

**GETTING TO KNOW THE ARTIST: UNDERSTANDING WHY ARTISTS ARE
IMPORTANT CONTRIBUTORS TO THE CLIMATE CHANGE CONVERSATION**

by

Claudia Morgado

B.F.A., Concordia University 1991

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Abstract

Finding avenues of communication to get different members of society to commit to engage in personal actions to determine the outcome of climate change is of great concern and priority to all communicators. The academic literature suggests that research has demonstrated that in order to access a people's desire to change is most successfully reached if they are given different alternatives and decision-making power in addition to addressing their emotions using images and the imagination.

Art, as history has demonstrated when it engages in a dialogue with its viewer, has tremendous power to encourage people to reflect on their thoughts and actions, and can act as a catalyst for change. Art is also an intrinsic tool for human communication and education. The purpose of this research was to achieve a deeper understanding in the importance that art can play in engaging people in climate change action by delving in an analysis of the inquiry process of the artist.

This research employs a qualitative methodology. One on one interviews were conducted with nine artists working in different artistic medium, but share the need to dialogue with their audience their concerns for the environment. Secondary source data was added by interviewing three scientists working in fields of study that concerned climate change issues.

The research analysis gives insight into the importance of considering artists as key communicators when looking for effective strategies to educate, raise awareness and encourage pro-environmental action. The process of getting an idea and realizing it into an art piece that is to be viewed by an audience is directly connected to the artist's participation and expressing issues of society, which climate change is.

Even though further research with a larger segment of the artistic population may yield a more thorough approach, the results do suggest that finding solutions of engaging people in pro environmental action may consist in getting the communicators to create cross-over relationships between disciplines that includes the arts, and engaging in polymathic problem solving strategies that motivate different people to commit to actions and adaptive practices to reduce GHG and build a brighter future.

Preface

Ethics approval was taken from the University of British Columbia Behavioural Research Ethics Board (BREB) for this research as it involved human subjects. The approval number is H10-02472.

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Dedication

To my beloved Sofia

1 Introduction

1.1 Problem Context

In 1988, The Intergovernmental Panel on Climate Change (IPCC) was established to assess the risks of human-induced climate change. Its work, which during the next decade demonstrated an increasingly clear risk, helped lead to the 1997 Kyoto Protocol, in which signatories of the United Nations Framework Convention on Climate Change (UNFCCC) committed to a program of reducing greenhouse gas (GHG) emissions as measured against a 1990 baseline. The parties – and especially those in the developed world who agreed to make the first reductions – then set about finding ways to encourage citizens to reduce their own carbon consumption and/or to support government policies that would enforce reductions.

Like most non-scientists, I was curious and concerned about the effects of climate change, but I had difficulty grasping the overall discussion of the science and the politics. The literature suggests there is a gap between knowing about climate change and doing something about it, in part because people cannot see an immediate negative effect on our environment (Lorenzoni et al. 2006). The research shows that a significant majority of people still believe that if climate change is happening at all, its effects will unfold far in the future (Nicholson-Cole 2005; Rhode and Ross 2008). Accordingly, social communicators are eager to find mechanisms by which to encourage social engagement and facilitate progressive environmental action.

In that context, I was struck by the effectiveness of the documentary *An Inconvenient Truth* (Guggenheim 2006) in communicating the details of climate change

and in engaging a much larger portion of the population in wanting to find a solution. The film, based in part on a book by the same name, tells the story of former vice-president Al Gore's mission to publicize the dangers of global warming. The documentary follows him on a speaking tour on the topic and details the events that motivated him to become a climate change advocate. I noticed, while watching the documentary, how effectively it built an emotional connection with the former VP – creating a degree of engagement that seemed to extend to the science as well as the man. I personally was moved by his story and compelled to gain a deeper understanding of climate change and global warming.

As the documentary captured the attention of audiences and the media – as it won an Oscar for David Guggenheim and helped Vice-President Gore win a Nobel Peace Prize – I became more and more convinced that environmental issues can be tied to art, intrinsically, and that art has tremendous power to influence and educate – to emotionally involve people and, ultimately, to be an agent of change.

In a world that is heavily dependent upon fossil fuels for its wealth and functionality, it is clear that governments are seriously challenged to design de-carbonization policies that people will accept, and equally clear that the vast majority of people are not ready or motivated to act on their own. Some method must be found to help people make a connection between their personal lifestyle choices and their contribution to a problem that, scientist agree, will be expensive and dangerous if not addressed. Getting people to make this connection – between lifestyle choices and their effects in reducing GHG emissions – will be essential in securing public participation in, and support for change (Nicholson-Cole 2005).

There is already a considerable body of work among sociologists, psychologists and educators on the challenge of raising awareness about climate change in a way that inspires people to embrace solutions. Some of that literature suggests that emotions, images and the imagination are all key avenues by which to access people's desire to engage in climate change issues (Nicholson-Cole 2005; Shaw and et al. 2009).

The literature also suggests that people need clear alternative options so they can make their own decisions about what actions they can take or support to reduce the causes and limit the effects of climate change (Tribbia and Moser 2008).

We thus have a communications challenge that, I postulated, could be helped enormously by the participation of artists. There seemed to be an opportunity for artists to act as a bridge between scientists and non-scientists by presenting scientific information in a unique and creative manner and from a multitude of perspectives.

By exploring the artist as committed social agent, the research conducted for this thesis supports that assumption. It shows that art, when it immerses people in a story conveyed by its aesthetics, has tremendous power to act as a catalyst for change, raising awareness and encouraging people to reflect on their thoughts and actions. In addition to supporting this thesis, the research also attempted to explain how some artists work now to support the climate change dialogue and how they may work more effectively in the future.

1.2 Motivation

As I began my program in Resource Management and Environmental Studies at UBC, I was surprised at what I perceived to be a gap in our understanding of the role that art and artists can play in bringing progressive environmental issues to public attention – achieving that first level of engagement on which changes in attitude and behaviour may be built. Being a filmmaker, and having learned about human history through art and the accounts of artists, I felt there was a problematic disconnection – in many cases a disregard for – the role that artists can play in reaching audiences, educating and raising awareness. The role of artists in climate change communication is, for example, rarely mentioned in the scientific and social literature. And yet history has demonstrated and research has proven that art is an intrinsic human tool for communication and education. For thousands of years, people have used stories – and more recently paintings and film – to pass on valuable information, to understand our past, reflect on the present, and imagine the future. I feared that the usefulness of this communication tool was being overlooked and I believed that a thoughtful research project could establish its efficacy.

Through my experience as a filmmaker, I understand that when artists present their work in a public space, the art succeeds only when it finds an audience. And when audience members respond, positively or negatively, they are changed. They have been forced to think, and perhaps inspired to act. Currently, as throughout history, there are artists working expressly for the purpose of engaging audiences on pressing social issues. I set out, in this project, to identify and study the motivations, methods and effectiveness

of artists who were specifically addressing environmental issues including climate change. The evidence suggests that their effect has been considerable and, with support, could be greater yet.

1.3 Conceptual Framework

For the purpose of this research, I have chosen to frame the artist as a social communicator, rather than simply as a producer of art itself. This framework assumes a degree of intentionality on the artist's part in that it assumes that social change comes directly from the artist's inspiration and not through a perhaps-random audience response to a given work of art.

1.4 Objective

The overarching objective of this research is threefold: to establish the degree to which artists can – and do – play a useful role in advancing the public knowledge and understanding of climate change; to gain a deeper insight into the working methods and motivations of the artist to produce work that is rooted in current issues; and to leverage that new understanding for the benefit of those who are trying to create a productive public conversation about climate change.

By identifying the artist's relationship with their environment and how it translates into their individual art, I hope to validate and clarify the role that artists can play in finding effective strategies to raise awareness – to educate and engage the public more effectively. By building a narrative around the attitudes, beliefs and inquiry methods of the artist, I seek a greater understanding of the artist's contribution, thereby opening an imaginative window through which communicators can see additional,

effective and supportive methods by which to engage society in an environmental conversation and, ideally, to provoke action.

1.5 Research Question

To this end, this study attempts to answer the following questions:

- Do visual artists contribute to the climate change dialogue? If so, how?
- What are the benefits of including artists as communicators of climate change issues when looking at avenues for social change?
- What is the artist's role in the climate change dialogue? How does the artist perceive him/herself as a participant in this dialogue?

1.6 Method

In order to answer the preceding questions, I conducted a qualitative study, using one-on-one, open-ended interviews with a series of artists working in a variety of media. The collection of data and method of analysis was initiated by conducting one-on-one interviews with nine artists who work in paint, public art, photography and documentary filmmaking. The latter art form, my own discipline, is arguably the most obvious example of art being pressed into service to inspire or provoke public engagement or action. Some documentary films can be viewed as works of journalism; all depend for their success on a degree of artistic merit.

Secondary source data was collected through one-on-one interviews with three scientists working on climate change research.

Following Michael Q. Patton (2002), I also took into consideration his entreaty that social researchers be conscious of their own role in shaping the course of the study

(182). Similarly, Laurel Richardson (2000) in her article *New Writing Practices in Qualitative Research*, points out that when reviewing a research study, the reviewer should contemplate the following question: “how has the author’s subjectivity been a producer and product of this text? Is there adequate self-awareness and self-exposure for the reader to make judgements about the point of view?” (Richardson 2000, 5).

I therefore concentrated on Patton’s questions, such as “has my background influenced the collection of the data?” (Patton 2002, 495). Two answers surface, both more positive than negative. My experience and familiarity with the subject matter allowed me to enter the conversation with other artists with knowledge and ease; and as a visual artist, researching and writing on this topic matters to me personally.

As visual artist that holds a BFA in Film Production and have been making short films for the past 20 years, I have screened and have won awards for my films in many festivals around the world. I have connected and interacted with audiences from many places who have responded to my films in many different and rewarding ways. It is these responses that motivated this research. I wanted to talk to other artists and reveal their process and points of view on the issue of art and climate change. I felt that talking to other artists would allow for the intersection of ideas and confluence of insight into the research question.

On a personal level, I wanted to learn and reflect on how I could use my own art more effectively to contribute to the climate change dialogue.

At all times, however, I endeavoured to set aside my own biases and preconception, both while designing the research and while conducting interviews. My intention was not to extend my own point of view, as I would when I work as a

filmmaker, but to find insight into the artists' processes and intentions, to better understand how this can translate into an essential contribution to the social and political issues of climate change.

1.7 Thesis Overview

This thesis explores the challenges that social communicators face in encouraging the public to embrace the changes necessary to mitigate climate change – either personally or through the support of government policy. The second chapter frames the issue by providing an overview of the literature on the challenges inherent in finding avenues that reach, educate and encourage action. The problems surrounding personal connections and commitments to lifestyle changes that lead to de-carbonization are also pursued. Further, this chapter reviews how artists have worked historically, and how they continue to work, to bring awareness to relevant, while simultaneously contributing to the development of other disciplines.

The third chapter provides a rationale and detailed account of the qualitative methodology used; specifically, the methods and analysis used in the collection of the data. Chapter Four discusses the analysis of the results and their relevance to my research question. Chapter Five is a discussion of the findings and an overview of the issues, and concludes with the implication of these findings on the overall contribution of the artist in the climate change dialogue.

2 Literature Review

2.1 Introduction

A review of the scientific and social literature shows first that a large portion of the population is still confused, misinformed or disinterested in climate change. The literature also demonstrates that, when trying to communicate or educate – even, or sometimes especially, on complex issues – an appeal to emotion can be more effective than purely rationale argument. Finally, the research shows that art is a frequent and effective mechanism for appealing to emotion – that material presented in an artistic manner is effective, even in cases where great care is being taken to identify the product as the product of strictly interpreted scientific data.

The first section focuses on the benefits of involving the arts in the climate change dialogue, based on the difficulties of communicating the hard sciences.

The second part of the review focuses on research that has identified effective avenues for engaging people in behavioural change, for example, appealing to people emotions and by using visual images. It also reviews research that suggests that the use of visual images in the translation of scientific data contributes to effective responses from the audience that may in fact lead to lifestyle changes.

The third section examines how art throughout history has played an important role in “evoking, shaping, and modifying human feelings” (Silva 2005, 342), and the fourth section describes how art has contributed to the communication and advancement of science throughout history. Lastly, the chapter concludes with a review of

contemporary artists working on the theme of climate change and how they have guided my own research.

Climate change is a social, cultural, political and environmental issue and these artists are challenging and provoking society to think deeply about the consequences that our actions may play in the current and future state of the world.

2.2 Challenges in Engaging People in Mitigating Climate Change

Climate change projections indicate a need for aggressive programs to limit the causes and mitigate the effects of global warming. The principal concern may be to reduce the global use of fossil fuels, the burning of which is the leading cause of warming. In order to engage the public in the process of reducing the related GHG emissions, people must first understand clearly the cause-and-effect relationship between energy use and climate change (Nicholson-Cole 2005). For this reason there is great incentive on the part of the communicators to find ways for non-scientists to grasp the concepts in a way that will cement their understanding.

The challenge of getting people engaged in pro-active environmental behaviour is well documented. Despite the media coverage of scientific data and the weather events that already indicate that climate is changing, people are failing to respond.

Researchers and communicators are presented with a series of challenges when it comes to getting people to visualize what climate change will look like for them in the near and distant future, and what it may look like for future generations. Climate change is like being diagnosed with Type 2 diabetes. Diabetes is preventable and reversible, but it is a silent disease, the damage from which unfolds slowly. Yet, if you do not change

your lifestyle, the disease will eat away at your health and eventually kill you. In the same manner, greenhouse gases are invisible and weather is always changeable. No specific or individual weather event, no matter how dramatic, can be attributed solely to climate change. There is no immediate, compelling proof. Researchers have also found that there is a perception among people that if climate change is happening at all, its effects will be far in the future (Rhode and Ross 2008; Nicholson-Cole 2005). Therefore, it is essential to somehow make a connection between personal lifestyle choices now and the effects on a changed climate later (Nicholson-Cole 2005). In order to successfully engage in proactive environmental behaviour, they must be provided with multiple sources of information, tools and examples that personal actions can make a difference. For example, they must be convinced of the efficacy of choosing public transit over the private automobile, promoting energy conservation in the household, or supporting regulatory change that may be expensive and disruptive.

Mainstream media have great influence in the scientific knowledge that we receive about climate change (Boykoff and Boykoff 2004; Tribbia and Moser 2008). And because media is the primary source of public information, when the media coverage of climate change increases, so does our knowledge and awareness of the issues and consequences. However, the media habit of attempting to present every issue neutrally, trying to demonstrate “balance” by offering two sides even on matters that are well settled in the scientific literature (Boykoff and Boykoff 2004; Rhode and Ross 2008) has left many members of the public mistakenly believing that there still is a serious scientific argument about climate change. Rather than considering a helpful list of solutions from

which they can choose, they are left with a confusing argument from which many just choose to turn away.

A recent example was the so-called “Climategate scandal” of 2009. Climategate gathered international attention when computer hackers obtained and released emails and documents from the Climatic Research Unit at the University of East Anglia in the United Kingdom. The hackers chose and released a small selection of quotes mined from many thousands of emails in an apparent effort to demonstrate that the scientists were falsifying or manipulating scientific data to make a case for global warming. Scientists on the other hand, declared that the e-mails had been taken out of context, saying further that the emails represented no more than the normal process of discussion and debate among colleagues. The media covered the “controversy” extensively in 2009, leaving the impression that, at worst, there had been corruption among scientists and, at best, a serious debate still raged among scientists. Later investigations absolving the scientists of any wrongdoing received much less coverage, again raising the likelihood of lasting public confusion (Nerlich 2010).

