priming certain values, can influence the salience of these values. The significant predictive ability of economic and moral frames in regards to support for political action may be due to the effectiveness of these frames in priming people's values to be more receptive to support certain actions that the frames highlighted as necessary to contribute to the solution of climate change.

Interestingly, when including only economic frames in a regression model (Table 3.6) agreement with economic frames are a significant predictor of an individual's agreement to support political action on climate change. However, when moral frames are included in the regression the significance of economic frames becomes null and support of moral frames becomes a very significant predictor of support for political action. The economic frame independent variable loses significance because relative to the moral frames ability to predict support for political action on climate change it is not significant. We can then support hypothesis two in that moral frames lead to greater support than economic frames in predicting an individual's support for political action on climate change. This conclusion is in line with the theories that predict that morality is a key motivator in climate engagement and decision –

making (Feinberg & Willer, 2013; Gifford & Comeau, 2011). Morality, in these theories, influences our values. Values, in turn, are what people use in order to make difficult decisions involving trade-offs. Moral pleas then are more likely to garner support for political action because they relate directly to our decision-making mechanisms.

Beyond this importance of morality in decision making past studies by Leiserowitz have also shown how affect and imagery can influence the way an individual supports policy (Anthony Leiserowitz, 2006). Affect in this study is conceptualized as the “good, bad, positive, or negative feelings about specific objects, ideas or images. Imagery refers to all forms of mental representation or cognitive content” (pg. 48). The strong predictive nature of moral frame support in relation to support for political action on climate change could be because moral frames incite greater ‘feelings’ than do economic frames. At the same time, economic frames when supported by the public can still predict support for political action on climate change, but they may generate less emotionality, which could be the reason for the differing effects of economic and moral frames on support for political action on climate change. This conclusion is in line with the theory that because morality plays such an important role in the determination of our attitudes it can be used as a powerful tool of persuasion (Feinberg & Willer, 2013). These results also lend support to the suggestion put forth by Markowitz that message framing on climate change appeal to morality to incentivize climate action (Graham, Haidt, & Nosek, 2009; Haidt et al., 2009; Markowitz & Shariff, 2012).

Hypotheses three and four both aimed to test the effects of cultural worldviews on frame support and support for political action respectively. The egalitarian-hierarchical and communitarian-individualistic scales developed by Mary Douglas (1982), and employed by both Wildvsky and Kahan amongst others, were used as a measurement of these cultural worldviews.

It was posited that individuals who held egalitarian-communitarian worldview would be more likely to support divestment frames, as well as political action on climate change, when compared to individuals with more hierarchical-individualistic worldviews due to the cultural theory of risk perception.

The element of the hypothesis relating to communitarianism and support for political action was supported by the analyses. Alternatively, the element relating to egalitarianism and support for political was not demonstrated to be significant in any of the analyses. While individuals more predisposed to communitarianism (in contrast to individualism) were more likely to support political action on climate change in systems with both economic and moral frames, egalitarianism was not a significant predictor of support for frames or political action in any model. Additionally, neither of the worldviews were predictors of support for political action on climate change when framing scales (both economic and moral) were not included in the models (Table 3.5). There was no significant effect on political action or support of frames when the two worldviews were combined into one orthogonal scale.

The differing predictive value of egalitarianism and communitarianism is an interesting finding. The outcome may be due to the nature of the issue that was presented before the series of queries relating to support for political action on climate change. The communitarian – individualistic worldview relates to how important a person views their group (Douglas, 1970). Individuals who are more communitarian in their worldviews depend and value their social group to a larger extent. The egalitarian – hierarchical worldview, or grid, relates to how an individual conceptualizes society as being organized. These cultural worldviews relate to differing risk perceptions. Individuals with different worldviews register risk differently given what they value (Anthony Leiserowitz, 2006). The frames that were presented in this study, both

economic and moral, have the ability to relate to a greater extent to the communitarian worldview given the issues focus of collective action, which is a motivating factor for communitarian worldviews. Thus when asking people their level of support for actions related to working in concert or collectively with others it follows that people that prize their community to higher levels would be more in likely to support these actions.

Previous studies have found significant differences between the predictive values of egalitarianism and communitarians in support for framing and policy action across different issues (Kahan, 2010; Nan & Madden, 2013). In one study it was found that the egalitarianism had a greater predictive ability on policy support relating to sexually transmitted diseases because the issue itself is considered more of an individual's responsibility, rather than a community one. In a similar fashion communitarianism could have a greater ability to predict support for political action on climate, especially those concerning divestment, because the issue is heavily entrenched in community effects and action. Furthermore, Wildavsky and Dake (1990) demonstrated that persons with more communitarian worldview, support actions that emphasize collective action more heavily. This finding is consistent with the findings from this study in which we used divestment, a collective action measure, as a case study to measure the influence of individual characteristics on both frame support and support for political action relating to climate change. This strong collective action nature of divestment could be why the egalitarian – hierarchical worldview was not strongly tied to frame and political action support. Interestingly, when observing effects of worldviews on support for divestment frames there is no significant predictive value associated with egalitarianism. Egalitarianism has been tied to the desire of to have “an equitable distribution of resources”, irrespective of one's social or cultural group (Corner et al., 2014). Some of the divestment framing strategies revolve around the theme

of it being unjust to benefit from the profit of an activity that disadvantages those who live elsewhere, or who will live in the future. It could be that this lack of effect is due to the collective nature of divestment as a strategy (as mentioned above), or that the diversity of frames presented led the effects of the frames that emphasized egalitarian values to become negligible.

In a similar vein, it is interesting to see the significance of communitarianism as a predictor to support for political action increases when we include economic frames in the model (Table 3.6). This relationship could be the outcome of the content of the economic frames. Communitarians, in past studies, have been measured to be more likely to support solutions to climate change that restrain free-market, such as the control on industry, whereas the opposing cultural worldview favour free-market solutions, such as nuclear power and investment in research and development (Corner et al., 2014; Kahan et al., 2012). The economic divestment frames presented to individuals in this study emphasized the failure of the free-market to encompass environmental externalities associated with fossil fuel exploitation. It is thus plausible to posit, given the preference of communitarian worldviews for free-market restraint, that the economic frames enhance the effect of communitarianism. Intriguingly though, there were two frames that highlighted economic actions that favour individualistic preferences (free – market and investment in research and development). It could be in this case that the stronger representation of economic frames that appeal to individuals with communitarian values outweighed any effect of the frames appeal to alternative cultural worldviews.

