The Art of Climate Change

by Heather Russek

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Abstract

The warnings about global warming and climate change started in 1965 when "President Lyndon B. Johnson's Scientific Advisory Council cautioned that constant increase in atmospheric carbon dioxide could modify the heat balance of the atmosphere" (Marshall, 2014). In 2014, the Intergovernmental Panel on Climate Change states that "continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems" (IPCC, 2014). Yet, globally, we have made little progress on addressing this large-scale, human-induced environmental threat. Dr. Renee Lertzman explains that it is "environmental melancholia" (Gregoire, 2016), an unprocessed sense of anxiety that causes powerlessness and paralysis, that is contributing to societal inertia to address this problem.

Current climate change strategies are focused at the policy level and do little to address the emotional state surrounding climate change. Visual art presents an opportunity to explore emotions and unconscious thoughts, and allows exploration of feelings surrounding climate change. It also may be a way to humanize climate change in a way that data and science cannot.

This project involves participatory design research through individual photography, personal anecdotes and small group image sorting and discussion. It attempts to evoke personal meaning associated with climate change and suggests ways to scale the dialogue.

KEYWORDS: *climate change, photography, participatory research*

Contents

Preface

I am compelled to engage in this project partly to address the greater good, and partly because of a dark cloud of worry that hangs over my head. This dark cloud is my awareness of living in a world destined for the consequences of climate change and the impact this will have on me and my family within my lifetime. Most of the time this dark cloud remains invisible, in the background. It includes terrible images of dystopian futures, and at times, manifests itself in nightmares. Selfishly, I want to find a way to disperse the cloud and lead an environmentally sustainable life; yet I feel overwhelmed, and powerless to do so. Through this research, I hope to contribute, in a minor way, to opening a path forward for myself, my family, my community, my city, and my planet: because climate change is too great a problem to ignore any further.

This project has been designed to explore alternatives to the current thinking around climate change awareness and communications. In a sense, it is meant to be disruptive and build upon the concepts I have learned through the Strategic Foresight & Innovation Program. This project is founded upon human-centred design and using a creative approach to problem solving. The premise of human-centred design is that you start with understanding the people you are designing for. For this project, that entails exploring the feelings surrounding climate change even though, in our current cultural paradigm, feelings tend to be suppressed or dismissed as "fluffy". It is not meant to challenge, prove or replicate other climate change research findings. The methods, as utilized, are meant to be exploratory in nature, as a starting point for further consideration, and do not attempt to reach a conclusion on whether it might help further the dialogue or not. I hope, that by reading this paper, it might trigger the reader to consider their own feelings related to climate change.

Humans are Ignoring a Massive Threat

Humans are Ignoring a Massive Threat

The warnings about global warming and climate change started in 1965, when "President Lyndon B. Johnson's Scientific Advisory Council cautioned that constant increase in atmospheric carbon dioxide could modify the heat balance of the atmosphere" (Marshall, 2014, p.63). Since then, "97% of top climate scientists agree that man-made pollution is warming our climate" (Climate Reality Project, 2016), including the Intergovernmental Panel on Climate Change (IPCC). In 2014, the most recent IPCC report states that, "continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems" (IPCC, 2014). Yet, globally, we have made little progress on addressing this large-scale, human-induced environmental threat.

This is likely not due to a lack of awareness since "71% of Canadians agree that climate change is largely the result of human activity" (Ipsos, 2014). In addition, 67% of Canadians believe that "we

are heading for an environmental disaster unless we change our habits quickly" (Ipsos, 2014). Even with this awareness, the current strategies to influence changes in individual behaviours have been largely unsuccessful to date. There has been recent momentum to address climate change including the province setting ambitious targets to reduce emissions. Ontario has set a goal to reduce greenhouse gas pollution below 1990 levels: 15% by 2020, 37% by 2030 and 80% by 2050 (Ontario Government, 2015). The current strategies are focused at the policy and societal levels and do little to address the individual motivation and emotional state surrounding climate change.

PSYCHOLOGICAL INFLUENCES

Scientists have flooded the climate change discussion and debate with data, graphs and models. In 1958, under the influence of David Keeling, the first measurement of atmospheric CO_2 concentration was taken atop Hawaii's Mauna Loa. This marked the now broadly reproduced "Keeling Curve," which shows the
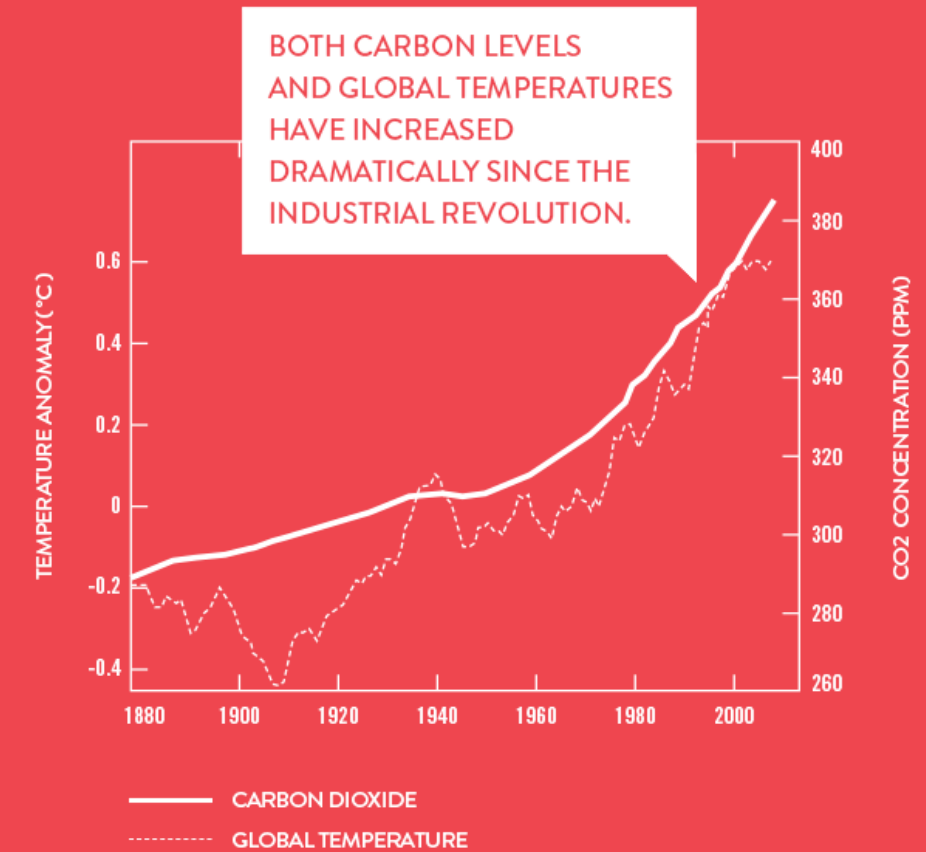