A survey done out of The School of Forestry and Environmental studies at Yale University in 2010 on the effects of Climategate on people’s perception of climate change in the United State concluded that Climategate increased the degree of scepticism about climate change among a majority of people who were surveyed on the topic. This was concurrent with a decline of opinion about the validity of climate change observed since 2008. The results also warn that this drop in sentiment should be viewed as temporary because people are not passive information receivers. When formulating an opinion, the surveyors acknowledge, people evaluate the information by bringing their

own values, attitudes and beliefs which can affect their viewpoint over time (Leiserowitz and et al. 2010).

Another challenging factor in achieving public engagement on the issue of climate change is the lack of commitment from governments (Nicholson-Cole 2005; Lorenzoni and et al. 2006). According to Malini Mehra (2010), this was particularly evident during the 15th United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 15) in Copenhagen in 2009, which failed in a very public way to adopt the ambitious and binding global political agreement that organizers had promised. Mehra commented in her on-line article, “Copenhagen made depressingly clear that ‘political realism’ has trumped climate realism” (Mehra 2010). Events like this one create a challenge for people to imagine that their actions may be meaningful or effective when their politicians are failing to show leadership.

It is difficult to predict what can motivate people to make lifestyle changes because as the literature suggests people have many different motivational challenges and patterns that are influenced by the way in which they receive, perceive and process information. Studies also conclude that people do not respond positively to experts telling them what they need to know and how they should act (Tribbia and Moser 2008).

That is why the research community reinforces the importance of finding avenues of engagement that consider and understand how people best connect with issues at large. In terms of climate change it is important to identify the factors that can motivate people to alter their current lifestyle (Bord, Fisher, and O'Connor 1998; Nicholson-Cole 2005). One of these factors might include building a support system in which people are able to imagine and perceive the benefits of their change in behaviour. For example, creating

bike paths and promoting healthy habits through art and other visual mediums might give people faith that their changes were an important and addition to a broad societal effort to reduce reducing GHG emissions.

2.3 What Motivates People to Act?

In order to achieve success in environmentally proactive behaviour, people not only need to commit to make lifestyle changes but support structural policy changes and environmental causes (Rhode and Ross 2008). Information and knowledge alone has had little success in engaging people in pro environmental behavioural change (Kollmuss and Agyeman 2002; Sheppard 2005). What has become clear to some is that in order to engage people and encourage change in attitudes and behaviour about climate change, there needs to be a sense of connection with the issue, “comprising cognitive, affective and behavioural aspects” (Lorenzoni and et al. 2006, 446). Appealing to people’s values has been suggested as an important avenue in encouraging behaviour change (Stern 2000; Rhode and Ross 2008). And values along with images, the imagination and emotions have been recognized as primary paths for encouraging a positive, *active* response to climate change issues (Nicholson-Cole 2005; Shaw and others 2009). In short, artists have a long-standing tradition of tweaking the public consciousness, of capturing people’s imagination with images, ideas and metaphors. This ability to inspire innovative thoughts and to suggest solutions to society’s contemporary issues gives artists a crucial role, along with other communicators such as scientists and policy makers, in the shared goal of promoting awareness about climate change. It is art’s power to engage people

emotionally that can ultimately extend interest and, again, potentially provoke action on climate change.

2.4 Visual Images and Emotions

It is impossible to predict exactly how a person will respond to visual images as the response is also determined by what a person brings in terms of personal experience, opinions and values, as well as factors such as where they live, their economic situation, educational background and whether they can relate and connect with the visual image presented. However, visual images have been found to have greater impact than information alone, because of the capacity to engage people emotionally (Joffe 2008; Huddy and Gunnthorsdottir 2000). Research asserts that emotions are powerful conduits to the part of the brain where decisions are made (Bechara 2004).

This runs contrary to historic tradition, which treats emotion as subsidiary to reason. During the fourth century BC in *Phaedrus* Plato wrote that emotions induce irrationality and must be controlled by reason. This suggests that emotion is an unhelpful complication in the process of critical thinking.

However, the theory of bounded rationality proposes that people are limited in their time and cognitive capacity to solve complex issues (Simon 1979; Simon 1955). Thus, when making decisions, people don't always resort to reason. Human beings have the capacity to use their intellect and/or emotions to respond to a situation, and emotions are a critical tool in certain situations. For example, when someone senses danger, emotions can play a key role in making a person to move quickly to safety (Moser 2007, 66).

Bechara (2004) in his study on the decision-making process on neurological patients who are unable to process emotions normally, concluded that “people make judgments not only by evaluation of the consequences of their probability of occurring, but also even sometimes at a gut or emotional level” (Bechara 2004, 30). Thus, relying on emotions to guide the decision-making process may be perceived as irrational, but it experience shows it to be inevitable and the literature demonstrates that it is powerful.

The influence was demonstrated in a study in which subjects were shown pictures of cute or ugly animals along with flyers from pro or anti-environmental organizations. The purpose was to assess the usefulness of these images in persuading people to accept these organizations’ messages. The research concluded that visuals were more effective than text in shaping values, building support and stimulating action (Huddy and Gunnthorsdottir 2000).

People for the Ethical Treatment of Animals (PETA), is an excellent example of an organization that uses imagery to recruit supporters and provoke action. PETA often uses horrific images of the mistreatment of animals in order to campaign against animal cruelty in laboratories. PETA also uses positive imagery and action, for example by bringing pets to schools, in effect recruiting future supporters by encouraging children to connect emotionally with animals

In the field of adult education, Dirkx (2001) argues that emotions are fundamental in the learning process, because they are derived from the person’s personal experience and socio-cultural background. In the process of learning, people create meaning by connecting their emotions and imagination within the larger context of the world, which ultimately informs our thought and actions. For Dirkx, it is important to take into

account the power that emotions and imagination play since they can motivate or deter understanding, learning and, ultimately, action. He argues that images not only can help people learn about themselves and others but can help people “connect with a deeper reality” (Dirkx 2001, 65).

Some communicators, artists or otherwise, have attempted to leverage emotion in the current dialogue about climate change, for example by using what have come to be called charismatic mega fauna, especially large mammals such as polar bears with which people seem to identify when they appear stranded on ice floes or lost at sea. This raises the importance of accuracy – of honesty in art – which is addressed later in this paper.

2.5 Visualizing Scientific Data

In the field of landscape visualization, scientists use the data of a hypothetical future environment to generate 2D, 3D and 4D visual images, with the intention of helping viewers understand the choices that they face. By working with a range of plausible scenarios, scientists can demonstrate in an obvious, visible and easily comprehensible way the likely implications of certain actions – or inaction. For example, they might use Environment Canada information on current and predicted snow packs to create images that illustrate the varying impacts on towns and forests with which people are already familiar. They then could understand more easily what the effects would be of changing their behaviour, or not (Cohen and et al. 2012).

Research by Nicholson-Cole (2005) on three social groups and their visual perception and thoughts about climate change concluded that even when an audience is given a series of visual alternatives based on established scientific hypotheses, their

interpretation of future events varied according to other influences, including previous knowledge about the subject; exposure to other sources of information; their own background and experiences; and their own imagination of a positive or negative outcome.

Landscape visualization works with the notion that the use of familiar landscapes has a greater impact because on individuals because of their emotional connection with the image presented. This familiarity allows the viewers to better learn and understand how their personal surroundings may be impacted (Sheppard 2005; Nicholson-Cole 2005; Shaw and et al. 2009; Cohen and et al. 2012). This is supported by studies that conclude that visual imagery has become a primary way of eliciting effective responses to climate change issues (Nicholson-Cole 2005; Shaw and et al. 2009).

(Sheppard 2005; Moser and Dilling 2007; Tribbia and Moser 2008) There is, therefore, a consensus in the literature that the effectiveness of any form of communication depends upon its ability to engage its audience emotionally (Sheppard 2005; Moser and Dilling 2007; Tribbia and Moser 2008). Art is able to encourage this kind of engagement by triggering a different kind of familiarity, one based on perceptions, observations, metaphors and ideas with which people are already familiar. For example, with his installation ARK, environmental artists Alfio Bonano placed the frame of a wooden boat on treetops, invoking the story of Noah's Ark. Bonano's signals with this visual metaphor that rising sea levels will eventually become the natural environment for the boat. As with the choice model used in landscape visualization, this work forces audience members to consider what they want their future to look like – and what they are prepared to do about it.

The visualizing of scientific data has also been used in the field of Eco-Visualization which consists of using visual artistic practices in the interpretation of environmental data, again in an effort to involve the viewer in pro environmental thoughts or behaviours (Holmes 2007b; Pierce, Odom, and Blevis 2008). Rather than using scientific data to generate computerized visualizations – or to overlay computer-generated images over actual landscapes – as is the practice with landscape visualization, eco-visualization involves asking to artists to create visual works that illustrate the data (Viégas and Wattenberg 2007) . The placing of scientific data in artistic rather than literal landscapes may also make difficult messages more palatable. Audiences can become shocked, frightened and quickly paralyzed by evidence overlaying real images. The theoretical world of art, while still compelling, is sometimes more easy to consider.

Tiffany Holmes, American eco-visualization artist and scholar at The Art Institute of Chicago, states that “artists have a fundamental role to play in creating work that translate site-specific environmental data, once solely the domain of scientists, into visually accessible visual narratives” (Holmes 2007a, 273). This practice also has a long history. The artist and polymath Leonardo da Vinci, who studied the form and function of the human body for his own artistic purposes, created a set of anatomical drawings that helped scientists and the medical practitioners gain a deeper understanding for their professions (Pevsner 2002a; Keele 1964).

Holmes’s eco-visualization artwork entitled *7000 Oaks and Counting* is a public art project commissioned by Capital Development Board of the State of Illinois to make building “dwellers” more conscious of their energy consumption and, ultimately, get them to use less (Pierce, Odom, and Blevis 2008, 1). Holmes’s project consists of

computer-animated spinning oak trees that represent the carbon loads. When the carbon loads are low, the rings transform into green trees. As carbon loads increase the green trees are replaced by electrical appliances. All the artwork is based on mathematical calculations that set and offsets the carbon emitted (Holmes 2007b; Pierce, Odom, and Blevins 2008).

Since the eco-visualization art is based on real time energy consumption, it allows people to visualize their energy consumption and adjust their lifestyles accordingly. The intention, according to the artist, is to invite building dwellers to engage emotionally with the piece, thereby encouraging them to change their behaviour.

Artists who do not rely on specific scientific data often use their art to illustrate the climate impacts that scientists predict. For example, the photographer James Balog (2007) created his *Extreme Ice Survey: From 2005 to Present*, which includes time-lapse photography of melting glaciers. Viewed as a piece of documentary footage, this is merely the recording of a current event. As a work of art, however, it encourages people to contemplate, visualize and understand the effects of climate change (Balog 2012).

Cialdini (2003) proposes that because emotions play such a powerful role in the way people will respond to a situation, caution must be taken when building communications strategies to elicit a response. Appealing to negative emotions may leave the person feeling powerless and not motivated to act. The best results may be obtained by transmitting and engaging in creative visions of a positive future, and by providing ways for emotional involvement and engagement that further leads to the contribution this healthy future outcome. Because all these art projects reflect landscapes and eco

visualizations characteristics, they all have a crucial role to play in inviting audiences into alternative avenues of engagement in imagining and achieving a sustainable future.

2.6 Art and Society

It is well documented that artists, when they take action, have historically appealed to people's imagination and emotions by expressing their uneasiness, their dismay – or the dreams, good or bad. One example might be the Mexican Muralist Movement, which began after the 1910 Mexican revolution. Commissioned by the Government, their aim was to make art that reflected the values of the revolution and the Mexican identity to the Mexican people by displaying the art in public places for all to see (Garber 1995). Addressing how this approach applied to global warming, Nicholson-Cole states that “imagination is one of the contributing factors in people's visual conception of climate change, their perception of its importance and their level of perceived self-efficacy to do something about it” (Nicholson-Cole 2005, 269).

In 2007 the Boulder Museum of Contemporary Art held an exhibition entitled *Weather Report: Art and Climate Change*. Curated by Lucy R. Lippard, the exhibition featured 51 artists working on the theme (Lippard 2007). One of the artworks included was a large scaled photograph titled *Plastic Bottles*, later published as part of a series of photographs by Chris Jordan (2009) titled *Running the Numbers: An American Self-Portrait*. I had the chance to see this art piece in an exhibition of Jordan's work at Simon Fraser University Gallery during the Fall of 2010. From afar, *Plastic Bottles* is a photograph of a large beautiful composed, but difficult to discern, landscape. As the viewer moves closer, the landscape emerges as a large sea of empty plastic bottles.

Before the viewer can comprehend the luring qualities of the photograph, the subtitle reads “two million plastic bottles, the number used in the US every minute.” All of a sudden, one is horrified and forced to contemplate the consequences of the choices that one makes when we use resources, and the effects of consumerism on waste.

According to Dunaway (2009), Jordan did not truly photograph two million plastic bottles, but rather photographed small clusters of plastic bottles and digitally manipulated them into a two-million-bottle landscape. In his artwork, Jordan is not recording a concrete reality, rather it is a representation of what that reality can look like when translating statistical data. Exhibit visitors were asked the following: “what piece(s) had the most impact on you and is most likely to make you take action?” Some of the responses were: “Time to get myself a reusable water bottle,” “Good motivation to start helping in a small way,” “People need to be more conscious of what they are doing day to day and how everyone doing it every day makes a difference” (Dunaway 2009, 15). From their responses, one can see that with beautiful imagery and dire information art evokes a strong emotional response that becomes a conduit for people to reflect on their own actions. They have experienced and recognized the tremendous power that art has in affecting the imagination and emotions and on influencing people’s beliefs (Munro 1967). Radley (2002) contends that visual imagery allows for different interpretation depending on the viewer’s background and experiences; it invites the viewer to bringing their own emotions into the subject. This is supported by Dirkx (2001), who argued that bringing emotions into the visual image, allows the viewer a deeper understanding of the self (Dirkx 2001, 65).

In the case of *Plastic Bottles*, it opens the imagination to what the world would be like with two million bottles tossed in one place. It enables the viewer to get beyond the pre-conceptual categories and to discover, if only to a limited extent, what is like to see the world for the first time” (Ellis 2005, 176) . The implication or message from Jordan is ambiguous enough to present the viewer with a series of dialogues on the planet, beauty, waste, and the imagination and perhaps offers the choice on how can one contribute to a better future (Dunaway 2009).

Society and history have never disputed that art and emotions are interrelated. That doesn't mean that art's purpose is only to provoke an emotional response or that the artist's intention is always for the viewer to feel or respond to the emotions with which he/she created the art (Munro 1967). Barasch (1997) argues that historically, societies have searched for meaning in art but have also understood the intellectual and emotional power its messages are able to convey. Making connection through art is rooted in the human experience.

There are also many empirical studies conducted on the role that art plays in evoking emotional response. The scientific field on the subject of aesthetics has tried to reveal or identify the variables that produce emotional responses to art and the role of subjectivity in those responses (Silva 2005). Other fields have analyzed the arts and how they relate to contemporary issues. The conclusion appears to be that the interrelationship between the arts and society play at many levels in human consciousness and they have “tremendous power to influence people's minds and emotions” (Munro 1967, 102). It is then vital and essential to understand how artists can contribute in raising awareness,

building engagement, commenting and conversing on issues of climate change, and on our relationship with the natural world.

A most provocative example is to be found *The Female Nude: Art, Obscenity and Sexuality*. Lynda Nead (1992) asserts in her book that the symbolic importance of the female nude is tied to a system of meaning within the social structures of our consciousness. According to Nead, it is within this learned collective meaning that society assigns the female nude the label either of art or obscenity. She describes the 1914 slashing of the Velazquez's painting *The Rockeby Venus* at the London National Gallery by the suffragist Mary Richardson as an attack on the socially and culturally held beliefs and meaning of "the female nude and its relationship to patriarchy and feminism" (Nead 1992, 36). Richardson slashed the painting in protest of the British government's treatment of suffragist leader Emily Pankhurst. She proclaimed:

"I have tried to destroy the picture of the most beautiful woman in mythological history as a protest against the Government destroying Mrs. Pankhurst, who is the most beautiful character in modern history" (Nead 1992, 35).