The fourth hypotheses posited that individuals with higher scores on the new environmental paradigm scale would be more likely to agree with the divestment framing, and more likely to support associated political action. Only several of the models support this hypothesis however. When moral framing is included in the analysis environmental worldviews

are not a significant predictor of increased support for political action. Higher new environmental paradigm scales were predictive of greater support for political action on climate change when considered without framing, and when considered with economic frames.

The issue presented in this study, climate change through the case of divestment, is a global environmental issue. Higher scores on the NEP scale indicate pro-environmental worldviews, which would indicate such individuals have a proclivity to possess pro-environmental values. Thus it follows that frames that refer to measures that could possibly diminish the negative effect of climate change, or actions that relate to pro-environmental behaviour; would resonate more strongly with individuals who already have pro-environmental values. Framing is an effective communication tool when it connects to peoples' values (Roser-Renouf et al., 2014). Frames speaking to the issues associated to climate change are therefore likely to strongly resonate with individuals who have scored high on the NEP, which explains the significant predictive ability of the NEP scale in this study.

It is also interesting to note that our results demonstrated that that the higher the costs of the political action the less willing individuals would be to support an action. This conclusion was supported by descriptive statistics. There is a distinctively higher support for general support of the campaign, voting in favour of the campaign, and signing a petition for the campaign. This is in comparison to the lower support (disagreement) for political actions with higher resource commitments such as writing letters, participating in a protest, or volunteering free time with the campaign. What is remarkable with these results is that, in general, there is greater support to pay higher fees to have their institution divest than there is to support political actions that required a larger time commitment.

4.2 Limitations

4.2.1 The Sample

There are several limitations when reviewing the sample used in this research. First, the responses rates overall were low. Generally, a higher response rate would be favourable. However, as previously mentioned, the response rates for online surveys have declined in recent years due to the bombardment of such requests via email. Additionally, due to the privacy nature of student emails no personal contact between the head researcher and the participants was allowed. The participation emails had to be sent via an administrator or gatekeeper within the faculty at each given institution. This impersonal communication strategy likely did not help foster a higher response rate. Alternatively, some universities that participated had higher and more favourable response rates, UBC and McGill specifically. Other universities brought down the overall response rate, specifically Queen's, where the response rate was extremely low. Since a low proportion of the sample completed the survey the ability to generalize the results is diminished.

We posited several reasons for this low response rate, and discussed possible effects on the results of the study. The nonresponse in the study, both in general and to certain items, could cause problems with the generalizability of our results. However, as stated above, it was not the priority of the study to generalize to the larger population. Nonetheless, the nonresponse could cause issues with coverage and measurement, and produce sampling errors. In the future, errors produced from item non-response could be mitigated by performing the analyses with missing data programs. The resampling method of bootstrapping could be used to counter some of the issues posed the low response rate. This technique may not address the coverage errors from low

response rate but, by establishing the distribution for the small sample, could provide some solutions to any statistical issues created by the low response rate.

Second, the sample was from a student population, which is often seen as been a poor sample from which to generalize results. However, as discussed in the methodology chapter, there have been multiple studies that have used student populations for their sample (Druckman, 2001a; Nan & Madden, 2013; Nelson & Oxley, 1999). Furthermore, even though it is important to consider possible effect of such a population researchers have previously espoused that no significant difference should exist between student populations and other adult population (Nan & Madden, 2013; Shapiro, 2002)

4.2.2 The New Environmental Paradigm Scale

The New Environmental Paradigm scale was a key measure in gauging individual's environmental attitudes. The scale, widely use and highly regarded in most instances, has several variation whose effect cannot go unstated (Dunlap, 2008; Hawcroft & Milfont, 2010).

Furthermore, we need to elaborate on the difference between reported attitudes and registered behaviours relating to the scale.

The New Environmental Paradigm scale use in this study was a shortened version used by Tindall in an environmental sociology study. The version did contain both positive and negatively framed items and had high internal consistency. However, it was a shortened version of the scale, which in some past research has not resulted in as high internal consistency as longer versions of the scale (Hawcroft & Milfont, 2010). The shortened version of the scale was used to decrease the length of the questionnaire and to encourage a higher response rate. Furthermore, the scale measured only four of the five facets in the revised New Environmental

Paradigm scale. The facets that were included were those facets, such as the eco-crisis that are often the elements of the scale that have the largest impact on individual outcomes.

4.2.3 Framing Dynamics

A final limitation that needs to be addressed is the choice of frames that were used in this study and their content. The links between framing and political action, and the limitation of relationship between these two variables, must be expanded.

Framing and personal characteristics were presented in this study as the only mediating factors on support for political action on divestment. In reality the links between framing and political action is much more muddled. Importantly to note, it is not only the content of the frame and its links to individuals' values that are important. Other variables in framing such as the person who delivers the frame and the medium through which the frame is delivered may effect reception of a framing strategy (Entman, 1993). For example, the credibility placed in an elite within a policy arena may affect the support of a frame (Chong & Druckman, 2007). The form of media that is used to communicate to the public could also affect their support of certain frames (Entman, 2007; Nisbet & Scheufele, 2009; Scheufele, 1999);Tindall, unpublished). Furthermore framing is not one-dimensional; there is frequently more than one accepted frame for a particular issue (Benford, 1997). In a similar vein the support of a frame may be affected by other frames that are present within the system and that are competing for support (Druckman, 2001b).

Moreover, it is often assumed in framing studies that the public or those receiving the frame are puppets to be manipulated by which ever frame is presented to them (Sniderman & Theriault, 1999). This is a simplistic view of framing dynamics. As Druckman has stated in his research, framing is not “a freewheeling exercises in manipulation” (Druckman, 2001a). The public are capable of evaluating frames, and discussing them, even if they are complex issues in

which they have limited experience (Druckman, 2004; Pidgeon et al., 2014; Vliegenthart & van Zoonen, 2011). It is essential to remember that members of the public are not mindless receivers of frames, that there are social dynamics and effects that are not taken into account in this experiment.