Figure 1: Current Warming Trend (Climate Reality Project, 2016)

"...climate change falls into the "tragedy of the commons" in that "an individual's benefit may or may not be the same as what benefits society." (CRED, 2009)

Figure 2: Greenland is Melting Away (Davenport, 2015)

rise in atmospheric CO2 due to the combustion of fossil fuels by industry, and represents one of the most important geophysical records ever made (Fig. 1) (Monroe, 2013).

Cognitive psychology can explain how information processing associated with climate change does not motivate any change in behaviour. Climate change is perceived as something that is abstract, remote and vague, something that will happen in the distant future (Stoknes, 2015). As a result it isn't perceived as relevant yet: "it's not hitting me, my family, my pack or group (yet)" (Stoknes, 2015). The data, as is, then, does little to motivate changes in behaviour, because it does not by itself create any feelings of urgency (Stoknes, 2015). People typically perceive immediate threats as more relevant and of greater urgency than future problems (Moser, 2004). The fact-based approach does not create a feeling of urgency; the conviction that we must deal with this problem now (Stoknes, 2015).

It is projected that climate change will alter the trajectory of many species' evolution and lead to

food insecurity, extreme weather events, air pollution and drought. Reports indicate that it will have a massive impact on our current lives; but when we think about climate change, there is often an association with weather and animals. The not-for-profit sector has advanced this narrative with campaigns that focus their audience on one, narrow aspect of the problem, such as "saving the polar bears" (WWF, 2016). By framing the issue as an environmental problem, some people can "shrug it off as something only environmentalists need to worry about" (CRED, 2009). In addition, climate change falls into the "tragedy of the commons" in that "an individual's benefit may or may not be the same as what benefits society" (CRED, 2009). Finally, climate change is subject to loss aversion: individuals are more afraid of losing in the short term than of dealing with obstacles in the future (CRED, 2009). "The negative feelings [associated] with losing outweigh the positive feelings associated with gaining in the future" (CRED, 2009).

CULTURAL INFLUENCES

A different way to imagine this dilemma is to posit that climate change is all about culture. Our "behaviour, lifestyle and culture have a considerable influence on energy use and associated emissions" (IPCC, 2014). Gifford explains that comparisons with other people is one of the seven causes of inaction that limit climate change mitigation (Gifford, 2011). "People routinely compare their actions with those of others and derive subjective and descriptive norms from their observations about what is the proper course of action" (Gifford, 2011). This is also discussed in *What We Think About When We Try Not To Think About Global Warming*: "what to pay attention to and what to ignore is socially constructed. We learn what to see and think about from the people around us" (Stoknes, 2015). This is also related to individual goals and values. "Pro-environmental values positively influence at least the willingness to accept climate change policies, but they are not always compatible with other values, other goals, and other aspirations that inevitably lead to the

production of more greenhouse gases" (Gifford, 2011). According to evolutionary psychology, winning in relative status feels more urgent in the human brain than the long-term threats of climate change (Stoknes, 2015). Isaac Cordal (Fig. 3) created a public installation, of "miniature clones created in the likeness of middle-aged, white collar, white men, each desperately clutching a briefcase as they huddle together or drown to death in a mindless mass," to demonstrate the connection to culture (Wang, 2014).

"There is no rational man" when it comes to climate change (Futerra, 2013). This could be because "climate change is exceptionally amorphous. It provides us with no defining qualities that would give it a clear identity: no deadlines, no geographic location, no signal cause or solution and no obvious enemy" (Marshall, 2014). For the most part, we cannot see the damage that has already been inflicted in our daily lives. "The oceans, with their vast expanses, shimmering surfaces and still largely uncharted depths, are earthly environments that remain largely unseen in

Figure 3: Tiny Sculptures Drowning by Isaac Cordal (Wang, 2014)

daily life" (Wilkinson, 2015). According to evolutionary psychology, "people tend to disregard problems they cannot see or feel" (Stoknes, 2015). The denial is so great that it is much easier to focus on the day-to-day. "People spend their daily lives thinking about more local, manageable topics, which are easier to talk about. A great silence surrounds climate change in everyday life" (Stoknes, 2015, pp22).

There is widespread societal inertia to address climate change due to many psychological and cultural factors; there is no urgency to address a remote concern; it's an environmentalist's problem; as well as values and lifestyle. Greatest emphasis has been placed on reaching our rational minds, to create awareness about climate change. Yet we seem to have been more dulled than motivated in response to learning about this large environmental threat. "The climate is changing, but people are not. We talk endlessly of climate change and yet we have not created any climate for change" (Glalhos, 2015).

Psychologists, communicators and researchers explain that a number of key elements need to be present to generate a human response to climate change. Many authors have recommended that the way to communicate climate change is to reach our emotions through images, narratives, metaphors and personal anecdotes (CRED, 2009; Stoknes, 2015, pp93; Marshall, 2014, pp49). They also recommend appealing to the emotional-, belief-, value- and identity-driven aspects of individuals (Moser, 2007). In particular, some researchers recommend creating narrative frames that foster action and hope, rather than despair and denial (Stoknes, 2015, pp42). The Centre for Research on Environmental Decisions explains that our experiential processing system is emotion-driven and is a stronger motivator for action than our analytical processing system (CRED, 2009). "Emotion, as its Latin root suggests, is what makes us, what makes us move" (Glalhos, 2015, pp127). And yet, "we have not found a way to effectively engage our emotional brains in climate change" (Marshall, 2014, pp.50).