Richardson's proclamation and attack on the painting was done to raise awareness of women's rights (or their lack of rights). For Richardson, Nead explains the painting represented the injustice of women's position in society, and her act of defiance was a political outcry on women's rights.

Dirkx (2001) substantiates Nead's assertion by contending that visual images, in particular, can have a powerful effect on the emotions and imagination, and subsequently lead a person into a deeper questioning and understanding of self and the social structures of the society. Richardson's act of rage can therefore illustrate the capacity that the visual arts have to provoke, raise awareness, depict and question commonly held assumptions

and established social conventions, making artists “critical in generating powerful conceptions because they provide insight that are closely linked to emotional responses” (Edelman 1995, 52) that generate political discourses that transform society.

2.7 The Communicative Function of Art

Science is able to extend our knowledge of how humans and the world operate and how we experience that world. By providing us with data and information on how the world’s climate is changing through global warming, we are able to better comprehend the current and predicted effects of global warming.

Art, on the other hand, gives us another form of knowledge on how we as human experience the world because it “it opens the door to multiple forms of knowing” (Halifax and Viva 2007, 5), that include using our senses, emotions and intellect. Art is able to draw us into experience, to reflect the way we live, and draw attention to the effects of our actions.

Global warming has inspired artists such as Photographer Chris Jordan, visual artist Franke James and Filmmaker David Buckland, to join the discussion about finding solutions to this global issue. Audiences have been able to see, observe, and dialogue about the immediate and future ramifications climate change through their often thoughtful and challenging representational and non-representational works of art.

Moshe Barasch (1997) in his book “The Language of Art” argues that the communicative function of art is fulfilled when artwork that has been made with the purpose of conveying a specific message engages the viewer in a dialogue (Barasch 1997, 5). This proposition is expanded by Perricone (1990), who asserts that the work is only

fully realized when the viewer has seen it and responded to it. Without this relationship, the work of art does not exist (Perricone 1990). Eisner (2008) adds that it is important to acknowledge that language has many forms and purposes and it can be treated artistically.

Identifying art's communicative capacity and its effectiveness in creating a dialogue on issues such as climate change recalls the fundamental link between art and society and "between aesthetics and the environmental impact upon our feelings, which are part of our everyday experience of the world" (Thornes 2008, 392). Art opens up conversations between people of different cultures and backgrounds. Within artistic stories, people make connections with their past; they reflect on the present and envision the future. Art opens us up to forms of communication where emotions and the intellect meet.

Perricone (1990) proposes that the artist has the potential of opening the viewer's imagination with a new vision of the world, something that they have never before seen or imagined. He asserts that art is part of intrinsic human communication and experience, something everyone understands, even if they cannot relate to a particular work of art. Sometimes, the work of art takes many years, sometime centuries, to be appreciated and recognized as contributing to the contemporary issues of the artist's own society. The great work of art Perricone concedes, at times "alien to the soil in which it grows, needs yet another soil in which it can flower and be understood" (Perricone 1990, 207). This was the case of anatomy drawings by Leonardo da Vinci, which, if published at the time, would have been considered a heresy. Religious views during the Renaissance decreed that the body – viewed as the work of God – must be left intact after death for the Day of

Judgment. In contemporary society, Leonardo is viewed as a man who challenged the thinking of the time, changed the way we perceived the world, and gave us an insight on how art can contribute to the advancement of science and many other innovations in other disciplines in society (Pevsner 2002a).

2.8 Art's Role Affecting Innovation in Other Disciplines

Beyond being helpful in communicating scientific information to a broad audience, art has also been used historically to help scientists understand their own disciplines. For example, during the Renaissance, a prolific and exciting period in the history of European art, artists worked along with or inspired scientists, and produced work that has had profound effect on both modern culture and science (Barasch 1997). Most famously, Leonardo da Vinci worked with anatomist Marcontonio della Torre, who guided the artist in studying anatomy. Leonardo, a polymath who also worked in astronomy, mathematics and in many other disciplines, later created The Vitruvian Man, a drawing of what is considered the perfectly proportioned man. Leonardo used rules of geometry and architecture to create the harmonious symmetry of the drawing. Hundreds of years later, it was still considered a fundamental aid in helping medical professionals understand the human body (Keele 1964).

Another example is Johann W. von Goethe, who was also a polymath of the Romantic period of the 18th century. A painter, writer, philosopher and scientist, Goethe argued that our view of colour is also shaped by our perception and by the way our brains process information. For Goethe colour affected our psychology. This theory inspired others, including the composer Beethoven and painter Wassily Kandinsky who both

credited Goethe's for his work on colour. It also influenced contemporary research on colour theory and the emotional effects of colour. In the 20th century psychotherapist Max Luscher said Goethe's colour theory inspired his *Luscher colour test*, which measures a person's psychological state according to their colour preference (Douma 2012). In all of these cases, the scientific content of the art is critical; or, as Keele says "Its usefulness to artists was due to the science it brought in their art" (Keele 1964, 369). Yet Keele notes that in contemporary society, only artists study and recognize the work of da Vinci, and it is rare for scientists or medical professionals to acknowledge his contribution to their profession. This, Keele says, is a predictable result of the so-called Enlightenment period that followed the Renaissance. It is known that the Enlightenment, also called the Age of Reason and Modernity, promoted rationality, cognition and empirical scientific knowledge above art as the appropriate paths to what we now think of as objective truth.

Root-Bernstein (2003a) explains that the way artists and scientists generate problems and achieve creative solutions is universal. He says that artists contribute to new discoveries by using their imagination in their visual language to provide new or alternative points of view and perspectives. He believes that innovative ideas and solutions to complex problems are best accomplished with polymath or cross-disciplinary thinking.

A most insightful example is in the documentary *Between the Folds* (2008) by director Vanessa Gould. *Between the Folds* follows the ancient art of paper folding called Origami. In the art of Origami one sheet of paper is folded in many different ways to create two and three-dimensional images. Gould tells the history of Origami and

shows how this art is influencing contemporary science, engineering and mathematics (Gould 2008). One of her subjects is Erik Demaine, a mathematician and professor at the Massachusetts Institute of Technology. Demaine is conducting research using the concepts and techniques of Origami to test how protein molecules fold into complex forms that are key to biological function (Kher 2005). The purpose of his research is to provide an insight into the development of effective drugs to cure diseases.

This is just one example of how and art can provide another way of seeing, engaging the viewers' imagination and creativity to inspire innovation in their own fields. Lessons learned from this type of innovations further substantiate the argument for the importance of artists in the climate change dialogue.

2.9 Climate Change Artists

In the context of climate change, acknowledging and including different avenues of communication, like the visual arts, helps achieve the broader response – and a more willing engagement – from diverse members of society. Artists whose work speaks about climate change are collectively creating and raising awareness in a variety of mediums. In the process, they are investigating and communicating how the environment works and how our actions affect it.

Artist David Buckland created the Cape Farewell project to give an opportunity for artists and scientists from different mediums and disciplines to work together and be inspired to create art on the theme of climate change. The project begins with artists and scientists coming together on voyage to the Arctic aboard the ship Cape Farewell. Along the way and once in the Arctic they all experienced the landscape together while they

walk, talk, visit scientific research centers, exchange ideas, inspiring each other, write, sketch and make art. The project, that first began its expedition to the Arctic in 2003, has produced a book called *Burning Ice: Art and Climate Change* (2006). The book features the art works, essays and journal excerpts from a selected group of artists, scientists, and educators who have participated in the Cape Farewell project. In a journal entry dated 20/09/04 David Buckland writes:

We walked the two kilometers to shore yesterday evening, conversation drifting as we tried to get a measure of just how large scale of this place is – wonderful to attempt to comprehend, impossible to represent. Every time you move, you take another photograph, and after every photograph, the light changes and you photograph it again. But there is something about all the messages that are in my head that are not coming through in the photograph. What the artist does is to somehow find the human scale of climate change. My ambition was to find a way of including the additional narrative of the climate debate within my artwork from the Arctic (Buckland, MacGilp, and Parkinson 2006, 95).

The diary entry lies besides one of David Buckland's photographs of the Arctic. A close shot of a melting sheet of ice divided by a black river of water melting into the ocean. Superimposed on the photograph are the words "Black Abyss". Through a perceptive and reflective point of view, the artist invites us to experience with him the wonders and pathos for this world. David Buckland is just one example among many contemporary artists who directly dedicate their work to creating art that raises awareness and educates us about climate change. They remind us of the enormity of what we stand to lose if we don't do something about it.

The Cape Farewell project showcases the transformative power that art can have on those who experience it. It highlights the diversity of art as a communication tool in finding ways to dialogue, educate, and engage the audience in an emotional and intellectual way to reflect and take action on the issue of climate change.

The influences and responses that many of these artists are receiving from a variety of audiences which include activists, politicians, and the scientific community was clearly shown in the response to the 2009 Art exhibit titled *Rethink: Contemporary art and Climate Change* which was run in different galleries around the city of Copenhagen during the climate change summit COP 15. The exhibit included art from 26 artists from around the world working on the issue of climate change (Maguire 2009a). The artists were free to explore their feelings, perceptions and ideas of what climate change looks like to them now and in the future. The art presented the audience new ways of seeing and understanding climate change by engaging the imagination in a dialogue with the artist. One of the most humorous and poignant exhibits was the long-time favourite piece by Canadian artist Bill Burns called *Safety Gear for Small Animals*. It features a series of miniature safety gear and life saving devices for very small animals like birds and squirrels under the perils of the effects GHG and global warming in the natural environment.

At COP 15, the Danish Minister for Climate and Energy Connie Hedegaard issued a press release in which she stated:

Art can act as a source of inspiration and initiate action. Naturally, I hope some of the many politicians who come to Copenhagen for the climate conference in December will be inspired by the exhibition. However, it is also important that citizens get the opportunity to view the climate challenge from a cultural perspective (Maguire 2009b).

Hedegaard reminds us that the impacts of climate change are felt in all sectors of society and finding solutions to adaptation is everyone's jobs. Art, she shows us, is a powerful addition in bringing audiences to reflect on the present, face our fears, and take charge in shaping the future with climate change. The art exhibit during COP 15

validated the importance of the cultural sector in energizing and joining the search for creative responses and solutions to action from multiple sectors of society.

In her essay *Art and Experience: Lessons from Dewey and Hawkins*, Valerie Janesic (2008) describes the creative process of the artist as one of inquiry similar to any qualitative social science research. The artist's story unfolds in the process of making the artwork while interacting and researching its surroundings. Taken from philosopher John Dewey's position on his book *Art as Experience* (1934), Janesick explains that the artwork is the interrelations of the process of a story being told and the human experience in making that work, which are fundamentally linked and cannot be separated. The artist then shares the experienced with the audience (Janesick 2008). As it is exemplified by the Cape Farewell project by artist David Buckland, as well as the artists involved at the COP 15 exhibit.

The contribution of this Masters thesis will be to provide evidence that the active participation of artists in the climate change dialogue is an essential link between science and society. My aim is not to uphold artists as having the perfect means or language to communicate issues and ideas about climate change, but to show that when placed in the dialogue, the debate over current and future limitations and possibilities, the artist imaginative and creative language can be an important tool of communication in raising awareness and finding alternative approaches to the issues of climate change.

Throughout history artists have always been involved in challenging and questioning the commonly assumed views of their time. Artists have access to our emotions as a window to our intellect. In the process they have given us a window to our past, and a vision of the future for us to contemplate and imagine the possibilities of our

destiny. My research has been inspired by the influence of these artists. Thornes (2008) suggests that if people appreciate and understand the relationship between artists and the environment it gives them a better appreciation for the environment itself. Following this discussion, I argue that art has historically contributed to the expansion of thought and ideas by engaging the viewer in a dialogue. Consequently, it allows them to become more aware of issues of society and to reflect on their own interests. I began my research by interviewing individual artists working in diverse artistic mediums. In the following chapter, I explain the methods utilized to address this research question.

3 Methodology

3.1 Introduction

In this chapter, I discuss the rationale for the methodology used to collect data. In order to meet the objectives of my research question, I chose to conduct an exploratory qualitative study. The procedure of data collection was achieved by conducting audio recorded semi-structured interviews with a series of artists from different disciplines; painting, photography, video art, documentary filmmaking, cartoon art, and public art. A breakdown of the procedures and the data analysis is provided.

3.2 Rationale

Art can only be proved as an effective form of complex communication. It can also be proved that artists are attempting to communicate – that their apparently educational effect was not random. Accordingly, it was critical in this research to inquire directly of artists as to their role in a climate dialogue, their motives and their potential for affecting change.

As the research unfolded, it also appeared essential to interview artists who work in different visual media. I began looking at filmmakers, but soon realized that adding artists from other media could help reveal general practices and approaches. I then expanded my field of study, not so much by searching for artists in particular mediums but by identifying artists with a climate or environmental focus, regardless of their medium. As a result, the final group included artists working in photography, painting, video, documentary film, public art and cartoons.

The one-on-one interview methodology was chosen to capture artists' individual perceptions, experiences and responses, from which general observations could later be drawn. "Interviews are one method by which the human world may be explored, although it is the world of beliefs and meanings, not of actions" (Arksey and Knight 1999, 33). Interviews allow each participant to speak freely about their opinion and thoughts, revealing both information that you hoped to discover and unexpected data, as well. It is often in the unexpected – and in the serendipitous agreement among interviewees – that insight can be found.

3.3 Choosing the Interviewees

I originally intended to focus my research exclusively on visual artists who were making art within the theme of climate change. After reviewing the existing literature, however, I concluded that I could helpfully widen my field of study to include artists who concentrate more broadly on the natural world. There was considerable overlap in content and artistic motivation, indicating that there also might also be practices, approaches and insights that were common – and would be illuminating.

I began with an internet survey of climate change and social change artists and art exhibits around the world. I then researched artists working in Metro Vancouver, later adding a Toronto artist whose focus and approach complemented and supplemented my existing study group. The nine visual artists in the final group were not chosen on criteria such as age, gender or ethnicity; they were chosen strictly for their artistic discipline and subject area concentration.

Edelman (1995) states: “[I]t is not, then, novel depictions, situation or style in themselves that make art works or movement worthwhile, but rather how well they clarify, illuminate, or interpret a universal theme” (Edelman 1995, 15). It is on this premise that the nine artists were chosen to participate in this research. Each participating artist creates art that pointedly expresses a position, political or otherwise of the world we live in. None of the artists consider their work to be purely decorative. For the purpose of this study, each of the artists interviewed consented to be identified by their full name and artistic field (see Table 1.1 below).

TABLE 1.1 VISUAL ARTIST PARTICIPANTS

| Artist | Gender | Artistic Field |
|-----------------|---------------|--|
| Franke James | F | Environmental Artist |
| John Cooksey | M | Documentary Filmmaker, Screenwriter |
| Josh Hite | M | Videographer, Photographer |
| Grahame Arnould | M | Cartoonist |
| Cate Cameron | F | Photojournalist |
| Miriam Gil | F | Painter |
| David Ellingsen | M | Fine Arts Photographer, Fashion Photographer |
| Dianne Whelan | F | Documentary Filmmaker, Photographer |
| Tomoyo Ihayo | F | Drawing, Painting, Mix Media |

3.4 The Interview Process

All participants were initially contacted via e-mail. I introduced myself, the research project, and requested a one-on-one interview. Once the respondent agreed to participate, I emailed back with an explanation that I would be audio recording the interview, and would ask them to sign the consent form, of which they too would receive a signed copy. Three participants requested a list of questions to be viewed in advance. I then forwarded questions to all participants, indicating that they were only intended to direct the topic of my research (Appendix 1). I explained that I was interested in their insight and opinions on the subject of my research: the role of artists in the climate change dialogue. A time and location was set at the participant's convenience. Interview location varied, at a university library, artists' homes or studios.