This study does not evaluate the social context in which the frame is presented, a significant limitation which is often seen as a common flaw in framing research (Corner et al., 2014). There are multiple spaces where actors involved in the climate change debate discuss the issues, with each of these arenas having the ability to influence and shape understanding and engagement on the issue (Stoddart & Tindall, 2015). Further, this study does not adequately evaluate the confounding effect extraneous social factor may have. The social context, and the dynamics within this context could alter the content of the frame and its perception, leading to different levels of support. These inputs and their effects were not measured in this study.

Finally, it should be noted that the individuals most likely to participate in this study, and similar ones, might be those that are already pre-disposed to strong feelings relating to climate action. This would reduce the applicability of the findings of the study since the variation in the response of different groups would likely be less in a sample skewed towards a pre-disposition in climate change (Nisbet & Scheufele, 2009). Although existing awareness and knowledge of divestment were measured in this study, the respondents were not assessed for their previous engagement in climate change or the divestment campaign.

4.3 Future Research Possibilities

The findings from this research could not only lead to a contribution to the fields of communication science, political science, psychology, and sociology, but could also help organizations in motivating support for political action on climate change. Regardless, there are

several possibilities for expanding the scope and content of this research that could lead to a higher magnitude of contribution.

First, improvements could be made relating to the population. Since the sampling frame of elite post-secondary institutions may not be considered representative of the general population, a future study could examine the same phenomena but within the general population. In a similar vein, studies such as this should be conducted across national boundaries. Also, as an issue climate change has global consequences. Thus, since climate change governance involves countries from around the globe, it will be essential to understand citizens' perceptions of climate change relating to their values and worldviews, and how these perceptions influence political decisions at both domestic and international scales.

Second, divestment is a particular solution to decreasing the use of fossil fuels, and even respondents who support political action on climate change may not support the idea of divestment. Multiple pathways are available to mitigate and adapt to climate change. Previous studies have already demonstrated that individuals with different worldviews have different preferences and perceptions when it comes to mitigation and adaptation strategies. The effects of climate change stem primarily from our use of fossil fuels (IPCC, 2014), which makes the perception and support of different energy technologies extremely relevant. Therefore, we propose that future research employ a similar design that measures values, worldviews, and attitudes and then measures perceptions of possible mitigation and adaptation strategies, and how this perception could be altered by social marketing. If we could further understand how preference regarding mitigation and adaptation strategies is related to individual values and framing there could be a way to encourage greater public support for these strategies, which

could then lead to policy change that supports mitigation and adaptation strategies that resonates with the public.

Third, this study only presented moral and economic frames that have been created and disseminated by those involved in the divestment campaign. Future research could include a qualitative component in which interviews are conducted to understand what peoples' mental models are relating to different aspects of climate change. The mental models that emerge has dominant after qualitative interviews could then be used as the climate change frames that individuals are asked to respond to in a questionnaire. This would ensure that the support of frames does not only include the frames created by elites but the frames and conceptualizations that are held and circulated amongst the public.

Finally, future studies should better assess how the social context affects support of frames and political action of climate change (whether adaptive or mitigating). Understanding how the perception of climate change and support for related policies changes within and between groups will be essential for mobilizing larger segments of the population. Efforts should be made to understand how climate change framing is altered by the media, and how different groups involved in the climate change debate shape the discussion and perception of the issue. This could be done by conducting a content analysis on releases (whether written or spoken) from decision making bodies relating to climate change, and then comparing it to the frames and discussions circulated by dominant media sources. After this, the manner in which the perception of frames that were extracted from both the content analyses could be analyzed differs among groups involved in climate change debates and discussions could be evaluated.

4.4 Conclusion

This study builds on the literature related to psychological and sociological barriers to climate change, as well as that of agenda-setting and public opinion. By examining how individuals respond to different frames, and how these frames affect support for political action on climate change there is hope that the findings from this study contribute not only to the relevant fields of study, but also help climate action groups bridge the communication gap between different groups in the general population. By bridging this gap we hope that a larger portion of the population could be mobilized on climate change, which could then increase the political pressure on decision makers to produce ameliorative climate policies.

The results from our research produced several important findings that we hope will translate into increased effectiveness in mobilizing citizens. First, we found that although economic frames were predictive of higher support for political action relating to divestment, when moral frames were included in the system they became a more significant predictor of political action. Thus, moral framing was more effective at stimulating support for political action than economic framing. Second, we found that relating to worldviews, communitarianism was a significant predictor of support for political action, while egalitarianism was not. Third, environmental attitudes were a significant predictor of acceptance of support for political action when framing was not included in the system, and when economic frames were included in the model. Environmental worldviews were not significant when moral frames were included. Finally, there was an interesting relationship between supports for political actions with low time commitment compared to those with a higher time commitment. Less intensive actions, such as signing a petition and voting, were favoured over time intensive activities, such as protesting or writing letters.

Bibliography

- Ansar, A., Caldecott, B., Tilbury, J. (2013). *Stranded assets and the fossil fuel divestment campaign: what does divestment mean for the valuation of fossil fuel assets?* Smith School of Enterprise and the Environment. Stranded Assets Programme.
- Babbie, E.R. (1992). *The practice of social research*. Belmont, California: Wadsworth Pub. Co
- Babbie, E., Benaquisto, L. (2013). *Fundamentals of Social Research, Third Canadian Edition*. Nelson Education
- Baumgartner, F.R., Jones, B.D. (2009). *Agendas and Instability In American Politics* (2ed). Chicago, Il: The University of Chicago Press
- Baruch, Y. (1999). Response Rate in Academic Studies - A Comparative Analysis. *Human Relations*, 53(4), 412–438.
- Benford, R. D. (1997). An Insider's Critique of the Social Movement Framing Perspective. *Sociological Inquiry*, 67(4), 409–430.
- Benford, R. D., & Snow, D. A. (2000). Framing Processes and Social Movements: An Overview and Assessment. *Annual Review of Sociology*, 26, 611–639.
- Bertolotti, M., & Catellani, P. (2014). Effects of message framing in policy communication on climate change. *European Journal of Social Psychology*, 44(5), 474–486.
doi:10.1002/ejsp.2033
- Boyer, L. (2009, May 13). *Student Satisfaction Surveys and Nonresponse: Ignorable Survey, Ignorable Nonresponse*. University of Waterloo, Waterloo, Ontario.
- Brown, K. W., & Kasser, T. (2005). Are Psychological and Ecological Well-Being Compatible? The Role of Values, Mindfulness, and Lifestyle. *Social Indicators Research*, 74(2), 349–368.
doi:10.1007/sl
- Buttery, J. (2013). No Rest Until We Divest. *The Journal - Queen`s University*. Accessed from <http://queensjournal.ca/story/2013-10-29/opinions/no-rest-until-we-divest/>
- Chong, D., & Druckman, J. N. (2007). Framing Theory. *Annual Review of Political Science*, 10(1), 103–126. doi:10.1146/annurev.polisci.10.072805.103054
- Corner, A., Markowitz, E., & Pidgeon, N. (2014). Public engagement with climate change: the role of human values. *Wiley Interdisciplinary Reviews: Climate Change*, 5(3), 411–422.
doi:10.1002/wcc.269
- Cook, J. (2013). The Scientific Consensus on Climate Change. *Europhysics News*, 44(6), 29 - 32