THE PROBLEM — WE ARE PARALYZED BY FEAR AND HOPELESSNESS

For the 67% of Canadians that believe that "we are heading for an environmental disaster unless we change our habits quickly" (Ipsos, 2014); climate change can, in itself, provoke a strong fear response. "To many, climate change is scary, overwhelming, and can quickly evoke dark images of the future, resulting in maladaptive responses to information" (Moser, 2007). Humans have a finite pool of worry, and succumb to emotional numbing from repeated exposure to the fear-based messages associated with climate change (Moser, 2007; CRED, 2009). According to social psychology, we start to negotiate with ourselves to relieve the feelings of uneasiness, fear or guilt (Stoknes, 2015, pp64). "More information typically does not generate action on issues of societal importance ... and it is possible for information and understanding to become substitutes for action" (Moser, 2007).

While creating an emotional response seems to be a promising way to facilitate climate change

action, fear results in the intrinsic action to freeze or avoid the situation (Ekman, 2014). Dr. Renee Lertzman of the Center for Sustainable Energy has coined the term *"environmental melancholia"* to explain this situation. She explains that "our emotional response to the issue, which for many people is a deep but unprocessed sense of anxiety and loss, can leave us feeling powerless and paralyzed" (Gregoire, 2016). It's this feeling that blocks us from taking action (Gregoire, 2016). Through her research she explains that people would spend hours talking about their distress and sadness and then would move quickly to denial (Gregoire, 2016). Based on this understanding, humans are paralyzed by fear and hopelessness and it is this emotional state that is causing inaction.

A different approach is needed to address the inaction and emotional state surrounding climate change. Perhaps a re-balancing of mind, body and spirit can unfreeze this state of inaction. "The most fundamental obstacles to averting dangerous climate disruption are not mainly physical or technological

"How might we use a visual arts-based approach to activate individual behaviour change in relation to climate change?"

Visual Art as a Catalyst

or even institutional; they have to do with how we align our thinking and doing with our being" (Stoknes, 2015, pp227). By taking a holistic approach to climate change, we may be able to get below the surface to awaken our hearts and emotions.

Creative arts and processes have been used for decades to elevate body, mind and spirit. "I think that in a healthy way, art reconnects us with us, with others, and with the world around us" (Glalhos, 2015). Imagination and creativity are used to humanize the experience and to facilitate meaning-making, empowerment, identity exploration, multisensory communication, consciousness raising, healing, self-reflection, personal growth, relational connections and expressive power (Leary, 2015). "The arts are critical to our society, they inspire, they engage, they challenge, they educate and in the end the arts connects [sic] us to all that makes us human. Also, when it comes to society's most intractable problems, we cannot look past the role of innovation and creativity to ultimately make a difference when traditional interventions have failed us" (Gibbons, 2014).

Arts can also provide comfort, relaxation and joy (University of Florida, 2016). They play at a different universal emotion: of enjoyment, rather than fear. In contrast to fear, the emotion of enjoyment results in the intrinsic actions of engagement, connection and exclamation (Ekman, 2014). By connecting creativity and imagination to climate change, perhaps there is a way to address the "melancholia", create engagement and ultimately influence everyday behaviours. "Simply put, aside from using one's imagination — perhaps more importantly — creativity is the power to act" (Perl, 2013).

This research project explores the fear and hopelessness surrounding climate change with an attempt to determine the conditions needed to bring individuals to action with behaviours that limit climate disruption.

RESEARCH QUESTION

How might we use a visual arts-based approach to activate individual behaviour change in relation to climate change?

Visual Art as a Catalyst

"Visual art carries a transformative power" that can evoke emotional responses from people (Leary, 2015). The famous phrase is "a picture is worth a thousand words." Could art be the chisel that breaks through climate change hopelessness and inaction?

Art has many characteristics that merit exploration. Art activates humans beyond the conscious level and reaches into the subconscious mind to challenge stereotypes and values (Leary, 2015). "Photographers aim their pictures at your best instincts: generosity, a sense of right and wrong, the ability and the willingness to identify with others, the refusal to accept the unacceptable" (Nachtwey, 2007). With art, the interpretative process is different than that employed in analyzing written text. Images can be used to "challenge, dislodge, and transform outdated beliefs" (Leary, 2015). Art can stop you in your tracks, to see or think differently. "Art can be a feather that tickles you through a difficult idea to a new understanding and frame of mind" (Simms, 2015).

Viewers interact with and participate in an artistic creation. It is not only the interpretation of

the artist, but also that of the viewer, that determines and creates the work's meaning (Leary, 2015). This allows the "awakening of the individual, activating awareness and sensitivity in the individual" (Glalhos, 2015, pp175). A communal art experience allows spaces for thinking that point beyond the individual with participants comprising far more people than the artist. In this type of experience, "visual art and imagery can inspire both social and self-reflection" (Leary, 2015).

Artists explain that art can create a visceral, almost instinctual response, the kind of response that may be needed to create a strong motivator for action. One artist describes art as "the blood cells, the heartbeat, that nurtures the whole body" (Glalhos, 2015, pp180). Art can inspire, challenge and connect us to all that makes us human (Gibbons, 2014).

I feel today we live, mainly in the western world, in a heartless society. We see but we do not feel. People often know what to do, but there is no urgent panic that gives them sleepless nights, unless they do what they know they need or should do.