On the beginning of each interview, I asked participants to read and sign the consent form and invited any questions they had regarding the research. I reminded them that the consent form also stated that they might be contacted in the future for further questions or clarification. I also reminded them that the consent form requested that images of their work might be displayed on the day of the master thesis defence.

Once the subject and I had both signed the consents, I set up the audio recorder and produced the list of questions I used to keep the interview focused on the theme. The interview format remained flexible, however, allowing the participant to discuss their thoughts and feelings. Each interview began differently. When the participant wanted to know what inspired my research interest, I provided a general background. I explained that being an artist myself, I have been aware of how artists have contributed historically to social conversations and that this made me question the potential role for art in the

climate change dialogue. I avoided further detail so not to influence the research outcome.

I began each interview by inquiring about the subjects' artistic background and then moved into a series of semi-structured questions about the role of artists in historical and contemporary issues and specifically in the climate change dialogue (Appendix 1.). In all cases the interview moved fluidly, and additional questions were derived naturally from their individual stories. At the conclusion, I requested permission to contact the artists via e-mail if further questions or clarification were necessary, and all agreed. I left contact information for myself and for UBC and assured each artist that they could, at any time, remove themselves and their answers from the study. All were agreeable and several expressed their desire to attend my thesis defence. After the interviews were completed, during the data analysis process, I contacted each individual artist via e-mail to request their permission to use their full name in the research analysis. They all consented.

3.5 Secondary Data

To gain further insight into the role that artists play in the climate change dialogue, I conducted semi-structured interviews with three scientists working in the field of climate change. I felt that my research would benefit by gaining insight into what scientists thought about artists, and how they felt artists can contribute to the climate change dialogue. I hoped that the scientific perspective might test – and perhaps even validate – the effectiveness of the artistic communications. It also might bring to light any potential problems that could be introduced by non-experts.

I approached the interviews as I had with the artists. I first researched the scientists' individual field of expertise, settling on three scientists who work in the climate change field and have some experience communicating with the public: a scientist who works in the field of landscape visualization; a scientist who works within the Beaty Biodiversity Museum, and a scientist who has been crucial in a major interdisciplinary research program at the University of British Columbia. For the purpose of this study, the scientist's name and any other personal information has been kept confidential. They have been identified as Scientist A, B, or C respectively.

I initially contacted each individual scientist via email. I explained that I was a Master of Arts student conducting research on the role of artists in the climate change dialogue. I also explained that, given their expertise, I felt that their insight would be beneficial. Once they agreed to participate, I emailed back stating that I would be audio recording the interview, and would ask them to sign a consent form. A time was set up to meet at their respective offices. The interviews focused on how each scientist perceived the role of artists in communicating and contributing to climate change engagement and awareness. As the results point out, the choice to include these participants was incredibly beneficial to the research outcome.

3.6 Data Analysis

Immediately after conducting the interviews, I transcribed a verbatim copy, a process that allowed for "another point of transition between data collection and analysis as part of data management and preparation" (Patton 2002, 441). It also allowed me to intimately listen and familiarize myself with each participant. I then reread the transcript

and made notes and summaries on index cards. I then posted these notes on the wall as a visual summary of first impressions of each interview that I could refer back to as my research progressed.

3.7 Coding the Data

Following the transcribing of all the interviews, I coded data. The transcripts from both artists and scientists were imported into NVivo 9, computer software that is designed to assist in the analysis of qualitative data and designated VA for the visual artists and S for the scientists.

Coding was first approached by using the initial stages of grounded theory, a methodology that allows major themes to be discovered and extracted from the data itself rather than entering the research with a hypothesis. By creating categories from each interview, commonalities, patterns and other signifying structures that addressed my research question were obtained. I used a constructivist approach, which stresses “the subjective interrelationship between the researcher and the participant” (Mills, Bonner, and Francis 2006, 2) in the interpretation of the data. As a visual artist and researcher my status as a peer was an important factor in all the facets of the analysis.

After the first phase of coding, which produced a long list of categories, I referred back to the literature review and the main research question in order to identify the major themes in which to focus the analysis. Working inductively from the data, and not from an existing framework, I went through each category identifying the increasingly obvious themes that were emerging were about the artists’ motivation, their process and their final product.

In the following section, I outline the results of that analysis. I determined that the best way to present those results was by using a linear narrative of the artists' creative process from the conception of the idea to the completion of the work of art – in the process also cataloguing the artist's perspectives, expectations and assumptions in their own chosen roles as participants in the climate change dialogue.

4 Results

4.1 Introduction

This chapter contains the results of my analysis of the qualitative data from the artists interviewed. I have approached my research question, regarding the role that artists can play in the climate change dialogue, by focusing on the artists' creative process – providing a narrative of the creative journey the artists embark upon in order to express their points of view and beliefs through their art.

As a preamble, I have provided an introduction to each artist describing what has motivated each participant to choose his or her own particular medium. I feel that this is an important method, for though the artists interviewed for this project by no means speak for the entire arts community, the commonalities that have emerged here suggest that their thoughts and points of view represent a parallel creative trajectory with many of those involved in other art practices.

The first part of the analysis focuses on the thoughts or events that generate ideas, and how artists research and prepare to bring those ideas to fruition. The second part explores the artists' role as social agents, engaging the public imagination in societal issues. The analysis then investigates the artist's perception of the function that their art, and the art of others, might play in challenging prevailing ideas and issues, and in providing alternative perspectives. Lastly, the analysis centres on how the artist views art as affecting change.

Using this process, I hope to bring forth a clear illustration of the artists' intentions for their own work, in the process challenging the belief or notion that art is

“ancillary to the social scene, divorced from it, or at best, reflective of it” (Edelman 1995, 2). Indeed, this research shows the artist’s creative expression to be a crucial element in the contemporary discussion of climate change, augmenting the voices of science and politics. Artists are clearly influenced by society and their surroundings and they marshal those concerns to inform and inspire their art. The artists in this study clearly reflect diverse points of view in how they approach the politics of climate change and in how they translate the science. They even disagree about whether making art about climate change is an act of social activism. However, all of the artists have developed effective methodologies to provoke action and to reach audiences through techniques that are largely unavailable to other participants in the climate change dialogue; in this way, they have become social agents and communicators, creating new means of addressing the environmental issues facing our planet today.

4.2 Artist Profiles

4.2.1 Cate Cameron: Photojournalist

Cate Cameron credits two factors for her inspiration to become a photojournalist: her background in homeopathy, a discipline that involves talking to people and learning about their stories as a key to unlocking their medical symptoms; and the influence of a documentary about photojournalists and war correspondents. She notes:

“Watching that and seeing the way they worked, I had a real identity with them and I felt a really strong, compelling urge that I wanted to work with some meaning. I always was that kind of a person. I was always interested in photojournalism as a story. I think I have that innately in me, I tell stories. I have always worked as a photographer.”

4.2.2 Josh Hite: Videographer and Photographer

Josh Hite was compelled to become an artist while travelling in Russia, where he was invited to show one of his pieces in an art show. Having had no art training at that time, he began his process by interacting with other artists and thinkers. His work has matured into art that addresses issues or events of daily life. He explains:

“I think the art that I am engaged with ... quite simply affects people's daily life. My work has a lot to do with daily life. It does not tend to focus on sensational things but, rather, ordinary thing... to see what other people bring into an environment, or making people feel comfortable enough in an environment to take some steps. I am creating a platform.”

4.2.3 Dianne Whelan: Documentary Filmmaker and Photographer

Dianne Whelan credits her background in journalism and photography as the main influences in becoming a documentary filmmaker. She notes:

“I started out in photojournalism and doing some commercial photography as well as my own art practice for several years. And then, about seven years ago, I thought, ‘Okay, I have this background in journalism, I have this background in visuals,’ and there was this sort-of technological revolution happening in the film industry with the digital thing and I thought, ‘Wow! This could be great; this could be like a synthesis of everything I have ever done, the research, the political philosophy, the journalism, the photography, and the photojournalism. I can bring all of these components together into this new narrative.’”

4.2.4 Franke James: Environmental Artist and Climate Change Community Engager

After graduating with an MFA from the University of Victoria, Franke James worked as a painter and curator. She later went on to a career in advertising and design. She credits that experience for her current technical prowess.

“I would not be the artist that I am today if I had not had this background because it teaches you how to express ideas in words and pictures in a very succinct way.”

Asked how she became an environmental artist, James recalls the time when she and her husband decided to do an energy audit on their home. While researching energy efficiency, she began to learn about global warming:

“It was at that point that I said I have to combine my visual art with my words. I have to combine words and pictures and I have to express it much more succinctly, drawing on my advertising background. That is when I decided I would start creating these visual essays.”

4.2.5 David Ellingsen: Fine Arts Photographer

Growing up on BC’s Cortez Island, surrounded by the ocean, organic farms, artists and free thinkers, inspired David to become an artist. His most recent project, *Sea Life*, is a series of photographs of fish from the collection of the Beaty Museum of Biodiversity. He explains that he was also compelled to do *Sea Life* by the constant environmental news about the state of the world’s oceans:

“It just became more and more news that we have heard over the last 10 years of the environment and climate change. And the ocean tends to be the subject of our times right now, so I was compelled to do it. ... Then all of that stuff came through with the Gulf of Mexico on the oil spill disaster, and more and more news about the ocean and disasters ... it seemed like a timely moment.”

4.2.6 Tomoyo Ihaya: Drawing, Painting, Mixed Media and Arts Instructor

Tomoyo Ihaya believes that she was born an artist. Art for Ihaya is a process of inquiry into her inner self, and is a tool to communicate what she cannot articulate with spoken language alone. She makes art to share her experiences with others:

“I really want to share my experiences with other people because, number 1, I think it is one of my duties as an artist. It is part of the ecosystem, the system in a society. We have to share, and we have to communicate. Each person has a different view and I am not expecting the audience to look at my art as I wish it to be. I would like them to look at whatever they can direct their attention. That is part of the communication process. It is very abstract, but I like it.”

4.2.7 Jon Cooksey: Documentary Filmmaker and Screenwriter

Jon Cooksey, a television screenwriter, was compelled to delve into the documentary medium by reading and researching books on climate change. He was left feeling that he needed to do something about it, for himself and others. He made a documentary movie, *How to Boil a Frog* (2009), offering solutions to what he calls “global overshoot”:

“I did that specifically because I realized that making personal-level changes was necessary, but insufficient, to save my daughter’s life. I cannot save her without saving everyone – so I had to try to do something that would defend the global commons. Very few people have the potential means to do that. I was maybe one of them. So therefore I had to do it. That doesn’t mean I’ll succeed, but I couldn’t do anything less. And making the movie ultimately engaged my instincts for storytelling.”

4.2.8 Miriam Gil: Painter

Miriam Gil credits a childhood experience for inspiring her as an artist. She recalls finding a sick pigeon, holding it in her hands and being overcome with wonder. As an adult, she has used that experience to guide her artistic research. She explains:

“My work aims to ... deep questions about our relationship with nature. By focusing on animals specifically, I aim to go deeply into that core of what determines that relationship because, in the end, there's a sense of alienation. We don't see ourselves as being part of nature.”

4.2.9 Grahame Arnould: Cartoonist

Grahame Arnould says that he was always “hard-wired to be an artist.” Grahame credits his environmentalist uncle as one of his great influences in becoming a commentator. His uncle used to clip out pictures from the newspaper and discuss the stories with him, teaching him not to take things for granted. He combined these influences to establish himself as an editorial cartoonist.

“I think the reason that I became a cartoonist and an editorial cartoonist was to comment. It was to say something. Not exclusively about various aspects

of the environment, the collective engine of Canada. I think you just become passionate. You go: 'There is something wrong here.' In a tiny little way that humble little me as a cartoonist, you are almost saying, your ego is saying, 'I can make a difference.'”

The artists chosen for this research project show a broad range of motivations on becoming visual artists, and work in a variety of disciplines. At the same time, each reports an instance of realization – whether it was sudden or evolutionary – that caused them to become personally concerned about the environment and the risks that humans face thanks to the unintended impact of their own actions.

4.3 Travelling Through the Creative Process - Part I

This first part of the research analysis explores how the artists engage emotionally with an idea that, in time, becomes a work of art. It then moves to a discussion of how the artists define being true to their art and honest in their work. The final part focuses on the creative research process that the artists undertake.

4.3.1 The Genesis of Ideas

Albert Rothenberg (1979) says, “The subjective experience for anyone working in the arts, regardless of level of competence, is of bringing forth something out of nothing.” (Rothenberg 1979, 1). When the visual artists in this study spoke of how they arrive at their ideas, they all describe moments in which they felt an emotional need to describe the impact that a situation, issue, or event had on them – a need to share with others their internal unrest.

Artist Grahame Arnould describes the process of inquiry as beginning with being “curious,” of “trying to make sense” of something that catches his attention. The resulting state of “agitation” gives rise to the first seeds the creative idea. Arnould believes that in

order to make art that resonates, the artist needs to be informed, curious and politically aware.

This process of courting and resolving what Arnould calls “agitation” is also experienced by painter Miriam Gil, who expresses it as being a natural motivator to spark ideas and stimulating the creative juices. It is similar to what Albert Rothenberg (1979) describes as a “state of awareness of external environments, and physical circumstances, and a state of conscious intention” (Rothenberg 1979, 125). Gil explains,

“I find that, at the core of art, at least the art that I produce, there's a void that I want to fulfill and there's always this desire to know and understand. It stems from a sense of restlessness that I am continually aware of, and my work needs to find answers and ask questions.”

Tomoyo Ihaya also reports getting a creative impulse from feelings of uneasiness that stem from her observations of people’s behaviours and choices in society. She says:

“I do have a big sense of urgency, danger; warning, maybe. I feel that especially in this part of the world where ... people call it the best country, right? And we are based on a culture of consumerism. We keep spinning every day to pay our bills. And then we don't have the time to think who we are. We don't have the time for spiritual. We get so distracted to the point that we don't stop and then we have everything. We have hundreds of kinds of bottles of water here and I thought, if we keep doing this, keep eating whatever, commodifying all the environment and resources ... Water is not America's, water is not Canada's, it belongs to everybody. We have to share it. We don't buy it. We don't sell it.

Ihaya doesn’t come at this as a rigorous economist, for example by testing or contemplating the best methods for safeguarding a commodity like water that people hold in the global common. Rather, she is energized by her concern about common ownership – and mutual risk.

“Whenever I come back here, I feel that we are going to crash someday because we are spinning so fast and when things go too fast, we crash. I feel more when I come back here and I can't help making this kind of art.”

Photographer David Ellingsen explains that he was inspired to create his collection of photographs, *Sea Life*, by media accounts of the current state of the oceans and, in particular, the oil spill in the Gulf of Mexico. *Sea Life* features beautifully composed still photographs of individual fish carefully selected from the specimen collection of the Beaty Museum of Biodiversity, at UBC. Ellingsen explains that his connection with the environment and his need to create awareness stems from the emotions and appreciations he first felt in childhood:

“I grew up on a very small island, as I mentioned before, surrounded by the ocean. I spent all of my childhood in the summer months, basically on the beach all day, every day. That was our baby sitter, the beach. So I have and feel a strong connection to that world.”

Franke James generates her ideas by chronicling, very subjectively, her own efforts to address climate change and live sustainably. She began by familiarizing herself with the science of climate change, which “has made me curious about science, so that I have to understand it in order to express it.” The resulting process is all about “expressing an idea that is inside of you, and you are helping the world to see that idea.”

There are no correct answers to what event, circumstance or feeling generates an idea that will transform itself into art, but for all these artists, inquiry seems to be integral to the process of creative conception. Producing a work of art demands that they engage in their own world, observing, investigating, studying or analyzing things that inspire their imagination. The artists then synthesize these ideas into art.