- Deci, E. L. (1971). Effects of Externally Mediated Rewards on Intrinsic Motivation. *Journal of Personality and Social Psychology*, 18(1), 105–115.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation. *Psychological Bulletin*, 125(6), 627–668.
- Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental Values. *Annual Review of Environment and Resources*, 30, 335–372. doi:10.1146/annurev.energy.30.050504.144444
- Divest McGill. (n.d.) Our Campaign. Accessed from <http://divestmcgill.com/about/our-campaign/>
- Divest McGill. (2013). The Social Injury Caused by the Exploitation of the Tar Sands and Fossil Fuels. Accessed from <http://divestmcgill.com/wp-content/uploads/2013/02/Fossil-Fuel-Brief.pdf>
- Divest McGill. (2015). Carbon At All Costs: The Fossil Fuel Industry and the Case for Divestment. Accessed from http://divestmcgill.com/wp-content/uploads/2015/02/Feb2015_CAMSR_Submission_Brief.pdf
- Doppelt, B., Huber, K., Mazze, S., & Stockard, J. (2013). *Assessment of the Status and Potential for Growing the Moral Movement on Climate Disruption* (pp. 1–37). The Resource Innovation Group.
- Douglas, M. (1970). Grid and Group. In *Natural Symbols: explorations in cosmology* (pp. 57–71). London, England: Barrier & Rockliff.
- Druckman, J. N. (2001a). The Implications of Framing Effects for Citizen Competence. *Political Behaviour*, 23(3), 225–256.
- Druckman, J. N. (2001b). On the Limits of Framing Effects: Who can Frame? *The Journal of Politics*, 63(4), 1041–1066.
- Druckman, J. N. (2004). Political Preference Formation: Competition, Deliberation, and the (Ir)relevance of Framing Effects. *The American Political Science Review*, 98(4), 671–686.
- Druckman, James N., and Cindy D. Kam. 2009. “Students as Experimental Participants: A Defense of the ‘Narrow Data Base’.” *SSRN eLibrary*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1498843.
- Dunlap, R. E. (1975). The Impact of Political Orientation On Environmental Attitudes and Actions. *Environment and Behavior*, 7(4), 428–454. doi:10.1177/001391657500700402
- Dunlap, R. E. (2008). The New Environmental Paradigm Scale: From Marginality to Worldwide Use. *The Journal of Environmental Education*, 4(1), 3–18.

- Dunlap, R. E. (2013). Climate Change Skepticism and Denial: An Introduction. *American Behavioral Scientist*, 57(6), 691–698. doi:10.1177/0002764213477097
- Entman, R. M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, 43(51-58), 1–8.
- Entman, R. M. (2007). Framing Bias: Media in the Distribution of Power. *Journal of Communication*, 57(1), 163–173. doi:10.1111/j.1460-2466.2006.00336.x
- Entman, R. M. (2010). Media framing biases and political power: Explaining slant in news of Campaign 2008. *Journalism*, 11(4), 389–408. doi:10.1177/1464884910367587
- Environmental Justice Foundation. (2009). *No Place Like Home* (pp. 1–28). London, England: Environmental Justice Foundation.
- Feinberg, M., & Willer, R. (2013). The Moral Roots of Environmental Attitudes. *Psychological Science*, 24(1), 56–62. doi:10.1177/0956797612449177
- Fielding, K. S., Hornsey, M. J., & Swim, J. K. (2014). Developing a social psychology of climate change. *European Journal of Social Psychology*, 44(5), 413–420. doi:10.1002/ejsp.2058
- Gamson, W. A., & Modigliani, A. (1989). Media Discourse and Public Opinion on Nuclear Power: A Constructionist. *American Journal of Sociology*, 95(1), 1–37.
- Gardiner, S. M. (2010). Ethics and climate change: an introduction. *WIREs Climate Change*, 54–66. doi:10.1002/wcc.016
- Gastil, J., Braman, D., Kahan, D., & Slovic, P. (2011). The Cultural Orientation of Mass Political Opinion. *PS: Political Science & Politics*, 44(04), 711–714. doi:10.1017/S1049096511001326
- Gifford, R., & Comeau, L. A. (2011). Global Environmental Change. *Global Environmental Change*, 21(4), 1301–1307. doi:10.1016/j.gloenvcha.2011.06.004
- Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, 96(5), 1029–1046. doi:10.1037/a0015141
- Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of Personality and Social Psychology*, 101(2), 366–385. doi:10.1037/a0021847
- Gross, J. L., & Rayner, S. (1985). *Measuring culture : A paradigm for the analysis of social organization*. New York: Columbia University Press.