I feel it's through art that this state of things can change. (Glalhos, 2015, pp169)

With this understanding of the potential of art to reach our subconscious and allow self and social reflection, perhaps art is the medium to inspire us to action? Ai Weiwei believes art is a way to challenge our current cultural norms. "I think that art certainly is the vehicle for us to develop any new ideas, to be creative, to extend our imagination" (Klayman, 2012). At this point in time, "it is easier to imagine how we could end the world than how we could transform capitalism, build new social institutions, and build new ways of collaborating with each other (Glalhos, 2015, pg 61). Art may be able to provide the space to take a step back from other economic and cultural agendas and imagine a new way forward for the world. Art can help us challenge the dominant paradigm of our society. "Art is probably one of the most powerful mediums to help us imagine this new culture, to build it, to share it with as many people as possible" (Glalhos, 2015, pp126).

CLIM-ART

Using art to build a social movement around climate change is not a new concept. "It is only odd, perhaps, that it has taken climate change so long to become a significant and controversial theme for the arts" (Simms, 2015). Over the last 25 years, "an increasing number of artists have been ... engaging the public in artworks addressing the anthropogenic phenomenon known as climate change" (Giannachi, 2012). The terms "'clim'art'" and "climarte" are used to describe this genre of artistic endeavors (Anglia Ruskin University, 2015; Climarte, 2016). For the remainder of this report, this will be referred to as "clim-art".

A number of organizations have established alliances or collaborations of artists that are attempting to build awareness and provoke change. "I think that artists have something to contribute because we are in the habit of making things visible that are sometimes invisible" (Porter, 2014). Cape Farewell was established in 2001 by David Buckland to instigate a cultural response to climate change. Artists, scientists and educators work together to

Figure 4: A Hot Wind More Terrible Than Darkness, 2005 by David Buckland

raise awareness about climate change by going on expeditions with the organization to the Arctic. The expeditions allow artists to see and experience the effects of climate change (Cape Farewell, 2016). The art collaborative Climarte, comprises a broad alliance of visual arts, music, theatre, dance, literature, architecture and cinema toward the aim of advocating for a safe climate, capable of supporting a healthy and sustainable environment. Climarte believes that arts can "create the empathy needed to bridge the gap between knowledge and action" (Climarte, 2016). Imagine2020 is a European collaborative that aims to explore the causes and effects of climate change (Imagine2020, 2016). Finally, the 2 Degrees Festival is focused on art, activism and the environment, with the purported aim to "inspire, connect, and empower people to create solutions for a sustainable future" (ArtsAdmin, 2015).

The types of climate change artworks span three categories: representation, performance and interventions (Giannachi, 2012). Representation is "art that facilitates communication on climate change including dystopian works often used to shock" (Giannachi, 2012). The second category is art that is meant to facilitate the experience of climate change through performance (Giannachi, 2012). The third category is meant to encourage behaviour change in a particular community (Giannachi, 2012). In the first and second categories, it is the professional artists that create the artworks in order to trigger a response in others and hopefully help others to see and act differently. The recipient plays a passive role by viewing and can be affected by the artwork, however not necessarily being incited to action.

The examples provided here only touch the surface of existing clim-art. They are examples of highly accomplished professional artists and their climate change art to provide some context for existing clim-art. These examples are referenced by others and are promoted through art festivals and collaboratives.

David Buckland is the Founder of Cape Farewell that lead expeditions of artists to the Arctic. One of his art projects was Ice Texts as part of the expedition (Cape Farewell, 2016).

Figure 5: Mendenhall Glacier, Alaska, USA, 2010 from ICE: Portraits of Vanishing Glaciers
James Balog, Extreme Ice Survey

Figure 6: Water's Edge, 2015
Photo courtesy of No.9: Contemporary Art
& the Environment

Figure 7: Water's Edge, 2015
Photo courtesy of No.9: Contemporary Art & the Environment

James Balog is a photographer that founded the Extreme Ice Survey, a photographic study of glaciers. (Balog, 2016)

Water's Edge is a Pan Am-commissioned photographic exhibition that was meant to explore where human civilization, land and water meet. The exhibition took place in Toronto at Union Station, the UP Express Terminals and Pearson International Airport so that the 30 million people that commute and travel through these spaces would have an opportunity to contemplate and connect with climate change during moments of downtime (No.9, 2015).

Figure 8: Oil Fields #19ab Belridge, California, USA, 2003 by Edward Burtynsky

Edward Burtynsky has done many solo and group exhibitions across Canada and around the world. In Oil Fields, Burtynsky explores the future of the oil industry and intends to "search for a dialogue between attraction and repulsion, seduction and fear" (No.9, 2009).

Figure 9: Holoscenes, 2014 by Lars Jan

Figure 10: Crossing the Tide, 2015 by Vincent J.F. Huang

Holoscenes is a public performance involving a large aquarium that floods, drains and floods again. The aquarium is inhabited by performers conducting everyday behaviours and is meant to embody the trauma of flooding. It is a "global art and activism project about the future of empathy, long-term thinking, flooding, climate catastrophe and everyday behaviours" (Holoscenes, 2016). Holoscenes premiered at Toronto's Nuit Blanche Festival on October 4, 2014 (Holoscenes, 2016).

During the 56th Venice Biennale, there were a number of installations related to climate change. Crossing The Tide was meant to challenge our experience in the Tuvalu Pavilion. "Tuvalu is a small archipelago in the middle of the Pacific ocean where the average height above sea-level is 2 m. On account of this geographical fact, this group of islands risks being one of the first nations to be submerged in water as a result of rising sea-levels" (Domus, 2015). The installation forced visitors to traverse the space in semi-submerged water (Domus, 2015).

"There is no discipline that nurtures and sparks the cognitive ability to imagine, and unleashes creativity and innovation, more than arts and culture." (Friedenwald-Fishman, 2011)

ART AND SOCIAL CHANGE

As discussed above, the third category of climate change artworks are interventions to effect behavioural change (Giannachi, 2012). In this type of art, it is common to see interdisciplinary methodologies that involve artists, designers, scientists and the local community. Giannachi provides a number of examples to illustrate this point and explains that "this has frequently led to the simultaneous presentation of climate change in nature and in culture, which has required a repositioning of the viewer from spectator to participant, thinker, citizen scientist or even activist" (Giannachi, 2012).