4.3.2 The Challenge of Accuracy: the Illusiveness of Truth

Eisner (1981) argues that society today still struggles with the idea that art may act as a knowledge modality. According to Eisner, we as individuals use a variety of forms of expression, interpretation and representation to communicate and understand the

world around us. Scientist A suggests that, because we are a diverse species, we express ourselves multifariously, and that we capture these expressions in creative acts. Scientist A says that, fundamentally, what is important is the “inquisitive mind and how you express it”. As an example, he gives the insightful experience of looking at prehistoric European cave paintings or at the paintings of ancient Egypt. He states:

“Those paintings tell me a lot. Whether that is correct or not, it doesn't really matter, because it is an impression, it gives you a perspective.”

However, as Eisner (2008) notes, knowledge is generally assumed as having to be verifiable as a form of factual truth, as in the case of scientific facts (Eisner 2008, 4). Scientist B. explains why it is important to him that his work in climate change landscape visualization is perceived as hard science, and not as a form of artistic expression in which the dry presentation of fact can sometimes give way to the search for what is sometimes described as a deeper artists “truth.” It is, he says, an argument that he has had with his collaborators, in which they struggle with the distinctions:

“This is art, that is science; this is modeling, that’s just pictures; That is art. You are making it up. You have no credibility.’ That is the implication, and we could be criticized on it. ... And so we have tried quite hard to preserve a distinction between the art and the science.”

The concern, Scientist B says, is that if you say, “that is art,” someone else might replay “You’re making it up; you have no credibility.” Accordingly, “we have tried quite hard to preserve a distinction between the art and the science.” This concern concurs with Edelman’s (1995) statement that art is often assumed to be “ancillary to the social scene, divorce from it, or, at best reflective of it” (Edelman 1995, 2). Knowledge dissemination; the truth, it is suggested, in any artistic expression cannot constitute something akin to an

objective scientific accuracy because it arises from the personal point of view and the personal perceptions of the artist.

Yet artists through the ages have often achieved a kind of visual truthfulness. The 16th Century Italian painter Caravaggio portrayed scenes of the human condition with awe-inspiring demonstrations of how lighting affects the dramatic perception.

Caravaggio's paintings are still referred to today by filmmakers looking to excite and highlight dramatic storytelling. A more direct contributor to the scientific field via the visual arts is 16th Century polymath, Leonardo da Vinci, whose curiosity into the human condition led him to study human anatomy. In this regard, as in his work in primitive engineering, his influence on the scientific field is still recognized today (Keele 1964; Pevsner 2002a).

What is considered key and imperative to all the artists interviewed is that their works be perceived as both accurate and "truthful." Painter Miriam Gil states that, because she approaches her art with a direct concern for scientific accuracy – engaging in rigorous research before executing a finished piece – she sees the resulting work as a manifestation of fact. Videographer Josh Hite notes that there are many different ways of comprehending a subject, determined, in part, by the message or story that the artist is trying to convey. What is important, Hite asserts, is that the artist is informed about the subject. Knowledge and honesty on the subject, he states, will resonate with the audience. He explains:

“When I see people making work they don't know anything about, it is usually a cliché, and I couldn't see why or what they would possible have to say about something they do not know anything about. Whether you know the social, cultural impact of an action that can be enough without knowing the real science behind it.”

Opening a space for the expression of the different expressions of artistic truth is key in negotiating and understanding the contribution that art can have in the climate change dialogue.

Artist Graham Arnould notes that his work as an editorial cartoonist must be based on verifiable facts; otherwise the art has no meaning. Using “legitimate sources of information” to generate the art is as important as the work itself:

“I think the research is a collection of facts, and what is reflected in my cartoons are fact-based. When you are criticizing something, which is part of editorial cartooning, you want it to be legitimate. Just saying ‘I don't want that person’ or ‘that person is bad,’ that is not an idea, that is just a sentence.”

For example, one of Arnould’s cartoons, on the impact of sea levels rising appears under the header, “Vancouver Condo Builders are Re-thinking Their Approach in the Wake of Higher Sea-Level Predictions.” It shows a real estate agent and a prospective homebuyer standing together in front of a large window, behind which there are fish swimming. To the buyer’s bemused look, the real estate agent responds: “And it has a great ocean view.” Arnould is not seriously saying that real estate agents will soon be selling property that is under water. But he’s making a point that is well-founded in research that climate change will cause sea levels to rise. His is an effective modality through which the viewer can reflect on the larger issue. It is in moments like this that art catches the viewer’s attention, forcing them to face the implications of climate change.

Photojournalist Cate Cameron agrees that it is essential that the artist be well informed about their subject matter, but questions the importance placed on verifiable facts as a form of truth:

“Part of me is saying, ‘they should be informed, they should have the facts.’ But all of those facts, on the other hand, are also open to conjecture and they are always changing ... photographing climate change is the same, you can

photograph and make that statement, but in 10 years it's going to be completely different anyway."

Scientist A also notes that "facts" can change or transform through time; therefore, being truthful may simply be a matter of adhering to a contemporary paradigm.

He explains:

"When I crawled out of my space 25,000 years ago, I did not understand the sun, the moon, etc. So I had a sun god and moon god, etc... When I started to understand more and more each one of those gods I kept throwing them away. So anything that was correct 200,000 years ago wasn't correct 100,000 years ago or 10,000 years ago, and it is not correct today, and it will not be correct tomorrow."

Something similar can be said about art, and our perception of it. Changing perceptions often transform an artwork's meaning, and a work may be viewed differently in different contexts. What appears to be crucial, as the artists interviewed for this research express, is that for the art to resonate it has to be entirely truthful at that cultural interval.

Environmental artist Franke James adds that, to be faithful to an idea or a message, the artist must have sufficient understanding that they can explore the topic through their imagination. She explains:

"If you think of science fiction writer George Orwell's book, *1984*, he is putting forward ideas that, at that point in time, were not based in reality. It is amazing how so many of these things have come true. So, is there a role for artists to do that? Yes. Artists don't really have to have things grounded in reality. It can be an exploration of the imagination."

Munro (1967) asserts that when exploring the creative thoughts and imaginings and applying them to the creation of art, "new answers must be made by each generation from the standpoint of its own beliefs and standards of value" (Munro 1967, 101). Art changes meaning across generations and through the context in which it is viewed.

What is clear is that working from an honest, knowledgeable, and informed place, artists allow for the audience to see and perceive the world around them in new and imaginative ways that are concurrent with the world we want to live in. But art is like caricature: an exaggerated drawing is only effective if it captures something essential – something clearly recognizable – of the subject. Similarly, these artists rely for their success on an underlying accuracy. They begin with accurate, if sometimes dry, fact and then engage their own creative interpretations and artistic license thereafter to present something that is both powerful and efficient in communicating the information and advancing the dialogue. In the face of dire predictions of the sort that might discourage people from grappling with the notion of global warming, art can open the viewer’s imagination of a changed world that we still want and can live in.

4.3.3 The Research Process

This subsection of the research analysis attempts to provide an overview of the research methodology that visual artists pursue in order to broaden their knowledge and deepen their understanding of the subject or theme explored in their work.

In her essay, *Art and Experience* (2008), Valerie J. Janesick says that, as an artist and scholar, she has come to realize that artists and scientific researchers embark on similar processes of research in order to tell their stories (Janesick 2008, 478). based research, as defined by Shaun McNiff (2008), is said to be “the systematic use of the artistic process, the actual making of the artistic expressions in all of the different forms of the arts, as a primary way of understanding and examining experience by both the researchers and the people (or situations) they involve in their studies.” (McNiff 2008, 29).

For the purpose of this study, this analysis identifies two main ways in which visual artists engage in research: by direct physical experience, and by inquiring into other media. It is important to note that there is no specific chronological or linear manner in which an artist engages in research; artistic research has, at its core, a personal trajectory in which “its forms and methods vary according to location, diversity of participants, and the range of ways in which researchers, artists, and participants describe, interpret, and make meaning from experiences, as well as by the multiple forms of representation available” (Finley 2008, 79).

On this topic, Scientist A says that it is through the diversity of creative methods that people find avenues toward research and expression. For him, everyone participates in “research” as a natural part of experiencing life. He says:

“We are all scientists when we go to a new area for the first time. For example, I put you on an aircraft and I fly you around for a couple of hours and then I open the door and take the blindfold off. What is the first thing that you see? The ground, the surroundings, the vegetation; is it flat? So what are you doing? You are collecting data on the basis of your experiences: if it is shivering, it is cold; if the sun is shining, it is warm; if you don't see any trees, it is a desert; if you see lots of trees, it is forest. You are building that data bank on the basis of your experience. You are collecting data. . . . Then I ask, ‘where are you?’ You say ‘I am in the desert; I am in the forest.’ You've collected all this data and you put it together and interpreted all that data into information.”

The implication that humans are continually collecting and processing data in order to form opinions and conclusions further substantiates the usefulness of art in broadening the dialogue surrounding climate change. In order to understand and engage in progressive environmental thought and action, the artist and the viewer participate in a research process that further affects and influences their decision making process. The

artist, through their own research and skill, makes that research process more enjoyable for their audience.

i) Research by Direct Physical Experience. Interdisciplinary artist Tomoyo Ihaya's physical relationship with the environment is an essential aspect of her creative process. Ihaya's research process is rooted in her interactions with the physical environment, where she is able to observe, absorb, experience and feel what is going on around her. She says that this direct physical experience is essential to her process of creation, adding: "I make art from my daily life experience, and I hope I have the clarity, insight and sensitivity to feel what is happening around me."

While researching the theme of her multimedia work, *Drawing-Trees and Water* (2009), Ihaya lived with a family in the Indian Himalayas, daily fetching water from a well. One of her delicate sketches from this period, *On the Edge of Water*, depicts a group of plastic bottles huddled beneath an inverted pyramid of water droplets. This piece allows the viewer to reflect on the effects of our actions on the environment in a poetic and emotional way. In the course of our interview, Ihaya reflected on her own dichotomous relationship with the plastic bottles:

"I felt very conflicted, because I feel very ambivalent about plastic. I said 'I don't like plastic,' but I was holding on to my water bottle. I thought it was funny and very contradictive. I thought, 'my god these plastic water containers, how beautiful they look, because without them we cannot survive, we cannot cook.' It was very strange but I started loving them."

The work captures her ambivalence, compelling the view to also grapple with the awkward trade off between the delivery of safe drinking water and the effects of plastic garbage – an issue that is yet to find a solution.

Painter Miriam Gil compares her research practices to that of a cultural anthropologist. By physically participating in the research process, she discovers new and unexpected ways of seeing her surroundings. For her installation, *Caution Signs* (2003), she composed a series of representational highway signs for road kill. Gil was inspired while travelling from Vancouver to Alberta, on which drive, she encountered dead deer and other animals along the side of the highway:

“As I was driving, I started to see dead deer. I thought, ‘ok I am going to document that,’ and then gradually I realized that there were all of these deer dead along the highway, and all these wild animals that became part of my research. I didn't go to the extent of finding out the exact numbers – for me, that wasn't really relevant. I thought that documenting the fact that this is happening was sufficient.”

Gil says that *Caution Signs* “depicts the point where the urban surroundings meet the rural world.” It calls upon our immediate relationship and disconnection with the natural world, which is suppressed in our everyday life experiences. Similar to photographer Chris Jordan, Gil’s work forces us to question and reflect on how we want our world to be, and how we might achieve our goals.

Like Gil, filmmaker Dianne Whelan allows her experiences to inform her research and to filter into her documentaries. She explains her process by saying:

“I am not interested in having a pre-ordained idea. You have an idea of what you think: like, I knew I was going on a journey. I knew that the journey had a beginning, middle and end, so there is the story structure. I was open to documenting whatever happened.”

Dianne allowed her physical relationship with the environment, her observations and her interactions with the local people to shape the final story in her documentary, *This Land* (2007), about a historical sovereignty patrol travelling in the Canadian High Arctic. Whelan explains how the tangible experience of her surroundings informed the research for her documentary:

“You’ve got the fracturing of a place occurring, and the further north we went, the softer the snow became. So there is no doubt that, yes, I experienced the effects of climate change in the Arctic, and I heard the stories from the people who lived there and experienced it every day.”

For Whelan, it is cumulative actions and experiences that give rise to the layers of storytelling in her work. She says: “I don't make films about one theme. I make films about experiences, and naturally it brings everything that is going on, in terms of local politics, the environment ... all of these things come to play.” Photographer Cate Cameron expresses a similar sentiment about the artistic research process:

“I think artists are very much experiential. They will look at the world and understand: this is what is happening with the world and I am a passionate artist and this is really affecting me in an emotional level, so I am going to create something about it.”

Environmental artist Franke James reveals how she used herself and her actions as part of a research process that resulted in her visual essay *Kicking my 30-year Habit* (2010), which humorously tells the story of her trepidations about cancelling the daily deliver of her newspaper. In order to live more sustainably, James began to read the news online. She recounts:

“When I decided to give up the newspaper, I was observing how it changes my habits. How do I react to it? That becomes the subject of my art ... Looking specifically at the instance, giving up the newspaper, we no longer had a huge stack of newspapers to throw out every week, so that was nice. It made the house a bit cleaner because you don't have to be throwing out those newspapers, and it also very much changed my habits about reading the news.”

Being part of, and connected to, the physical environment is an important aspect of the research process and the acquisition of knowledge for the artists presented above. In his essay, *Art and Knowledge* (2008), Elliot Eisner asserts that knowledge is acquired in different forms and that setting the sort of knowledge acquired through an engagement with the arts alongside verifiable scientific facts opens the door for different types of

truth, as well as multiple forms of knowing (Eisner 2008, 5). This is significant for the role of art in the climate change dialogue, as the intangibles of hard science are illuminated and articulated through the vocabulary of visual art.

ii) Research by Using Other Media. The artists interviewed for this thesis frequently credited material from other media – from other than their chosen discipline – as being critical to their own research process. For example, Jon Cooksey found that the challenge of trying to make sense of scientific information about climate change ultimately drove him to create his documentary, *How to Boil a Frog* (2009), a film concerned with what one person can do to save a planet threatened with the dire predictions of global warming and overpopulation. He explains:

“Once I understood the basic science, I was free to come up with metaphors – hopefully funny ones – that would let the average person grasp the basic issues in a very short time, because comedies move very fast. But artists will interpret and present science in all kinds of different ways, based on their chosen media, and that’s important, because there are all those different ways to get past the anti-science brain barrier, and different ways work on different people.”

Artist and activist Franke James also uses scientific writings as a source of inspiration. She states: “I’d be reading a book and say, ‘I’ve got to be able to communicate this.’ So I am being inspired all the time by science writings and creating art that inspires others.”

James notes that reading scientific information has also changed her perception of science – and her art. Her creativity is now informed by the interplay of her logical side of the brain with the artistic side, or as she puts it: “I was very much a right brain student; I was much interested in art. I had no interest in science. But now science inspires my art. All of the essays in my book are very much about climate change and inspired by

scientific findings.” James’s animated *CO₂ Toaster* (2009) – an online widget in the shape of a toaster – demonstrates the change. On the face of the toaster, a number indicating CO₂ in parts per million (PPM) changes according to the amount of CO₂ emitted in the atmosphere. When one clicks on the toast, it pops up in the shape of the globe, and a title states, “Don’t Wait Until We are Toast, Cut your CO₂!” James says she was trying to find a way to encourage people to make the lifestyle changes necessary to help reduce the approximately 393 parts per million (PPM) of CO₂ currently suspended in the atmosphere to 350 PPM, which some scientists recommend as a safe level. . The art piece is visually compelling and humorous while providing the viewer with information on the choices he or she can make to help society and the planet.