- Groves, R. M. (1989). *Survey errors and survey costs*. New York: Wiley and Sons.
- Guy, S., Kashima, Y., Walker, I., & O'Neill, S. (2014). Investigating the effects of knowledge and ideology on climate change beliefs. *European Journal of Social Psychology*, *44*(5), 421–429. doi:10.1002/ejsp.2039
- Haidt, J. (2007). The New Synthesis in Moral Psychology. *Science*, *316*(5827), 998–1002.
- Haidt, J., Graham, J., & Joseph, C. (2009). Above and Below Left–Right: Ideological Narratives and Moral Foundations. *Psychological Inquiry*, *20*(2-3), 110–119. doi:10.1080/10478400903028573
- Harrison, K. (2012). A Tale of Two Taxes: The Fate of Environmental Tax Reform in Canada. *Review of Policy Research*, *29*(3), 383–407. doi:10.1111/j.1541-1338.2012.00565.x
- Harrison, K., & Sundstrom, L. M. (2010). Introduction: Global Commons, Domestic Decisions. In *Global Commons, Domestic Decisions: The Comparative Politics of Climate Change* (pp. 1–22). Cambridge, Massachusetts: Massachusetts Institute of Technology Press.
- Hawcroft, L. J., & Milfont, T. L. (2010). Journal of Environmental Psychology. *Journal of Environmental Psychology*, *30*(2), 143–158. doi:10.1016/j.jenvp.2009.10.003
- Hoonakker, P., & Carayon, P. (2009). Questionnaire Survey Nonresponse: A Comparison of Postal Mail and Internet Surveys. *International Journal of Human-Computer Interaction*, *25*(5), 348–373. doi:10.1080/10447310902864951
- Huttunen, S., & Hilden, M. (2014). Framing the Controversial: Geoengineering in Academic Literature. *Science Communication*, *36*(1), 3–29. doi:10.1177/1075547013492435
- Initiative, C. T. (2013). *Unburnable Carbon 2013* (pp. 1–40). Carbon Tracker Initiative.
- International Energy Agency. (2013). *Redrawing the Energy-Climate Map*. International Energy Agency (pp. 1–134). International Energy Agency.
- IPCC. (2007). *Climate Change 2007: Synthesis Report*. (L. Bernstein, P. Bosch, O. Canziani, Z. Chen, R. Christ, O. Davidson, et al., Eds.) (pp. 1–52). IPCC.
- IPCC. (2013). Summary for Policy Makers. In T. F. Stocker, D. Qin, K. Plattner, M. M. B. Tignor, S. K. Allen, J. Boschung, et al. (Eds.), *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 1–33). Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.
- IPCC. (2014). IPCC 2014: Summary for Policymakers. In O. Edenhofer, R. Pichs Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, et al. (Eds.), *Climate Change 2014, Mitigation of Climate Change* (pp. 1–33). Cambridge, United Kingdom and New York, NY, USA:

Cambridge University Press.

Jamieson, D. (2009). Climate Change, Responsibility, and Justice. *Science and Engineering Ethics*, 16(3), 431–445. doi:10.1007/s11948-009-9174-x

Jones, M. D., & Mcbeth, M. K. (2010a). A Narrative Policy Framework: Clear Enough to Be Wrong? *The Policy Studies Journal*, 38(2), 329–353.

Jones, M. D., & Mcbeth, M. K. (2010b). A Narrative Policy Framework: Clear Enough to Be Wrong? *The Policy Studies Journal*, 38(2), 329–353.

Kahan, D. (2010). Fixing the communications failure. *Nature*, 463(7279), 296–297. doi:10.1038/463296a

Kahan, D. (2014). Climate Science Communication and the Measurement Problem. *Advances Pol. Psych.*, 1–49.

Kahan, D. M. (2013). *Evidence-Based Climate Communication*. (M. Boycoff & S. Crow, Eds.) (pp. 1–19). New York, NY: Routledge Press.

Kahan, D. M., braman, D., Gastil, J., Slovic, P., & Metz, C. K. (2007). Culture and Identity-Protective Cognition: Explaining the White Male Effect in Risk Perception. *Journal of Empirical Legal Studies*, 4(3), 465–505.

Kahan, D. M., peters, E., braman, D., Slovic, P., Wittlin, M., ouellette, L. L., & mandel, G. (2014). *The Tragedy of the Risk-Perception Commons: Culture Conflict, Rationality Conflict, and Climate Change* (pp. 1–31). Cultural Cognition Project (Working Paper No. 89).

Kahan, D. M., peters, E., Wittlin, M., Slovic, P., ouellette, L. L., braman, D., & mandel, G. (2012). The polarizing impact of science literacy and numeracy on perceived climate change risks. *Nature Climate Change*, 2(10), 732–735. doi:10.1038/nclimate1547

Kahneman, D. (2003). Maps of bounded rationality: Psychology for behavioral economics. *Am. Econ. Rev.* 93, 1449–1475.

Kahneman, D., Tversky, A., 1984. Choices, values, and frames. *American Psychologist* 39, 341–350.

Klandermans, B. (1984). Mobilization and Participation: Social - Psychological Expansions of Resource Mobilization Theory. *American Sociological Review*, 49(5), 583–600.

Klandermans, B. (1987). Potentials, Networks, Motivations, and Barriers: Steps Towards Participation in Social Movements. *American Sociological Review*, 519–531.

Lee, M., & Ellis, B. (2013). *Canadas Carbon Liabilities* (pp. 1–58). Vancouver, BC: Canadian

Center for Policy Alternatives.

- Leiserowitz, Anthony. (2006). Climate Change Risk Perception and Policy Preferences: The Role of Affect, Imagery, and Values. *Climatic Change*, 77(1-2), 45–72. doi:10.1007/s10584-006-9059-9
- Leroux, C. (2015). Divestment Committee Invites Comments. *Queen's Gazette*. Accessed from <http://www.queensu.ca/gazette/stories/divestment-committee-invites-comments>
- Markowitz, E. M., & Shariff, A. F. (2012). Climate change and moral judgement. *Nature Climate Change*, 2(4), 243–247. doi:10.1038/nclimate1378
- Miller, C. A. (2000). The Dynamics of Framing Environmental Values and Policy: Four Models of Societal Processes. *Environmental Values*, 9(2), 211–233.
- Morton, T. A., Rabinovich, A., Marshall, D., & Bretschneider, P. (2010). Global Environmental Change. *Global Environmental Change*, 21(1), 103–109. doi:10.1016/j.gloenvcha.2010.09.013
- Moser, S. C. (2010). Communicating climate change: history, challenges, process and future directions. *WIREs Climate Change*, 1, 31–53. doi:10.1002/wcc.011
- Nan, X., & Madden, K. (2013). The Role of Cultural Worldviews and Message Framing in Shaping Public Opinions Toward the Human Papillomavirus Vaccination Mandate. *Human Communication Research*, 40(1), 30–53. doi:10.1111/hcre.12016
- Nelson, T. E., & Oxley, Z. M. (1999). Issue Framing Effects on Belief Importance and Opinion. *The Journal of Politics*, 61(4), 1040–1067.
- Nisbet, M. C. (2009). Communicating Climate Change. *Environment*, 51(2), 12–23.
- Nisbet, M. C., & Mooney, C. (2007). SCIENCE AND SOCIETY: Framing Science. *Science*, 316(5821), 56–56. doi:10.1126/science.1142030
- Nisbet, M. C., & Scheufele, D. A. (2009). What's next for science communication? Promising directions and lingering distractions. *American Journal of Botany*, 96(10), 1767–1778. doi:10.3732/ajb.0900041
- Pidgeon, N. (2012a). Public understanding of, and attitudes to, climate change: UK and international perspectives and policy. *Climate Policy*, 12, 86–106. doi:10.1080/14693062.2012.702982
- Pidgeon, N. (2012b). Climate Change Risk Perception and Communication: Addressing a Critical Moment? *Risk Analysis*, 32(6), 951–956. doi:10.1111/j.1539-6924.2012.01856.x
- Pidgeon, N. F., Lorenzoni, I., & Poortinga, W. (2008). Climate change or nuclear power—No