Many cultural institutions are also starting to change the experiences they craft for their visitors with an invitation for citizens to participate in artistic endeavors. Nina Simon defines a "participatory cultural institution as a place where visitors can create, share, and connect with each other around content" (Simon, 2010). Simon proposes the "me-to-we" framework to go from personal to communal cultural experiences. In the final stage

of the framework, the cultural institution transforms to a social hub "full of potentially interesting, challenging, enriching encounters with other people" (Simon, 2010).

Citizens are shifting their expectations from passive recipients to active engagement with arts and culture. People want to contribute to the experience in order to achieve personal fulfillment (Simon, 2010). Visitors "expect the ability to respond and be taken seriously. They expect the ability to discuss, share, and remix what they consume. When people can actively participate with cultural institutions, those places become central to cultural and community life" (Simon, 2010). In addition, Simon posits that when cultural institutions move from personal to social engagement, institutions are able to harness the collective intelligence of participants (Simon, 2010).

There are new forms of arts that fall into this category such as "social practice", that is a form of participatory art with the intent to empower change in a community. This type of art "might take

the form of a store, a garden, a meal, a website, a street performance, a story exchange, or an urban planning project" (Big Ideas, 2016). Springboard for the Arts has developed a number of toolkits for artists in order to support creative community building. "As cities change and technology evolves, creative citizen engagement is playing an integral part in community building. All this translates into a new role for artists" (Leber, 2016).

There is no discipline that nurtures and sparks the cognitive ability to imagine, and unleashes creativity and innovation, more than arts and culture. There is no approach that breaks barriers, connects across cultural differences, and engages our shared values more than arts and culture. There is no investment that connects us to each other, moves us to action, and strengthens our ability to make collective choices more than arts and culture (Friedenwald-Fishman, 2011).

Art for social change is focused on drawing attention to local and global issues of societal importance and is used as a way to support social

justice. As part of the Berkeley Big Ideas contest, the organizers believe "socially engaged art can ignite outrage and demands for change, and/or provide a platform for reflection, collaboration, and building community. It can focus on the residents of a single city block, or reach out to a global audience" (Big Ideas, 2016). Art helps to provide a place to voice concerns, emotions and fears about a particular issue (Shulman, 2013). "By cultivating vulnerability, empathy, and creativity, artists are making it possible for citizens to grow into more wholehearted people with the capacity to make wise and compassionate decisions for themselves and their city. Artists are becoming a vital and singular source for community health" (Clark, 2014).

In this third category of clim-art, artists are moving towards participation and using art for broader purposes intended to contribute to community development and platforms for change.

ART AND HEALING

In addition to using art to provoke broader societal change, there are many examples of art used in relation to individual healing. This type of art is generally participant-driven rather than artist-driven with an intent to focus on the individual and their well-being. Both art therapy and relational art viewing are approaches to healing through art.

Art therapy involves the creation of art for self-expression and self-exploration, and to improve physical, mental and emotional well-being. Art therapy is in striking contrast to clim-art, because it is much less about the aesthetic of the particular art form, and has a much greater emphasis on the subconscious knowledge associated with the art created. "Art therapy uses art as a means of personal expression to communicate feelings, rather than airing an aesthetically pleasing end product. This means of expression is available to everyone, not just the artistically gifted" (Liebmann, 2004, pp6).

Almost everyone has used art as a child, and a picture can often depict experiences that are hard to put into words. "The common ground for all art therapies includes the focus on non-verbal communication and creative processes together with the facilitation of a trusting, safe environment within which people can acknowledge and express strong emotions" (Liebmann, 2004, pp6). The existence of an art product as an object separate from both therapist and patient means that the dyad can relate to each other through the object; which, in many cases, is a less threatening and therefore more effective way of confronting difficult issues (Liebmann, 2004).

"Mother of art therapy" Margaret Naumberg, has helped to spread the use of creative art therapies for mental health, children's counselling, psycho-therapy, counselling, rehabilitation and healthcare (Art Therapy, 2016). Art therapy is meant to help an individual through a healing experience. "Facilitating personally meaningful art-making can help the

client-artist with personal healing" (Potash, 2011).

Another approach to art and healing is relational art viewing. Relational art viewing is being used in healthcare for teaching medical residents and to provide social support for patients. The Art of Seeing at McMaster University is a program for facilitated art viewing and reflection for medical residents. The program is intended to build the capacity for observation and empathy (Zazulak, 2010). The Sunnybrook Regional Cancer Centre also started a museum education program. The program "was designed to provide patients with opportunities to learn about the McMichael Canadian Art Collection and explore their personal feelings about the cancer experience through combined gallery and studio components" (Madill, 2014). Through both of these programs the benefits have included emotional and social support, and self-care (Madill, 2014; Podedworny, 2016).

Researchers identify three aspects to the psychology of art-viewing that contribute to its role in healing (Fig. 11). The aesthetic dimension triggers an emotional connection and is essential to effect change for the participant (Potash, 2011). The educational dimension allows connection with the artist by understanding the context and interpretation by "facilitating a discussion on the artist's motivations, associations and insights" (Potash, 2011). Finally, the psychological dimension provides positive reinforcement and a pleasurable experience (Madill, 2014).