David Ellingsen’s life-long relationship with the ocean, coupled with increased news coverage regarding the state of the marine environment, led him to photograph the fish collection of the Beaty Biodiversity Museum at UBC. He states:

“So it just became more and more news that we have heard over the last ten years ... of the environment and climate change and now the ocean tends to be the subject of our times ... so I was compelled to do it. ... Then all of that stuff came through with the Gulf of Mexico on the oil spill disaster and more and more news about the ocean and disasters ... it seemed like a timely moment to finish this series.”

The news, as stated in Chapter 2, is the primary source by which most people receive information about climate change. Artists have the ability to use this information to create meaningful works of art that engage the imagination and make connections to the consequences and effects of climate change in the natural environment. The results, as in the case of *Sea Life*, can be powerful, thoughtful and reflective images that raise awareness and create new ways of thinking about the environment.

Cartoonist Grahame Arnould describes himself as a news junkie who consciously synthesizes information to turn it into his art. Arnould says he spends hours a day reading magazines and newspapers, and looking at the work of other artists, particularly other cartoonists. He adds:

“I am always drawn to people that have done something, usually creative; almost exclusively, people who have done something cool in my mind. Creativity, it is a little bit mysterious. You are like ‘where the hell did that come from?’ I love that. I am drawn to that.”

In order to make art, the artist has to be aware of and connected with their surrounding world. All the artists interviewed emphasize that art does not arise in a vacuum, but rather, is a constant negotiation and interweaving of ideas gleaned from a heightened state of awareness coupled with exposure to current affairs, news, scientific information, literature, and the environment.

Photographer Cate Cameron says that other forms of art broaden her perspective, inspiring her to explore her own aesthetic. Cameron points to the Bulgarian artist Christo, whose work involves wrapping large buildings and entire landscapes with fabric, with the purpose of altering their aesthetic effect while inviting the viewer to see a familiar landscape in a new way. Cameron explains:

“For me, it is still going back to images about the environment itself, like Christo, who drapes the world with this fabric and sets up these fabulous views, and then they are photographed as well. He drapes the walls, something very kind of basic, and utilizes the environment to showcase our world. I love that kind of thing. Even with Burtynsky, showing the dynamic of how things are impacted in the world.”

In their search for knowledge, artists engage in research that is emotional, physical, and intellectual; as Eisner (2008) states, “what one needs to research in a situation must be appropriate for the circumstances one addresses and the aims one attempts to achieve.” (Eisner 2008, 4). In the inquisitive minds of the artists interviewed,

there is a deep sense of personal responsibility towards the research process. Eisner (1981) suggests that artists use research to search for a subjective, imaginative point of view, to gain insight into the construction of meaning “embodied in the shape of what is expressed” (Eisner 1981, 6). It is how the artist represents the research material that allows for diverse forms of creative artistic representation or as painter Miriam Gil explains:

“To me, to be contemporary is to live now, to know what is going on, to have curiosity in science, society, including war, how people suffer, how women suffer in those countries. I received an antenna, how it comes out is a mixture of layers and different levels of language.”

For the artists interviewed, art making is a need that arises from concerns about societal issues. They reflect these concerns through their art. It is important for these artists that the viewers perceive their work as truthful and honest. Equally, all the artists involved in this research emphasized that they are actively engaged in their surroundings. They all research rigorously, often investigating directly their physical environment, and they all use a range of other communication tools, such as media, literature, and other works of art.

4.4 The Artist as Social Communicator – Part II

This second section focuses on how artists perceive their role once their work has been exposed to an audience. It explores the hopes and expectations of engaging a viewer with the ideas and themes conveyed through the aesthetics of the piece. The analysis further focuses on how the artists perceive their role in affecting change. The section concludes with a discussion on the transformative capabilities of art.

4.4.1 Engaging the Viewer

According to Moshe Barasch in his book, *The Language of Art* (1997), the visual arts have been regarded as a language in human society since before antiquity.

Consequently, it has led to many writings and discussions on how the arts function socially, provoke responses and transgress meaning. In contemporary writing on the arts, the discussion has centered on artists, their intentions, their beliefs and their points of view, and their audiences' responses (Munro 1967). The artists interviewed for this research indicate that it is their aim to make art that establishes a communication link with their audience. Painter and educator Miriam Gil believes the artist's role is to engage, inviting the audience to look at the story and embrace the process of inquiry.

Cate Cameron says the artist's role is to communicate; she believes that when the viewer connects and establishes a sense of awareness with the story conveyed in the art piece, it allows for dialogue, thoughts and ideas to expand. She explains:

“When there's a sense of awareness and art forces people to ask questions, there's a dialogue that starts, and hopefully that will lead to action. It is a form of dialogue from the artists: by asking questions, it creates a circle of communicating ideas.”

Cartoonist Grahame Arnould indicates the importance that he places on getting an audience response, positive or negative. Failing to get a response, on the other hand, he sees as a sign that he has missed his opportunity; this, in turn, leads to self-doubt or a feeling that his work is not resonating with the viewer:

“There's something that wakes you up in the morning and it is the communication. It is always frustrating when I send stuff to an editor and there is no response. I don't care if they say no. But when they just don't bother it pisses me off ... there is no proof that I actually communicated until he says no or yes. Artists are used to rejection. I'd rather be rejected than not getting any answer at all.”

Videographer Josh Hite created a public art piece called *Green Footprint* (2010) (a collaboration with artist Justin Chambers). The piece is what they called a “visual pun” on the term “ecological footprint,” the measurement for human demands on the earth’s ecosystem that was conceived by UBC Professor William Rees et al., in 1990. Hite and Chambers developed *Green Footprint* by inviting people to participate in the creation of the work. Participants met at Vancouver’s David Lam Park in November 2010, where they were then draped in the colour green. Each participant then became part of the shape of a giant green boot that was later photographed by a satellite. Hite says that the idea of the boot-shaped footprint lent artistic context to our urban experience; he hoped it would encourage people to reflect and make changes toward more sustainable lifestyle. Hite says inviting the audience into the creative process was transformative process for him as an artist:

“Eliminating the viewer from the work and the viewer becomes participant in the work rather than like a theatre where the division line is very clear and straight forward . . . work that takes that risk of involving other people in giving up some of that authorship in the work and opening it up for other creative possibilities that are often more than I could have envisioned, that I could have never imagined alone. Some of those projects have been really scary to do, and also very rewarding to see what other people bring into an environment or making people feel comfortable enough in an environment to take some steps.”

Hite goes on to describe how making *Green Footprint* in this manner broadened the discussion among the participants. He comments:

“I think the nicest thing that happened was that a number of artists, dancers and activists stood around and had a conversation for two or three hours that very cold morning. It opened up the dialogue. Lots of people got to meet each other and chat. To me it was interesting.”

The artists involved in this research were unwavering in their conviction that artistic engagement is much different from instruction. They are seeking dialogue with

their audience, not “telling people what to do.” Tomoyo Ihaya said: “I don’t want to be a messenger as if I know everything.” Josh Hite said: “I guess I don’t want to make work that tries to ... I don’t want to preach to the choir.” Diane Whelan said: “I don’t like to preach to people. I am a big believer of giving people some information and letting them process that however they want.”

It is important to these artists to engage the imagination, to invite the viewer to wonder over the art and find their personal point of connection. As Ihaya explains:

“We have to communicate. Each person has different views and I am not expecting the audience to look at my art as I wish to be. I would like them to look at whatever they can direct their attention to. That is part of the communication process. It is very abstract, but I like it.”

Photographer Cate Cameron adds that when the emotional relationship is successfully achieved between the audience and the art, “it creates a possibility of bridge or connection” that allows the viewer to enter a self-reflective inquiry. In that manner, as Scientist B asserts, “art can stimulate people to kind of break down the conventions and look at things in a new way.” She explains:

“Sometime you can sort of glaze over art ... you are aware that it’s there but you don’t really look at it and spend the time to try to understand it. But I think if somebody actually engages with it at some level and ask he or herself ‘I hate it, why do I hate it?’ and they want to look at that, they can bring that up within themselves and understand that. Or if they look at a photograph of a wasteland and they want to know, where is this happening? Is this in my own backyard? Is this in Haiti or somewhere else? I think people will look at kind of their own experiences and relate to it but I think that in order to use the imagination, they have to engage with it and not just glaze over it.”

Cameron says this process of self-reflexivity can influence thought and bring awareness that may lead to action. She describes how she perceives the work of photographer Chris Jordan in affecting others:

“[Jordan] is doing what I do: he is not giving any solutions, he is kind of saying, ‘This is a reality, and, is this the reality that you feel comfortable

with?' So again, it is about opening up that dialogue ... making us aware of where we are really."

Tomoyo Ihaya identifies this sort of communication and dialogue with the viewer as a natural process of human connection where the boundaries between artist and viewer blur. She believes that it is important that she shares her experiences as an artist because it is in the shared interconnection with others that art plays an important role in engaging and evoking emotions in a different but familiar form. She explains:

"I even don't think that there's much border between the audience and I. We are all different but we are all the same too. And then I think it is my hope not to push them to do something, but I really want to share my experiences with other people because number one I think it is one of my duties as an artist. It is part of the ecosystem, the system in a society. We have to share. We have to communicate."

Miriam Gil believes in the ability of art to capture the viewer in an emotional and intellectual dialogue where thought, emotions and critical thinking can be engaged. She says: "I think that by asking questions and opening up a dialogue, there is an interaction between the audience and your work that is a dialectic process that takes place." It is in this dialectical state that Edelman (1995) believes that art can motivate the audience to be reflective and active in their thinking because art "excites minds and feelings as everyday experiences ordinarily do not, it is a provocation, an incentive to mental and emotional alertness" (Edelman 1995, 143).

Cartoonist Grahame Arnould adds that it is his intention to express himself as an artist while at the same time raising audience awareness and alerting the audience to his concerns surrounding an issue. "I am not going to tell someone how to clean that river, all I am saying is, 'Hey! Somebody is peeing upstream here and that person down there has to drink that water,' I am saying, 'Look what is happening here.' It is in an initial form of raising awareness." Arnould understands the limitations of the cartoon form, but

perceives his role as a contributor to a larger context. He explains: “I think society is not going to look to a cartoonist for solutions ... I think it is rib poking; we just spend our days poking people in their ribs. We are jesters.”

The artists interviewed for this research indicate that a work of art is not really complete until it has been viewed and experienced by an audience. Communicating with and generating a response from an audience is an essential process in the life of the art piece.

In the climate change discussion, the need to use different kinds of communicators to broaden people’s engagement on the issue has been clearly established in the literature. Artists, as the research analysis suggests, may play a key role in finding new audiences for climate change-related information. All the artists interviewed indicated that interacting with an audience is integral to the artistic process. In this way, they establish a line of communication and dialogue, perhaps even a reciprocal relationship that will inspire new ideas for both parties.

4.4.2 Art and Social Activism

While all artists are not necessarily activists, most artists interviewed in this research recognized that they could use their skill and creativity as a powerful vehicle for activism – for raising awareness and encouraging others to engage in environmental pro-active behaviour. Franke James puts it this way:

“Think of climate activists – not artists, but activists – like Greenpeace. I am not willing to do civil disobedience and risk getting arrested. I don’t want to be that kind of climate change activist. But I can use my art to influence people to take action on the environment. So it is a form of activism that I like and it suits me. That is the way I am contributing.”

James hopes that people who see her work will delve deeply into the subject of climate change, so they become curious and “can go into it in more detail so to understand the science behind it.” She sometimes uses her visual work in community workshops for developing a “green conscience.” She explains:

“I am getting people to pull out of themselves what is bothering their green conscience and they are expressing it and they are sharing it, and when they are going through the process, it becomes very transformative to them, in the hopes that it can reach people on an emotional, really, deeply emotional level to take action.”

Filmmaker Jon Cooksey is also an artist who became an activist, then leveraging the form in which he already had expertise in order to raise awareness about climate change. His documentary, *How to Boil a Frog* (2009), was conceived around a series of what he calls “solutions” on how to improve our lifestyles while reducing the over-consumption of earth’s resources. He explains:

“I put pieces together based on their (science) knowledge and wisdom. So to some degree I was organizing, but beyond that also thinking through the implications of what they were saying on a personal level, an emotional level, a logistical level. ‘Holy crap! Do I have to live in a hut?’ ‘How do I stop driving when I have three kids in soccer?’ ‘Will I get arrested if I protest that nuclear plant?’ ‘Is anybody else doing these things or would it just be me?’ So, finding a palatable way to present the solutions was just as important as the solutions themselves.”

Cooksey believes that his role as a filmmaker is to educate or guide the viewer, encouraging lifestyle modifications by articulating a new course of action:

“The endpoint of all of it is action, behavioural change on several levels: consuming and not-consuming; changing the way we relate to each other and the world.”

Scientist B agrees with James and Cooksey that artists, in their role as social activists, can contribute to climate change awareness by being involved in their local community. He states: “I think there are lots of local artists and art forms that encourage

people to use the theme of climate change to build local awareness and get people thinking.” On the other hand, artist Josh Hite believes that the story conveyed in the aesthetic of the art piece is the very personal perspective of the artist, done with the purpose of engaging the viewer in a discussion. He warns against the ‘right or wrong’ perspective implied by the notion of activism. He notes: “That is a real challenge, and this is where often art and activism butt heads: activists want, ‘This is it. This is what is right.’ Art? That is not its main function in our culture but more to open up a discussion.” Scientist A agreed with this perspective:

“I don’t believe that it is the artist’s responsibility to convince us or develop information regarding climate change. I think the artist’s responsibility is to be creative and develop those kinds of things that they feel that is important and that they feel inside them; that there’s something they want to share to make society better.”

Thus, artists can be activists, but art is not necessarily activism. Rather, the inherent aspect is art’s ability to engage – to serve as a vehicle by which the artist can share their thoughts and perspective with others. It is the fact of a response, positive or negative, that is critical in the artistic dialogue, not the audience’s acceptance of a particular viewpoint or solution.

4.4.3 Engaging the Imagination

If science is the study of what is – even the prediction of certain events in the future – art has a unique capacity to stimulate the imagination. Scientist C says this capacity can be used to enrich the human appreciation for biodiversity and its role in a changing world. He comments: “I have a strong interest and appreciation about how artists can help communicate and make people excited about biodiversity.”

Scientist C says that, in his classroom, he has a list of the top 10 books of people telling stories about fish, because fish, as a key source of protein, have been historically ingrained in human consciousness. He believes that, by engaging the imagination, art can provide insight, enriching the emotional and intellectual connection between experience and knowledge. He explains:

“Books like *Cannery Row*, *The Old Man and the Sea*, people telling stories about fish through literature. So, personally, I have a strong interest and appreciation on how artists can help communicate and make people excited about biodiversity, including fishes.”

Scientist C believes in the old saying that “a picture is worth a thousand words” and refers to David’s Ellingsen’s photographs, and soon to be published into a book entitled *Sea Life* as an example of the positive effect that art can have when raising awareness about biodiversity. He comments:

“David's book might not be able to get the detail of how this fish reproduces, etc., but people will say, ‘My god, how beautiful’ and begin to ask questions: Where does it come from? Is it a marine fish, a fresh water fish?’ ... It is a different way to communicate the value, importance and beauty of biodiversity through art.”

For photographer Cate Cameron, engaging the imagination of the viewer is crucial to the function of art. Triggering the imagination invites the audience to bring their own thoughts and experiences to the work, and to create new meaning. This personal journey for both the artist and the viewer is essential to the relationship between art and its audience. She explains:

“To engage the imagination I think is the whole thing about art ... whether you like it, or see something, and say ‘I don't like this; I don't whatever,’ you still have a relationship with it, and at some level you bring your own consciousness, your own experience, and relate to it in a very unique way. Everybody is different that way.”

Dianne Whelan adds that, in order to develop new thoughts and perspectives, a viewer might be forced to use both sides of the brain. She says:

“What we need is a balance between the left brain and the right brain. Science is the left half of our brain. It is logical and linear. We need to find a balance with the holistic, intuitive, creative part of our brain and the answer will always be a combination of both.”