- thanks! A quantitative study of public perceptions and risk framing in Britain. *Global Environmental Change*, 18(1), 69–85. doi:10.1016/j.gloenvcha.2007.09.005
- Pidgeon, N., Demski, C., Butler, C., Parkhill, K., & Spence, A. (2014). Creating a national citizen engagement process for energy policy. *Proceedings of the National Academy of Sciences*, 111(Supplement_4), 13606–13613. doi:10.1073/pnas.1317512111
- Poortinga, W., Spence, A., Whitmarsh, L., Capstick, S., & Pidgeon, N. F. (2011). Global Environmental Change. *Global Environmental Change*, 21(3), 1015–1024. doi:10.1016/j.gloenvcha.2011.03.001
- Pralle, S., & Boscarino, J. (2001). Framing Tradeoffs: The Politics of Nuclear Power and Wind Energy in the Age of Global Climate Change. *Review of Policy Research*, 28(4), 323–346.
- Rayner, S. (1992). Cultural theory and risk analysis. In S. Krimsky, & D. Goldin (Eds.), *Social theories of risk*
- Rosen, J. (2015). Queen's Look at Divestment. *The Journal: Queen's University*. Accessed from <http://queensjournal.ca/story/2015-02-06/news/ams-explore-fossil-fuel-divestment/>
- Roser-Renouf, C., Maibach, E. W., Leiserowitz, A., & Zhao, X. (2014). The genesis of climate change activism: from key beliefs to political action. *Climatic Change*, 125(2), 163–178. doi:10.1007/s10584-014-1173-5
- Sears, David O. 1986. “College Sophomores in the Laboratory: Influences of a Narrow Data Base on Social Psychology’s View of Human Nature.” *Journal of Personality and Social Psychology* 51 (3): 515–530
- Shapiro, M. A. (2002). Generalizability in communication research. *Human Communication Research*, 28, 491–500
- Scheufele, D. A. (1999). Framing as a Theory of Media Effects. *Journal of Communication*, 103–122.
- Shen, F., & Edwards, H. H. (2005). Economic Individualism, Humanitarianism, and Welfare Reform: A Value-Based Account of Framing Effects. *Journal of Communication*, 795–809.
- Shih, T. H., & Xitao Fan. (2008). Comparing Response Rates from Web and Mail Surveys: A Meta-Analysis. *Field Methods*, 20(3), 249–271. doi:10.1177/1525822X08317085
- Smith, N., & Leiserowitz, A. (2014). The Role of Emotion in Global Warming Policy Support and Opposition. *Risk Analysis*, 34(5), 1–12. doi:10.1111/risa.12140
- Sniderman, Paul M., Brody, Richard A., Tetlock, Philip E. (1991). *Reasoning and Choice Exploration in Political Psychology*. Cambridge: Cambridge University Press.
- Spence, A., Poortinga, W., Pidgeon, N., & Lorenzoni, I. (2010). Public Perceptions of Energy

- Choices: The Influence of Beliefs About Climate Change and the Environment. *Energy and Environment*, 21(5), 385–407.
- Stoddart, M. C., & Tindall, D. B. (2015). Canadian news media and the cultural dynamics of multilevel climate governance. *Environmental Politics*, 24(3), 401-422.
- Sunstein, C. R. (2007). On the divergent American reactions to terrorism and climate change. *Columbia L. Rev.* 107, 503–557
- Thompson, M., Ellis, R., & Wildavsky, A. B. (1990). *Cultural theory*. Boulder, Colo.: Westview Press.
- Tindall, D. B. (2002). Social Networks, Identification and Participation in an Environmental Movement: Low-medium Cost Activism within the British Columbia Wilderness Preservation Movement. *The Canadian Review of Sociology and Anthropology*, 39(4), 413–452.
- Toronto350.org. (n.d.) Divest U of T. Accessed from <http://www.toronto350.org/divest>
- Toronto350.org. (2014). The Fossil Fuel Industry and the Case for Divestment. Accessed from <http://www.uoftfacultydivest.com/files/fossil-fuel-divest.pdf>
- Toronto350.org. (2015). The Fossil Fuel Industry and the Case for Divestment: Update. Accessed from <https://d3n8a8pro7vhm.cloudfront.net/to350/pages/50/attachments/original/1428958642/fossil-fuel-divest-new.pdf?1428958642>
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science & Sports*, 211, 453–458.
- UBC C350. (n.d.). Divestment. Accessed from <http://www.ubcc350.org/divestment>
- UBC C350. (2014). Fossil Fuel Divestment at the University of British Columbia: A Responsible Investment Proposal. Accessed from https://d3n8a8pro7vhm.cloudfront.net/ubcc350/pages/43/attachments/original/1414421298/UBC_Fossil_Fuel_Divestment_-_Responsible_Investment_Proposal_October_27_2014.pdf?1414421298
- Vliegenthart, R., & van Zoonen, L. (2011). Power to the frame: Bringing sociology back to frame analysis. *European Journal of Communication*, 26(2), 101–115. doi:10.1177/0267323111404838
- Weber, E. U. & Stern, P. C. (2011). Public understanding of climate change in the United States. *Am. Psychol.* 66, 315–328
- Wilkes, R. (2015). Political Conflict Photographs and Their Keyword Texts. *Journalism Studies*,

1–27. doi:10.1080/1461670X.2015.1006908

Sunstein, C.R. (2007). *On the Divergent American Reactions to Terrorism and Climate Change*.
Columbia Law Review. 107: 503-557

Weber, E.U., Stern, P.C. (2011). *Public Understanding of Climate Change in the United States*.
Am. Psychologist. 66: 315-328Appendices

Appendices

Appendix A : Questionnaire

Effects of Framing on Support for Political Action on Climate Change

Introduction

This online survey is being conducted by a master's candidate at the University of British Columbia (UBC).