Potash proposes that art therapy and relational art viewing have the opportunity to go beyond individual therapy to apply more broadly to social healing. "Interactions with art are creative encounters that have the potential to generate new possibilities not only for the individual, but also for the world" (Potash, 2011). The intent of art and healing is to build empathy for others. "Emotional engagement can enhance empathy and dialogue, which may result in the desired personal, societal and political changes. Given that art created in
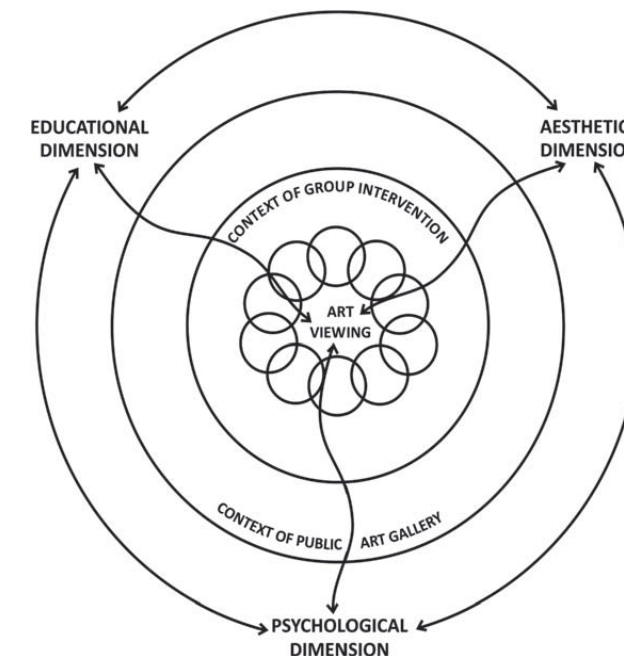
art therapy tends to be emotionally-laden, such imagery could become a catalyst for this process" (Potash, 2011). The author also explains that "social change begins with generating empathy for others" (Potash, 2011).

There are a number of individual and community benefits of art and healing. These include "improving insight and compassion on the part of health care professionals; alleviating feelings of isolation that caregivers often experience; increasing self-confidence; reducing feelings of fear and anxiety among patients; improving social and community networks; and intercultural and intergenerational understanding, among many others" (Madill, 2014). The major benefit of art is that it has the ability to re-balance our mind, body and spirit. Judith Marcuse, the Founder of the International Centre of Art for Social Change says "art creates new visions and engagement, connecting the head and the heart" (ICASC, 2013).

It is art and healing that has the most potential to address the "environmental melancholia" associated with climate change. Elements of both

individual art therapy and relational art viewing might help address this situation. Individuals could use a creative outlet to address their emotions related to climate change and could participate in a social experience to build empathy for others. Perhaps this form of art has the potential to heal climate change hopelessness and paralysis?

CREATING A SPACE FOR CREATIVITY

Humans have a basic need for creativity, "for sharing our common experiences, expressing ourselves and connecting with each other" (Madill, 2014). "Creative thinking in all fields occurs pre-verbally, before logic or linguistics comes into play, manifesting itself through emotions, intuitions, images and bodily feelings" (Root-Bertstein, 1999). It is possible to create an opportunity for individuals to be creative and explore their experiences at a deep level through generative research tools and arts-based research. It is the act of making something that encourages people "to engage in associative, bisociative and creative thinking" (Sanders, 2013).

surface

RESEARCH METHODS

Say
Think

Interviews

Explicit

Do
Use

Observation

Observative

Know
Feel
Dream

Generative
Sessions

Tacit

Latent

deep

WHAT PEOPLE

LEVELS OF KNOWLEDGE

CHAPTER 3
Research Methodology & Findings
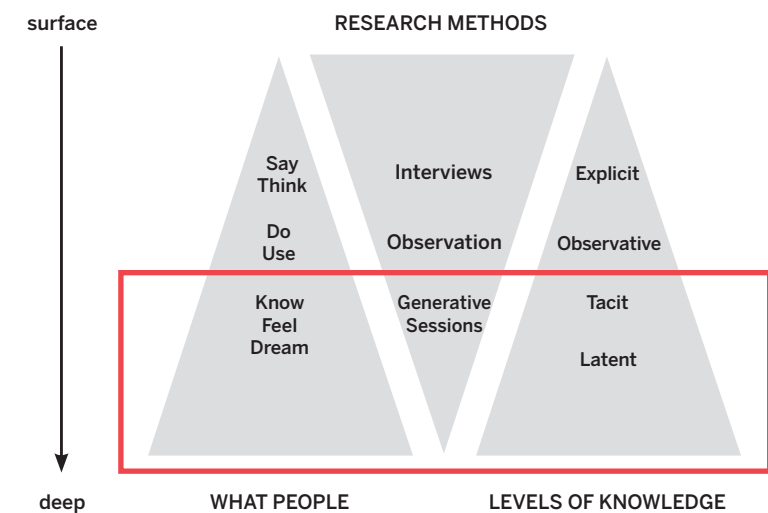
Sanders and Stappers in the Convivial Toolbox describe the various ways to access creativity by considering "Say, Do and Make" tools and techniques (Sanders, 2013). By focusing on the "make" category, it is possible to go beyond explicit and observable knowledge to understand tacit and latent knowledge (Sanders, 2013). When people make things, people are able to draw upon their own creativity to express their deep thoughts and feelings.

In creating artifacts ... we are forced to take into account competing ideas and to resolve ambiguities to make a good enough single, embodied, solution. [It] forces confronting all ingredients in a problem, choosing an idea for a solution, and making explicit statements on all its ingredients. It prevents us from hiding in abstractions, and forces us to commit to an idea" (Sanders, 2013).

In addition, individual creativity explodes in scope and scale when people come together in creative ways (Sanders, 2013). Arts-based research echoes this understanding. "By handing over creativity and

its interpretation to the research participant, the participant is empowered, the relationship between researcher and research participant is intensified and made more equal, and the contents are more culturally exact and explicit, using emotional as well as cognitive ways of knowing" (Huss, 2005).

Based on an understanding of clim-art, art and social change, and art and healing; it seemed promising to explore the creation of a space for creativity in relation to climate change. A participatory experience to test this premise was designed as part of this investigation.

Research Methodology & Findings

FIgure 13:
Research Methodology

RESEARCH METHODOLOGY: FIVE KEY STEPS

1	**2**	**3**	**4**	**5**
Invitation	Individual Photography	Participatory Workshop	Survey	Analysis & Synthesis

In this study, the research methodology was designed to utilize generative research tools to access the creativity of study participants in relation to their experience of climate change.

RESEARCH METHODOLOGY

This research was modelled based on an arts-based research technique called "photovoice" and a generative research tool called a "design probe". See Appendix A - E for a detailed description of the research methodology.