What is evident from each artist interviewed is, whether the artist perceives themselves as a social activist or not, they all perceive themselves as social communicators. It is important to them all that their art is experienced, that it engages, that it prods the imagination and inspires reflection on the subjects and ideas addressed in the work. As Scientist A says, “The artist's responsibility and the educator's responsibility, including myself is to try to make people understand that we are part of the environment.” Accordingly, it is difficult, if not impossible, to anticipate, isolate or categorize art that will engage a person emotionally or intellectually, or that will effectively raise awareness or encourage a person to act on a given issue.

Art invites the viewer to engage their imagination; however, any dialogue that the viewer establishes with the aesthetic of the art before them is a unique and personal journey affected by each individual's background, belief and experiences – and by whether they even respond to art itself. Keeping this in mind, and in order to establish an honest line of communication with their audience, the artists interviewed as part of this research said they found it critical to undertake a rigorous and intentional process that acts as a path toward communicating an alternate imaginative articulation of their themes.

4.5 Can Art Affect Change?

In this second subsection, the analysis explores whether artists can motivate change. The discussion centers on how the artist defines change, and how each one of them perceives art as inspiring change in others. The final part explores how making art and being exposed to art affect the artist personally.

4.5.1 Addressing All Sectors of Society

Thomas Munro (1967) asserts that the arts have tremendous power to influence thought and emotions. He notes that art's power as a modality of communication is being studied in psychology and other academic fields as a means of persuading people toward certain thoughts and ideas (Munro 1967, 102). The notion that artists can act as social communicators to affect change is expressed by Scientist A, who contends that it takes every kind of social communicator to produce change because people respond differently to different types of information. He explains:

“We need a variety of different ways of communicating, because we all respond differently to different forms of communication. Some are more effective to one than others. We are diverse people and our experiences are very different. We need a variety of mechanisms so we can begin communicating ... the more variety we have in terms of communication, the more likely we are to be able to get more of the people involved in understanding what is going on.”

David Ellingsen concurs, saying:

“I think that art is definitely a necessity to bring everybody together ... I think that there's people who are into the scientific, facts-and-figure kind of world, there's people who are artists that respond to that work as well, and we have to address both of those populations to affect change.”

All the artists interviewed contend that when the art resonates with the viewer it is able provoke change; however, they took different positions on how they might be able to

contribute to encouraging people to engage in pro environmental behaviour. Cartoonist Grahame Arnould believes that artists can affect change, but not alone. He notes: “It would be awfully hard for one artist to change a person’s mind or a thousand people’s mind, but a thousand artists or ten thousand artists maybe can do that.”

For photographer Cate Cameron, change is a gradual process that manifests, evolves and is displayed in many different forms. For Cameron, what is important, when her art makes an emotional connection with the viewer, is that it excites a thought or a question that challenges previously held beliefs; for her, this marks the beginning of change:

“I think that when you are working on those situations of bringing awareness to climate change, environmental issues, humanitarian issues, people in North America, I think, have this idea that it needs to be some kind of revolutionary change, that is going to happen in a huge, huge way. But I really think that these kinds of changes are evolutionary, not revolutionary. So that it is just this idea that at first is an acknowledgement, a thought, and a process within oneself. Eventually, if they are connected enough, if I can engage them enough – you know, I don't care if it is through me or some other platform that they become more engaged, it could be just helping in their community, or whatever, it doesn't matter to me – ultimately, what I am going for is that people will want to take a responsibility to help and make a difference.”

Cartoonist Arnould perceives his role as simply directing people’s attention to an issue, asking questions that make people reflect, in the hopes that they will eventually act.

For Arnould, it takes many actions and people to affect change:

“I guess it is somewhere between the probe: ‘Will this interest someone enough or one hundred people? Will it push someone to change anything?’ Are we not asking as artists to think? We have to make people think so they can change. You can’t just say, ‘Change.’ There has to be a thousand reasons and maybe one of them will work. People respond differently.”

Dianne Whelan believes that her documentaries are her contribution to the dialogue to inspire change. She refers to American anthropologist Margaret Mead’s

famous statement, “Never doubt that a small group of thoughtful committed citizens can change the world. Indeed, it’s the only thing that ever has.” when she goes on to say:

“So now we want to change that consciousness and change that type of thinking. It is not going to happen with one movie, with one book and with one person. It is going to have to happen because a group of people, a small group of people usually, care a lot, work hard and inspire.”

Franke James sees her artistry as a tool to influence people to take action. She says:

“I think that what we artists can do is to encourage people to see the truth and to take action. When I look at my climate change work, the action, ‘Do something green and document it’ is a very powerful way to influence change in society.”

As a community facilitator, James invites people to explore their “green conscience” by making art, which might pique their curiosity and engender a willingness to change.

“For me, it is going around and talking to people and doing these workshops on Green Conscience. What is neat is that I am getting people to pull out of themselves what is bothering their green conscience and they are expressing it, and they are sharing it, and when they are going through the process it becomes very transformative to them.”

Painter Miriam Gil says that she, too, makes her art in the hope that it will encourage change. For her, just like Cate Cameron, change is a process that begins with “perception” once the viewer has been captivated by the art:

“I would hope to see a behavioral change... talking about the painting ‘The Elk and Woman,’ the response in people when they see it is that they see themselves being part of that culture, and they ask questions: ‘Why is it that the animal has a number? Why is it that you have two females together?’ Gradually there’s a dialogue that opens, in the sense of awareness, and I think that, ultimately, when they see themselves as being part of a whole they start acting different. It all starts with perception.”

She further explains the joy that she feels when she perceives change being processed in front of her eyes when viewers interact with her art:

“In the *Road Kill* (2003) series, for instance, it is about car culture and that was a series that I showed in the art show, Artropolis 2003. I think that people who saw it were very much touched by it. They were all saying ‘We see what you mean’ and I think artists are able to kind of pinpoint specific topics, values and icons that people recognize. Suddenly there’s a language that opens and people go ‘Oh yeah’ and therefore there’s a change there.”

The artists in this study are aware that they cannot impose their beliefs on others, nor do they want to. But they have consciously selected the themes and topics of their art with the intention of engaging their audience in reflecting on their current concerns, and of showing that, through their actions, people can change the climate, for better or worse. Grahame Arnould believes that it takes all artists who make art with a social commentary to successfully raise awareness on issues societal concern. He says:

“We are one of a million artists ... ten million artists, and we are all just chirping, chirping away in the woods ... a million chirps is awfully loud, a million pokes often makes someone move. It is a process; it is a long process because there is opposition.”

Each of these artists believes that he or she is contributing to a larger dialogue. They say they are conscious of the limitations of their medium, but they still feel they have a potentially powerful role in the larger conversation; they have the capacity to communicate, to engage and to promote change.

4.5.2 Can Art Inspire Change?

Ducasse (1964) contends that “the activity of the artist terminates with the creation of the art.” (Ducasse 1964, 109). Nevertheless, art has a long lasting ability to establish a connection and a dialogue with the viewer even when the context of the art has changed, as is often the case in museums that feature art from antiquity. As Scientist

C points out, museums are an important place for people to enter the dialogue about social issues of society because these institutions have already established credibility. He asserts:

“I immediately think of our museum, of MOA (Museum of Anthropology at UBC). Surely people, when they walk through that, come out with a greater appreciation for the native condition in our society and historical importance and artistic importance of Native Art and a greater appreciation for Native culture in general, so this (opportunity for emotional interaction) is kind of like the same thing.”

Cate Cameron says she has observed the influence that her own work has had in the gallery environment, adding that the process has personally affected her:

“We were basically interviewing and photographing and getting stories of people whose lives were affected by lack of access to clean water. And when we initially installed the exhibit we used very large pieces, very large prints which were 24” x 36” portraits, and images from Africa, India and Haiti along with short stories. We actually had some people in tears at the exhibit. It really had an effect on them, on an emotional level. Not that I want to make people feel guilty, but to me as an artist, that was rewarding because I understand that connection because I felt it too.”

Whether the art is being displayed in an established institution or as part of a public art project, as is the case with Josh Hite’s *Green Footprint*, once the art is displayed for audiences to experience, it opens up unexpected forms of communication, which can influence and affect a person’s perspective, thoughts and actions. This is a reciprocal process; the audience feedback is what makes this process a dialogue, affecting and rewarding to both the artist and the viewer. Clearly, participating in this dialogue can be as transformative for the artist as their initial process of creation.

Artists are also very often great consumers of art by other practitioners.

Photographer Cate Cameron says:

“I don’t read any scientific journals. I will look at the *National Geographic* and people like the photographer Edward Burtynsky; again, art-based. That could be because I am a very visual person and this is the context that I feel

most comfortable looking at.”

Experiencing other’s work allows the artist to find commonalities with the emotional and intellectual journey that they express in their own art. And in some instances they are, as any other viewer, captivated and transformed by it. Artist Tomoyo Ihaya explains:

“When I have seen art made by somebody, it has moved me so much, rescued me and gave me more awareness. It has inspired my own experience. But those pieces are not preaching at me but they spoke to me in a very emotional level. It was so strong that it has changed my attitude about life.”

Cate Cameron recounts how she understood the meaning of her own artistic process when she watched the work of Brazilian photographer Vik Muniz in Lucy Walker’s documentary, *Waste Land* (2010). The film follows photographer Vik Muniz to a landfill in Rio de Janeiro where he begins shooting the resident garbage pickers, or “catadores.” Muniz later them to collaborate in the creation of large-scale, collage-style photographs of themselves made out of the garbage they’ve picked. Muniz’s intention, as expressed in the documentary, was to make art “to change the lives of a group of people with the same material they deal with every day”. Cameron says that she gains a deeper understanding of her own processes from watching Walker’s documentary – that she was changed, even as the pickers, as participants in the art-making process, were also changed. She notes:

“The way he worked with the people from the garbage dump from Brazil, it is amazing. I love what he said because I say this, as well. He showed them a way. It is not like he gave them skills; it is that they just opened up themselves and they opened up to possibilities through the experience of this art project.”

Cameron continues by saying how much influence this and other forms of art have on her creative process. She says:

“I am always interested in things like that and I will always seek them out and I will look at them and I will consider what they are saying and then, a lot of times, it’s manifesting itself peripherally in the work that I am doing as a humanitarian photographer.”

Another important aspect of the artistic process is the transformation that the artist goes through after completing a work of art. For example, after making her video documentary, *This Land* (2009), about the historical sovereignty patrol in the Canadian High Arctic, filmmaker Dianne Whelan was so changed that she was moved to write a book about the subject:

“Every time you have an experience it changes you...I also wrote a book about *This Land* the movie. It is called *This Vanishing Land* and, of course, the whole book is about climate change. Did it inspire me? It inspired me to come back and write a book about it. It inspired me to learn more in depth about the history and what is going on and advocate what I believe is the socially responsible to do.”

This opinion is shared by artist Jon Cooksey who says that since making his documentary, *How to Boil a Frog* (2009), about finding personal solutions to global “overshoot,” he has committed to lifestyle changes that reflect the knowledge acquired through the process of making his movie. He explains:

“Now I take mass transit whenever possible and avoid driving my car, I don’t eat beef, and I’m eating less meat in general. I buy used stuff like clothes, books, etc. rather than new if I can. I don’t buy gas from Exxon. I grow vegetables in my back yard. I’m constantly involved in activism and lending my talents to local and global causes where I can do some good. I communicate with people I’ve gotten to know all over the world, and I’m building a local community of friends largely based on great food, laughter and playing live music. So my life is definitely not the same as it was five years ago.”

Franke James puts herself and her personal experiences at the centre of the stories she tells in her art. Much of her climate change art, as she expresses it, reflects a real-life performance in which she observes her own feelings, attitudes and reactions to making at times difficult lifestyle changes. She explains:

“Climate change art, the way that I am doing it, is through storytelling. It is about behavioural change. In a way, I am using myself as the subject, as the guinea pig. That becomes my story. When I decided to give up the newspaper, I was observing how it changes my habits. How do I react to it? That becomes the subject of my art which, for me, it is really fun.”

On the other hand, Josh Hite’s *Green Footprint* (2010) was commissioned by 350.Org and its Earth Art project, through the Vancouver Public Space Network (VPSN). 350.Org is an online organization that puts together public action campaigns around the world to bring attention to the state of the planet. Hite says that, working on a commissioned piece, he felt constrained by the demands and the parameters that he was given. “It was a complicated thing dealing with different organizations...they wanted it to be around climate change, there was a set of parameters.” Hite admits that it was a rewarding for him to open up a dialogue through the art form and acknowledges that it was effective with viewers.

However rewarding the experience was for Hite, the art did not germinate out of a personal compulsion to address this issue. Nor did Hite find himself transformed by the process. On the contrary, he finds himself moving away from the topic. He explains:

“I probably would not consider climate change in my work and I would not have considered the theme of climate change if I had not been asked to do this piece. ... I just did a project inside the Burrard Bridge; inside a pillar where a stairwell was that was closed for 30 years. I did a piece in there that kind of opened the space up. And 200-250 people came into see it ... I think I kind of relate a lot of the things that I do to issues with an ethical soundness that I find exciting and feel comfortable about.”

The analysis seems to suggest that for the artist to feel that they are contributing, they must have an emotional connection and a desire to share a personal perspective with others. By analyzing the creative process and providing a breakdown of the journey that the artists undertake in order to express themselves, I hope to have brought forth a clear illustration of the importance of intentionality. The analysis of the research indicates that

the aesthetic of the art conveys a definite perspective or point of view that searches for a clear line of communication between the artists and their audiences in the hopes of drawing out reflections, comments or dialogue that may ultimately lead to pro environmental behaviour choices.

All of these artists said, in one way or the other, that in order to raise awareness about climate change or promote certain attitudes and behaviours, the artist must engage the viewer emotionally and intellectually. Regardless of whether the artist perceives him or herself to be involved in social activism, they still must make a connection; they must open a dialogue that moves audience members to reflect upon current behaviours, and to imagine what it would take to change even a thought or attitude. As photographer Cate Cameron expressed it, change is an evolutionary, not revolutionary, process. It is a matter of what Scientist A describes as inspiring the audience members themselves “to be creative and develop those kinds of things that they feel that is important and that they feel inside them; that there's something they want to share to make society better.”

For Scientist A, this is not just the socially conscious artist’s prerogative; it is a kind of duty. He says:

“I think the artist's responsibility and the educator's responsibility, including myself, is trying to make people understand that we are part of the environment. We are not governors; we are not supreme beings in terms of the environment.”

5 Discussion and Conclusion

The successful creation of a work of art requires a considerable degree of deliberateness, not only in the design and presentation but also in the conception of the subject, in what might be called the exercise of a disciplined vision, a vision modified by considerations of the potentialities and limitations of the medium in which the artist has chosen to work (Jack 1955, 354).

5.1 Discussion: A Disciplined Vision

Throughout this research analysis, my objective has been to highlight the processes whereby artists bring their vision to fruition. In addition, I have tried to create a narrative path through which the reader can better understand of how artists conceive ideas, conduct and use the imagination to create their art and make a connection with their audience. The analysis furthers explores the artists' aims and expectations once an audience interacts with their art.

The artistic process, as described by the artists interviewed, is a journey in which artists grapple with their internal unrest, questions the contemporary notions of the state of the world, and use a unique creative language to articulate their own perspective. It is their autonomous artistic processes that allow them to stand individually and distinctively from one-another and to convey, in the aesthetic of their art, their socially motivated and imaginative point of view, always with the intention of finding a line of communication with the viewer.

As described previously by photographer Cate Cameron, this process begins from experiencing the world, asking questions and feeling the need to express passion, unrest,

and concern by creating a work of art; in other words, to express that which is affecting the artist.

Although the artists interviewed for this research work in a variety of media, from, video documentary to visual essays and cartooning, all of them say that their own particular medium provides an essential language of communication that comes from within. They all believe their art has a social purpose and that it can have an impact by inviting the viewer to emotionally and intellectually engage and interact with the story and point of view expressed in the work.