This research, "The Effects of Framing on Support for Political Action on Climate Change", studies how internal and external motivational frames of arguments related to fossil fuel divestment can affect an individual's support for the aforementioned campaign. The survey will ask demographic questions in addition to questions on political ideology, cultural identity, and environmental values. The survey will also include items that argue for fossil fuel divestment in either a moral or economic manner, and will conclude by asking about the respondent's support for the fossil fuel divestment campaign.

The principle investigator in this study is Ms. Gabrielle Schittecatte, a Master of Science candidate at the University of British Columbia. The supervisor for this Master's thesis is Dr. George Hoberg in the Faculty of Forestry at UBC. The co-investigator and committee member for this study is Dr. David Tindall in the Faculty of Forestry and Sociology at UBC.

The survey will take approximately 15-20 minutes.

Consent Form

Your participation in this survey is completely voluntary. You have the right to refuse to answer any question at any time. You may choose to not complete the questionnaire. You may also choose not to answer a question and move on to the next question. Your identity will be confidential and your answers will remain anonymous. Your completion of this survey indicates your consent to participate in this research.

Please print a copy of this consent form for your records.

Who can you contact if you have any questions or complaints about this study

Ms. Gabrielle Schittecatte, MSc candidate, telephone number is 604-358-8131. If you have any questions, comments, or concerns you may contact her by phone. You can call this number to confirm her identity. Alternatively you may contact by email at g.schittecatte@forestry.ubc.ca

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Services, at 604-822-8598 or toll free at 1-877-822-8598. You may also email the office at RJSL@ors.ubc.ca

Use of Information

The responses to the items in this questionnaire will be used for purposes of producing academic journal articles, and reports which may be available to the public. The information produced from this study will also be used for academic purposes for a student's (Gabrielle Schittecatte) Master's thesis.

The survey will be conducted through "FluidSurveys", a Canadian online survey software program. The data will be secured on their database during the data collection and analysis period of the research project but will be removed thereafter. The use of a Canadian software system ensures that data will be protected from, and will not be accessed by, foreign authorities. FluidSurveys also has a high personal standard for data protection. The data stored on their system is protected by the most current firewall and encryption technology.

Introductory Message

Welcome and thank you for your willingness to participate in this survey. The aim of this study is to understand the responsiveness of different types of appeals for support of climate activism. Your responses will contribute to the understanding of what motivates support for political action on climate change. Your responses will also contribute to a Master's thesis. This questionnaire should take no longer than 20 minutes. Your identity will remain confidential, and your responses anonymous. Your completing the questionnaire indicates your consent to participate in this survey.

Section 1: Demographic Information

The following section will ask you several demographic questions.

1. Please indicate your post-secondary institution:
2. Please indicate your nationality:
3. Please indicate your faculty:
4. Please indicate your major:
5. Please indicate your year of study:
6. Please indicate your age:
7. Please indicate your gender:
8. Please indicate your ethnicity:

Section 2: Knowledge of Fossil Fuel Divestment

In the following section your familiarity with the divestment campaign will be assessed.

	Strongly agree	Agree	Disagree	Strongly disagree
1. You are familiar with your school's fossil fuel divestment campaign.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. You are familiar with the concept of divestment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 3: Political Orientation

The questions in this section serve to identify your political ideology.

	Extremely liberal	Liberal	Slightly Liberal	Center	Slightly Conservative	Conservative	Extremely Conservative
3. Rate your political ideology	<input type="radio"/>						

Section 4: Values About Politics and Social Issues

Section 4 will ask you two series of questions relating to your values. Please indicate whether you strongly agree, agree, disagree, or strongly disagree with the following statements.

Section 4(A): Values (1)

	Strongly agree	Agree	Disagree	Strongly disagree
4. It seems like the criminals and welfare cheats get all the breaks, while the average citizen picks up the tab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. We have gone too far pushing equal rights in this country	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Society as a whole has become too soft and feminine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Nowadays it seems like there is just as much discrimination against whites as there is against blacks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. It seems like blacks, women, homosexuals and other groups don't want equal rights, they want special rights just for them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. A lot of problems in our society today come from the decline in the traditional family, where the man works and the woman stays at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. The women's rights movement has gone too far	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Discrimination against minorities is still a very serious problem in our society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. It's old-fashioned and wrong to think that one culture's set of values is better than any other culture's way of seeing the world	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. A gay or lesbian couple should have just as much right to marry as any other couple	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. We need to dramatically reduce inequalities between the rich and the poor, whites and people of colour, and men and women	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Parents should encourage young boys to be more sensitive and less "rough and tough"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Our society would be better off if the distribution of wealth was more equal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. We live in a society that is fundamentally set up to discriminate against women.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4(B): Values (2)

	Strongly agree	Agree	Disagree	Strongly disagree
18. People who are successful in business have a right to enjoy their wealth as they see fit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. If the government spend less time trying to fix everyone's problems, we'd all be a lot better off	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Government regulations are almost always a waste of everyone's time and money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. The government interferes far too much in our everyday lives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Free-markets – not government programs – are the best way to supply people with the things they need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Too many people today expect society to do things for them that they should be doing for themselves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. It's a mistake to ask society to help every person in need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. The government should stop telling people how to live their lives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Private profit is the main motive for hard work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. It's not the government's business to try to protect people from themselves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Society works best when it lets individuals take responsibility for their own lives without telling them to do so.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Our government tries to do too many things for too many people. We should just let people take care of themselves.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Sometimes government needs to make laws that keep people from hurting themselves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. Government should put limits on the choices individuals can make so they don't get in the way of what's good for society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. It's society's responsibility to make sure everyone's basic needs are met	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. The government should do more to advance society's goals, even it that means limiting the freedom and choices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	of individuals.				
34.	People should be able to rely on the government for help when they need it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 5: Environmental Values

The following section will ask you a series of question that will measure you attitude towards the environment. Please answer if you strongly agree, agree, disagree, or strongly disagree with the following statements. Alternatively you can choose to state that you don't know.