Photovoice, a creative technique for participatory research designed by Caroline Wang and Mary Ann Burris (Sutton-Brown, 2014), entails individuals taking photographs of their community that relate to a particular policy concern. The researchers using this technique give cameras to research participants and ask them to photograph their environment and circumstances (Leary, 2015). It has been used, for instance, in public health research (Leary, 2015; Catalini, 2010). The design of photovoice is generally in depth, with training provided to participants, and multiple sessions with them convened for dialogue and reflection (Leary,

2015). This technique recognizes that virtually anyone can use a camera and that individuals have expertise and insights into their own communities. The photographs provide the medium through which people's visions and voices may surface. Photography is also an "unusually motivating and appealing tool for most people that can be a source of community pride and ownership"(Wang, 1997).

Similar to photovoice, the design probe is an experimental and product design technique wherein individuals self-document their personal context and perceptions. "Probes are specifically designed material packages given to the potential users to document their private lives, contexts and experiences" (Mattelmaki, 2002) in order to design positive future experiences. It is meant to support design quality, feasibility and usability by taking into account "contexts, actions, feelings, attitudes and expectations" (Mattelmaki, 2002). Design probes are generally used by the design community "to understand the whole of the user experience" (Mattelmaki, 2006). The returned materials provide a way to look for stimulation and ideas (Mattelmaki, 2002).
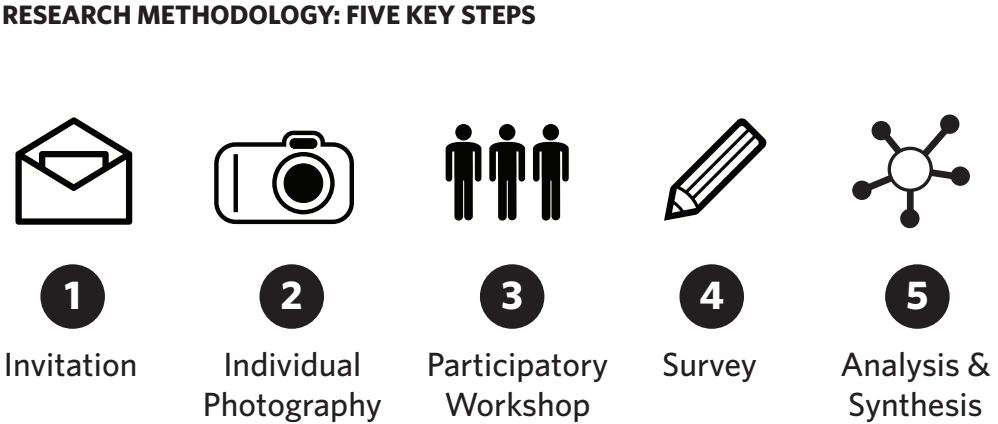
In this research study, elements of the design probe and photovoice were used. Participants were invited to take part in a clim-art ten-day challenge, taking photographs of their day-to-day lives which is consistent with a design probe. In addition, participants were also asked to contribute to a participatory workshop at which all study participants could explore their personal stories in relation to climate change which is consistent with elements of photovoice. The research was not consistent with the full extent of photovoice in order to limit the burden of participation.

THE HYPOTHESIS

The working hypothesis assumes that, by accessing participants' creativity in relation to the climate change, participants will come to understand their subconscious thoughts and actions. The author believes that, through this self-reflection, climate change paralysis could be temporarily suspended, and that an understanding of tacit and latent knowledge can be achieved. The self-reflection process is additionally intended to identify the strongest point of intervention where further design and innovation could take place. This research is

meant to be exploratory in nature, and a starting point for further investigation, in order to modify our daily lives in a climate friendly direction.

I SEE CLIMATE CHANGE

Participants were asked to take photographs as part of their day-to-day life that represent people, objects, environments, messages and services as they relate to climate change and their connection with nature. Participants were asked to take one photograph per day over a 10 day period.

Fourteen individuals participated in the research study: seven men and seven women between the ages of 20 and 45 years. The participants submitted 140 photographs in total ranging from six to 13 photos per person. Some of the study participants found it difficult to take the photos.

"I'm having a hard time finding things. Can you give me hints?"

"[As I] go to work and then home everyday, it is hard to take photos."