All of these artists expressed how important it is for them to establish a relationship with an audience: they all seek to captivate, educate, repulse, annoy, stun or provoke their audience members' imaginations. More importantly, they want the work to invite audience members to reflect on their own thoughts and ideas about the subject being presented. The artists also agreed that they didn't necessarily present their perspective in a form that strictly reflects the concrete world. Rather, they seek to present interpretations or abstractions that can have transforming effects on audiences, as on the artists themselves.

Art can reveal new ways of seeing; its power is in reformulating the familiar. When this power is coupled with a desire to create awareness, it can provoke people to ask questions and begin a cycle of communication that can lead to action.

These artists all say that it is vital to have audiences respond to their work. This brings satisfaction that the work has been successful; but it also reinforces their identity as artists and communicators. As a group, they do not pursue "art for art's sake," or for decorative purposes. On the contrary, they all said that their imagination is triggered by

their own experiences and observations, and by acquiring knowledge of the issues and of being aware of the environment that surrounds them. They advocate for the autonomy and freedom to produce art on their own terms. It is important that they are understood as conveying personal points of view and that any public interaction with their work has the purpose of dialoguing rather than pedantry. This is at the core of their intention for their art and their role as artists. Furthermore, these artists consider their relationship to their environments as they research, make art, and use their creativity to express their views, feelings and emotions. It is also critical for them to generate honest and truthful works of art – works that achieve some level of artistic “truth” even if they are not always limited to a strict presentation of literally accurate material.

It is a prerequisite for these artists to make art that resonates and begins a dialogue with an audience. In establishing an emotional and intellectual relationship, they invite audience members to dream, to imagine new ways of seeing, and to engage in a self-reflective inquiry. It is through this process of conversing with the audience that the artists believe they can help raise awareness of critical societal issues, including climate change

One of the key findings of this research is that artists who make art about environmental issues do so with the intention of establishing a dialogue with their audiences in the hopes of encouraging thought and reflection on current actions and of narrowing the gap between environmental knowledge and often contradictory or deleterious behavior. The analysis and exploration of the practice of each individual artist substantiates the original research proposition that artists are important social

communicators whose role should be considered when looking for effective strategies to educate, raise awareness and encourage progressive environmental action.

By engaging the audience in a dialogue, that audience becomes an agent in the creation of their own future; they come to understand that they face a series of choices, each of which will have consequences for the environment that they share with their neighbours – and will leave for their children. As Nicholson-Cole (2005) points out, connecting personal lifestyle choices to impacts on climate is essential in motivating people to change.

It is neither my intention, nor the intention of this research, to suggest that public acceptance of or engagement with climate change can only be accomplished by exposing people to art. Rather, it is to point out that artists have a unique capacity and language of communication to explore social issues, to incite dialogue and to provoke new ways of thinking and imagining a more sustainable future for all. Artists create an opportunity for diverse audiences to reconsider and reflect upon their own lives. For example, as Scientist C stated, exposing people to art that deals with the theme of biodiversity invites those viewers to a different form of communication, where they can see “the value, importance and beauty of biodiversity.”

Art has had a long history of expressing contemporary issues. This research project set out to establish the degree to which art can now play a role in raising awareness of climate change-related issues. Accordingly, the study has revealed evidence that artists continue to be influenced by society and their surroundings, which in turn leads them to influence those who engage with their art.

Engaging people on the issue of climate change – particularly in a way that actually inspires action – is proving to be a monumental task requiring a range of methods and communicators. To bring artists and their capacities to the consciousness of policy- and decision-makers may be crucial to advancing this discussion.

Keele (1964) reminds us that painter Leonardo da Vinci's contributions to the medical profession with his anatomical drawings were based in his personal experiences and observations. Da Vinci himself said; "My works are the issue of pure and simple experience who is the one true mistress." (Pevsner 2002, 217). Pevsner (2002) adds that da Vinci exemplified the artist as researcher and communicator, because curiosity led him to explore the concrete reality of structure and movement, and his talent enabled him to describe his findings – visually – in a way that continues to engage and educate centuries later.

All artists in this study agreed that observation and imagination are critical to the artistic task. To all, their process of inquiry is reflected in their work, and the aesthetic of this work tells a story that maintains an honest point of view. Even though these artists sometimes disagreed as to the importance of completely understanding and faithfully presenting the absolute, literal accuracy of the science, they all agreed that a thorough research process and understanding of the subject matter is imperative.

Another key finding is that, while some subjects did not consider themselves to be social activists, they all still felt it was important to be emotionally and intellectually connected with their subject matter. They also were unanimous in feeling the need for the autonomy and freedom to express their own point of view without restrictions.

Otherwise, as in the specific case of Josh Hite, they found that the rules and constraints of

the commissioning agencies can break the artist/audience connection, alienating the artist from this subject matter entirely.

In her essay, *Education for Global Warming*, Mary C. Bateson notes that we have been socialized to perceive ourselves as separate from each other, and therefore have a hard time perceiving our individual actions as having an effect on global warming. She suggests that we must learn and relearn to see ourselves as being interconnected to one another and to the biodiversity of the world. For this process to occur, she asserts, we need to use tools that include “system metaphors, narratives of connection, cross-overs between discipline, and cross-overs with ways of knowing” (Bateson 2007, 282). Thus, the goal is to engage the public by providing creative and diverse communication strategies that foster links between one’s actions and the consequences of one’s choices, and that engage the imagination to seek out new methods for further action.

Embracing art’s sometimes-unorthodox knowledge modalities and mechanisms could have great implications for the continued dialogue about climate change. Artists have chosen different forms of expressing their emotions and thoughts; they engage in multiple forms of knowing and, through their art, they invite viewers to respond to these multiple forms (Eisner 2008). This crossover broadens the expectancy for people to reflect and then to make their own choices. It allows audiences to contextualize their decision-making process. As they engage in the subject emotionally and intellectually, they may more likely engage physically, changing their behaviours and actions.

Scientists A argued that it is important for the dialogue of climate change to have different avenues of communication because different audiences respond to different messages and to different forms of communication. My objective in this thesis has been

to highlight the different educational options that artists can use to articulate the issues surrounding climate change. The study has aimed to draw attention to the commitment of artists in this dialogue, and to illustrate their capacity as social agents, capable of generating new perceptions and ideas in the service of this important discourse.

I have attempted, with this research analysis, to create a descriptive synthesis of the artistic process, which is determined by artists' continual commitment to their work and to sharing a truthful and honest perspective of their views of the world. My aim has been to illuminate the value of artistic contribution in broadening and deepening public knowledge about climate change, and to show that art should be recognized and embraced for this purpose.

The artists in this study in no way represent every artistic discipline or trajectory. There certainly are commercial practitioners who offer their artistic talent to the market without specific regard to the integrity of the message. There also are artists who are disengaged from the larger social conversation, those who *do* pursue art only for art's sake or for decoration.

These artists, however, constitute a focus group of exemplars who demonstrate how engaged practitioners can grapple with contemporary issues and then reveal those issues through their art. Like many of their predecessors, they commit to an inquiry process concerning a certain unrest with issues in their society. And though they express themselves in different forms and styles, they are all involved in searching for answers and forms of action to make a better future for all.

It is evident, through the literature review and interview analysis, that many more artists and organizations are currently involved in creating work to raise awareness of

climate change issues. I believe that the relationships between artists, audiences and social movements are worth investigating; such investigations can illuminate the reciprocal passage of knowledge forms between disciplines that help to broaden the dialogue, and may yet aid in the identification of new problems and the search for new solutions.

The literature review in this thesis has brought to light the similarities in process between artists and scientists, and how their past and present collaborations have contributed to great discoveries and positive changes in the way we live and perceive contemporary and future realities. There is room for further research into how to expand the role of the artist, by exploring and understanding the social, cultural and environmental dimensions of their engagement.

Taking into account the risks that climate change presents, it is impossible for anyone to perfectly predict the future. At the same time, we are living in a postmodern intellectual culture, where any concept of truth is challenged by reason of being socially constructed. ‘Facts’ are held to be relative to their context and have the ability to change at any given time. The resulting uncertainty – this informational relativism – has been used successfully to discourage people from acting on climate change, in some cases even to doubt whether it is happening.

Yet here we can begin to find a place for artists, with scientists, to find languages to bring about greater public understanding and engagement, enabling people to envision the causes and consequences of climate change and to grapple with the mitigations and adaptive practices that may be necessary to ameliorate or deal with a changed future.

The artists interviewed for this research describe their role in a way that is consistent with the historical perception of artists' role in society. But, to some degree, modern-day artists have been marginalized in social and scientific conversations. While all the Conferences of the Parties to the UNFCCC – and especially the first one, the Earth Summit in Rio de Janeiro in 1992 – have attracted or inspired large gatherings of artists, COP 15 in Copenhagen was the first time artists were invited as part of the event itself. Clearly, we need to recognize that there is a gap in the climate change dialogue – and one that can be filled by bringing artists to the table. It is time to grasp the need for interdisciplinary crossover; we can no longer overlook mechanisms for encouraging change the various disciplines offer.

As I write the final words on this discussion, I cannot help but think of Franke James, whom I interviewed for this research in November 2010. On November 2, 2011 the *Edmonton Journal* ran an article by journalist Amy Chung with the headline, “Government officials killed funding for Canadian artist: documents.” The article noted that the Croatian non-profit organization Nektarina, whose aim is to educate the public in choosing sustainable lifestyle choices against the perils climate change, had cancelled a European exhibit of James's visual essays, as the Canadian government at first promised and then withdrew funding to support the show. Not only was Nektarina unable to replace the funding from private sources, but the apparent politicization of the exhibit triggered the collapse of a series of other European shows that had also been planned. According to the article, which was based on documents released under the Freedom of Information legislation, the government withdrew the funds because a show of James's work “would run counter to Canada's interest.” This very political intervention appears to

indicate that the Canadian government believes that James, the artist, is also a powerful social agent (Chung 2012).

Artists and art have long been subjected to political machinations intended to privilege or defend a particular social concept or agenda. The Nazis well understood art's role in influencing people's thoughts and emotions, producing propaganda films such as Leni Reinfestahl's *Triumph of the Will* (1934) to fulfill the interests of the Third Reich and to further their political agenda; concurrently, Nazis censored art that ran counter to the state's purposes. Therefore, societies, as Munro (2007) points out, have experienced and recognized the tremendous power that art has in affecting the imagination and emotions, in influencing people's beliefs and promoting change.

5.2 Conclusion

“Changes are evolutionary, not revolutionary.” (C. Cameron)

Academic researchers and writers have contributed significantly to our understanding of the importance of emotion and personal engagement in moving a population toward supporting or enacting the changes necessary to protect society from climate change. Yet, while the literature had identified a gap between knowledge and action on the climate file, little previous research has focused on the role that artists can play – on the powerful contribution that artists can make through their relationship with each other, their environments, their imaginations and their audiences. Even though art has a long history of informing, questioning and provoking thought in society, little is mentioned in relevant studies on the tools that can be drawn from artists and their artistic practices. Too little attention has been made of artists' capacity to for reaching audiences and raising awareness about climate change.

The literature states that it is crucial, in getting people to commit to new action, to appeal to their values, and to engage them in an imaginative and emotional way (Stern 2000; Rhode and Ross 2008; Nicholson-Cole 2005; Shaw and others 2009).

People need to come to new understanding in their own time and their own way; studies suggest that they are more likely to respond positively when they are not being told what they need to know and how to act (Tribbia and Moser 2008).

The artists who contributed to this research project provide an elegant solution to this educational and communications challenge. For example, Franke James's intention with her climate change workshops and art is to give people an avenue of expression for finding out what bothers their "green conscience" and, through that process, to make an emotional connection that she hopes will lead to action. Photographer Cate Cameron stressed the importance of engaging the imagination through art, saying that she hopes her work will allow for people to access their own consciousness and experiences.

In this post-modern era, it is neither sufficient – nor sometimes even acceptable – to try to present an absolute truth or to fix upon an exclusive, "best" course of action when engaging the public. Rather it is important to seek various methods of engaging a wide audience. Ideally then, we need a broad spectrum of communicators. Robert Root-Bernstein (2003) promotes a polymath approach to problem solving. He notes that many scientists have used the arts to address scientific problems, as many artists have contributed to scientific discoveries by providing scientists and engineers with new ways of seeing through observation, metaphors and other non-scientific tools for problem solving. To Root-Bernstein, the creative process for artists, scientists and engineers alike involves "many possible solutions to any given problem, and the use of the widest mental

and physical tools to constrain and evaluate which of these possibilities is most adequate to any given need” (Rhode and Ross 2008, 267). It is in this process that there is a connection between the different disciplines that is universal, and polymaths “belonging to many cognitive domains are those most likely to become innovators” (Root-Bernstein 2003a, 268).

Many great inventors and innovators have collaborated with artists; our world would be very different without the likes of Leonardo da Vinci and Alexander Graham Bell. Finding creative solutions for engaging people in progressive environmental behavior will excite and motivate those who are willing to delve into multiple and varied forms of creative thinking and modalities of communication.

It has been the objective of this research to provide a useful insight for crafting that larger communication strategy by looking at the performance and effectiveness of an exemplary group of artistic contributors. The qualitative method of one-on-one interviews and the subsequent analysis illuminate the very intentional processes of these artists. They have been revealed as inquiry processes that are creative, emotional, intuitive and intellectual, processes that continue to evolve, from the inception of the idea to the connection that an artist establishes with the subject, and finally through the relationships that the art establishes with the audience.

This study was necessarily limited by its sample size. Accordingly, the research does not assume nor attempt to discuss the creative processes of all artists; a larger sample may have yielded other, more-complex perspectives. But the conclusions most obviously drawn from this research – and the degree to which they agree with related

literature – certainly establish a useful, and underappreciated, role for artists in the climate conversation.

Incorporating the working knowledge of every discipline involved in finding solutions for a sustainable future takes the collective imaginative, logical, intellectual and analytic thinking of all. The research findings suggest that social communicators can help encourage progressive environmental behavioural responses in collaboration with other disciplines such as the arts. Creating crossover relationships between disciplines that include the arts, and engaging in diverse problem solving strategies, may lead to successful outcomes . It may encourage people to engage in behaviours and adaptive practices that mitigate or prepare for climate change. To that end, this research has illuminated the contribution that artists can make.

In conclusion, I will quote chemist and poet Ronald Hoffman (1988), who wrote: “One thing is certainly not true: that scientists have some greater insight into the working of nature than poets” (Hoffman 1988, 10).

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APPENDIX 1

Interview Guide

Please provide a brief description of your background and how you got involved in creating art.

Climate Change is one of the defining issues of this age with far reaching impact in all aspects of our lives and the natural environment.

Do you think that artists involvement in Climate Change is consistent with the history in which artists involvement in personal social/political expression?

Do you perceive artists as an active audience of contemporary issues such as climate change?

Do you think that artists can communicate/advise/suggest solutions using their language of communication as one of the many communicators of the issue?

How do you see other art and/or other artists like yourself contributing to raising awareness about climate change?

How do you see your work as finding/shaping solutions to this global problem?

Is the intention of art to create a dialogue with others? Can it engage people in behavioural change?

Now that we live in the age of science where we are also constantly reminded of the state of our world, do you see a need to promote mutual understanding between art and science?

Do you see positive collaboration between science and art that calls upon people's awareness of the consequences of climate change?

What is your relationship to the scientists that are documenting climate science?

Do you think the language of emotions and associations that the artist possesses is powerful enough to engage and encourage behavioural change?

How has your perception of climate change motivated you to act on your art and in your life?

How important is art in reminding/showing us our history and in imagining a future, particularly now that adaptation is a key issue?

Do you think that you must know scientific facts about climate change to make art on that subject.

How can the artist avoid the anxiety of a changing global phenomenon?