	Strongly agree	Agree	Disagree	Strongly disagree	Don't Know
35. We are approaching the limit of the number of people the earth can support.	<input type="radio"/>				
36. Humans have the right to modify the natural environment to suit their needs.	<input type="radio"/>				
37. Human ingenuity will ensure that we do NOT make the earth unlivable.	<input type="radio"/>				
38. The earth has plenty of natural resources if we just learn how to develop them.	<input type="radio"/>				
39. Plants and animals have as much right as humans to exist.	<input type="radio"/>				
40. The so- called "ecological crisis" facing humankind has been greatly exaggerated.	<input type="radio"/>				
41. Humans will eventually learn enough about how nature works to be able to control it.	<input type="radio"/>				
42. If things continue on their present course, we will soon experience an ecological catastrophe	<input type="radio"/>				

Section 6: Views on Climate Change

The following section will ask you questions relating to your beliefs and values associated with climate change. Please indicate whether you strongly agree, agree, disagree, or strongly disagree with the following statements. Alternatively you can indicate that you don't know.

	Strongly agree	Agree	Disagree	Strongly disagree	Don't Know
43. Climate change is occurring.	<input type="radio"/>				
44. Climate change is occurring because of human actions.	<input type="radio"/>				
45. I am concerned about the current course of climate change.	<input type="radio"/>				

Section 7: Attitudes Towards Fossil Fuel Use and Climate Change

Section 7(a): Attitudes Towards Fossil Fuel Use and Climate Change (1)

The following section will present several arguments for fossil fuel divestment. You will be asked to denote your level of agreement with these arguments. Please answer if you strongly agree, agree, disagree, or strongly disagree with the following statements. Alternatively you can choose to state that you don't know.

	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
46. If it's wrong to wreck the planet then it's wrong to profit from doing so	<input type="radio"/>				
47. It's acceptable to fund our education through resource extraction that will have negative consequences on our nation	<input type="radio"/>				
48. It's wrong to destroy the purity of the planet for profit	<input type="radio"/>				
49. Climate change from fossil fuel use will decrease the availability and supply of essential resources to many countries and future generations. Profiting from such an industry is wrong	<input type="radio"/>				
50. It is wrong destroy the planet and resources that God gave us through the extraction and use of fossil fuels for a profit.	<input type="radio"/>				
51. Receiving benefits from fossil fuels while disadvantaging people around the globe is wrong	<input type="radio"/>				

Section 7(b): Attitudes Towards Fossil Fuels and Climate Change (2)

The following section will present several arguments for fossil fuel divestment. You will be asked to denote your level of agreement with these arguments. Please answer if you strongly agree, agree, disagree, or strongly disagree with the following statements. Alternatively you can choose to state that you don't know.

	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
52. The financial investment that goes into fossil fuel companies would be better off being invested in renewable energy technologies.	<input type="radio"/>				
53. If all the environmental effects are considered, the costs of fossil fuels exceed the benefits.	<input type="radio"/>				
54. As renewable energy becomes cheaper fossil fuel companies will become less profitable.	<input type="radio"/>				
55. Due to the high cost of environmental damage from fossil fuel exploitation it is financially unwise to invest in a resource whose price does not include	<input type="radio"/>				

this destruction					
56. Future climate change policies will make investment in fossil fuels unprofitable.	<input type="radio"/>				
57. The fact that market prices of fossil fuels do not include negative environmental effects makes them over-valued.	<input type="radio"/>				

Section 8: Final Question on Political Support

The final section of the survey will ask you to rate your agreement with several statements relating to support for the fossil fuel divestment campaign. Your level of support for each statement will be assessed. Please answer if you strongly agree, agree, disagree, or strongly disagree with the following statements based on the statements that were presented in Section 6. Alternatively you can choose to state that you don't know.

	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
58. I support political action on climate change through divestment from fossil fuel companies at post-secondary institutions.	<input type="radio"/>				
59. I would vote for divestment from fossil fuels on a school referendum.	<input type="radio"/>				
60. I would sign a petition endorsing divestment from fossil fuels.	<input type="radio"/>				
61. I would write letters to the authority power at my school advocating for fossil fuel divestment.	<input type="radio"/>				
62. I would participate in a protest advocating for fossil fuel divestment.	<input type="radio"/>				
63. I would volunteer my free time with a group that was working to promote fossil fuel divestment	<input type="radio"/>				
64. I would pay higher tuition fees if it meant my institution would divest from fossil fuels.	<input type="radio"/>				

Section 9: Closing Remarks

Please be reminded that clicking the following "submit" button will submit your survey and indicate your consent to participate in this research. Thank you for your time and help.

Appendix B : Contact Documents



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Gabrielle Schittecatte
University of British Columbia
Forest Science Center
2424 Main Mall
Rm 2609
Vancouver, BC, Canada
V6T 1Z4
P: 1-604-358-8131
E:
Gabrielle.Schittecatte@forestry.ubc.ca

February 21st, 2014

Dear Sir or Madam,

RE: Participation in a study relating to framing and support for political action on climate change

My name is Gabrielle Schittecatte and I am a graduate student at the University of British Columbia (UBC) in Vancouver, Canada. I'm currently working to complete my Masters of Science under the supervision of Dr. George Hoberg in the Faculty of Forestry. I am contacting you to gauge your interest in having students in your faculty participate in a survey I am conducting for my thesis research.

My primary research interest lies in understanding the impact different motivational arguments have on public support for political action on climate change. Understanding the motivational arguments associated with climate change could contribute to our understanding of how to persuade individuals to support political action on climate change.

I am undertaking a study that will explore whether motivating individuals with economic or moral arguments about climate change is more persuasive. The survey will take no more than 20 minutes, and responses would be kept confidential and anonymous. Your department has been selected to be part of my sample. If you believe your student body may be interested in participating in such a study I would have two requests. First, I would ask the link to my electronic survey be emailed to the student body. Second, I would require two reminder emails to complete the survey be sent out to the student's email addresses.

I believe that this research could contribute to the fields of moral psychology, social movements, and political science. Your participation would be greatly appreciated. Please feel free to contact me with any questions or comments. Thank you so much for all your time and help.

Sincerely,

Gabrielle Schittecatte

Version 1 – February 21, 2014

1 of 1