Other participants had difficulties narrowing their responses down to ten photos and ultimately shared more than were required by the study.
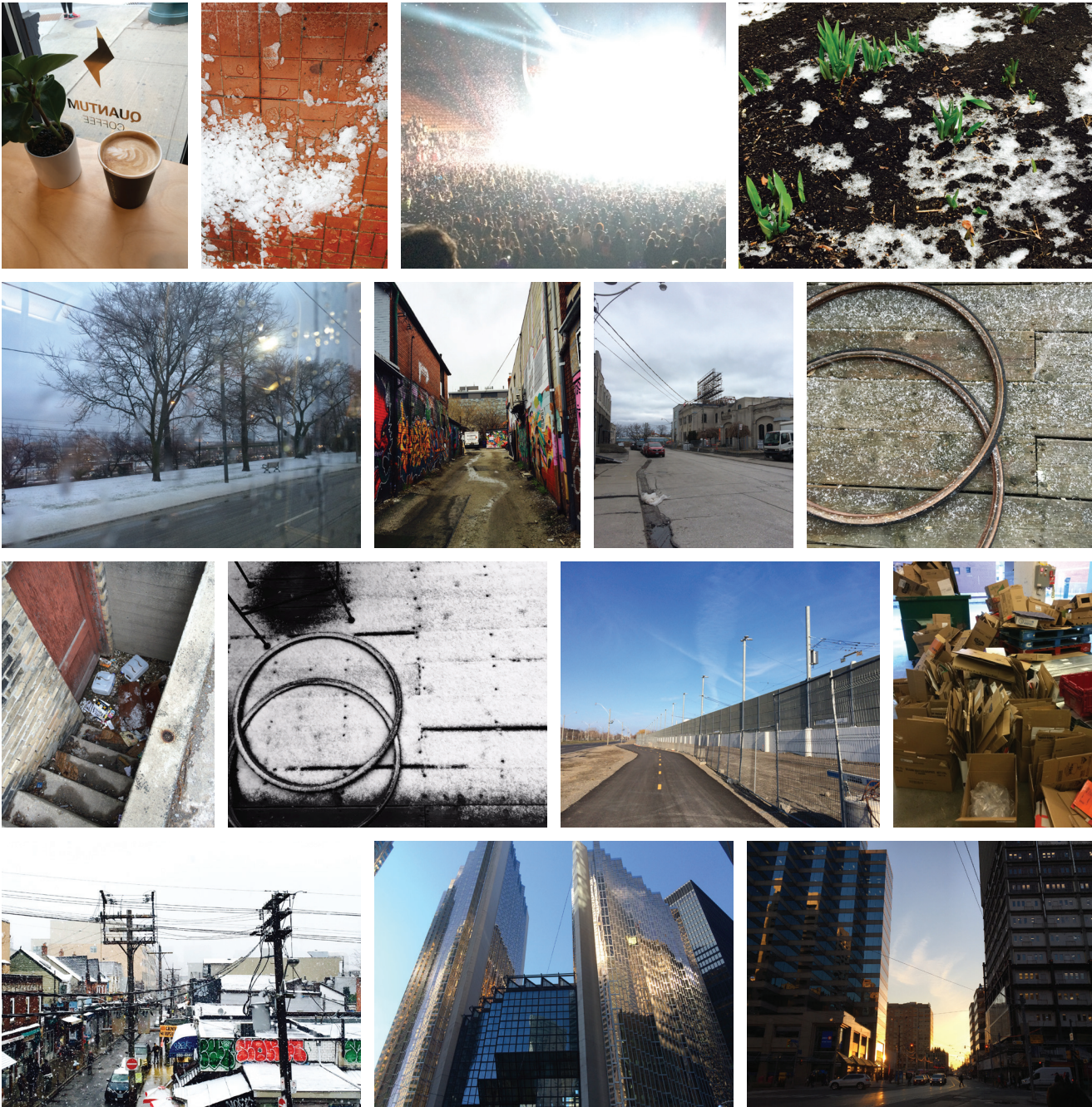
Credit: Photographs Taken by Research Participants
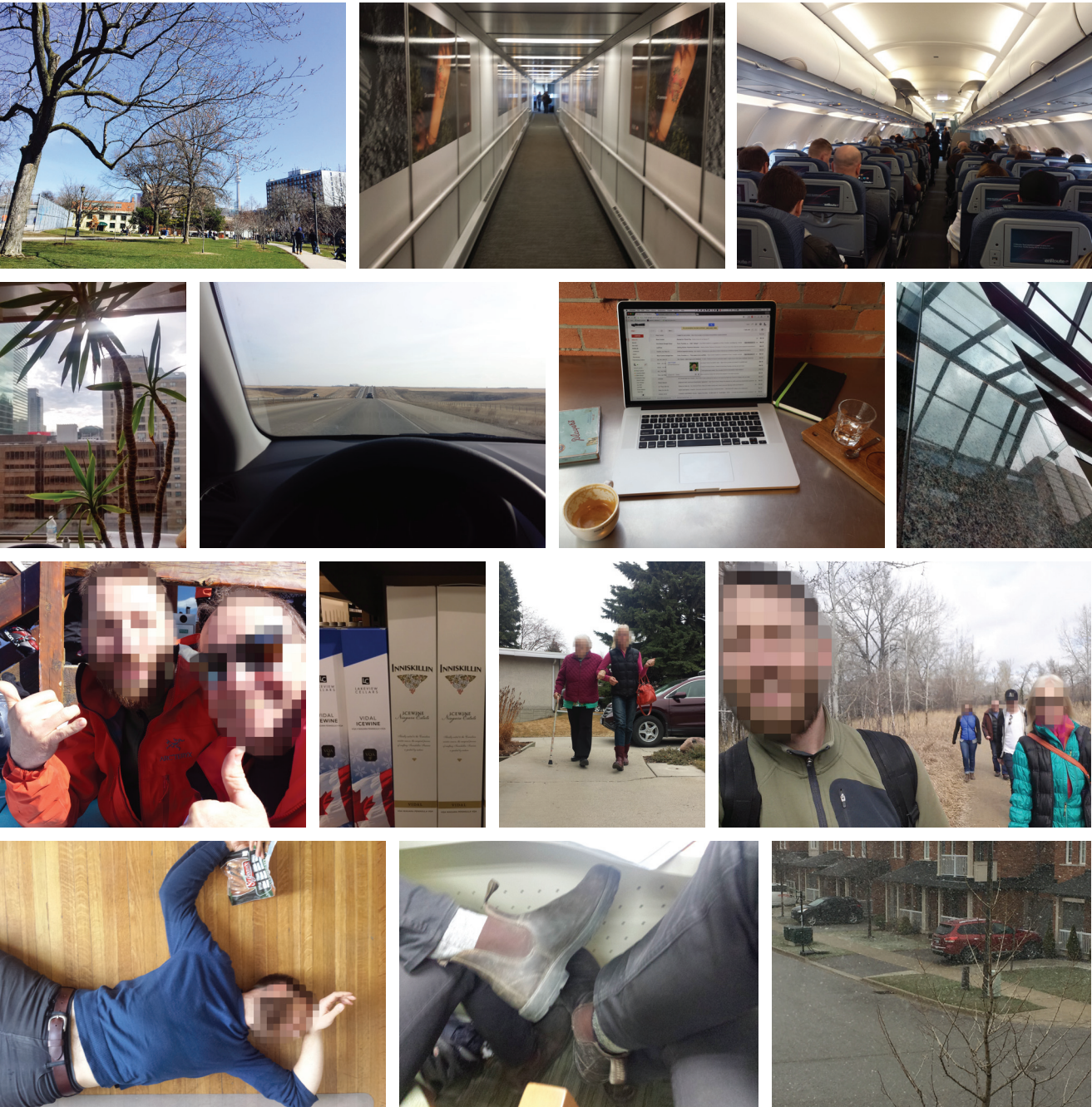
Credit: Photographs Taken by Research Participants
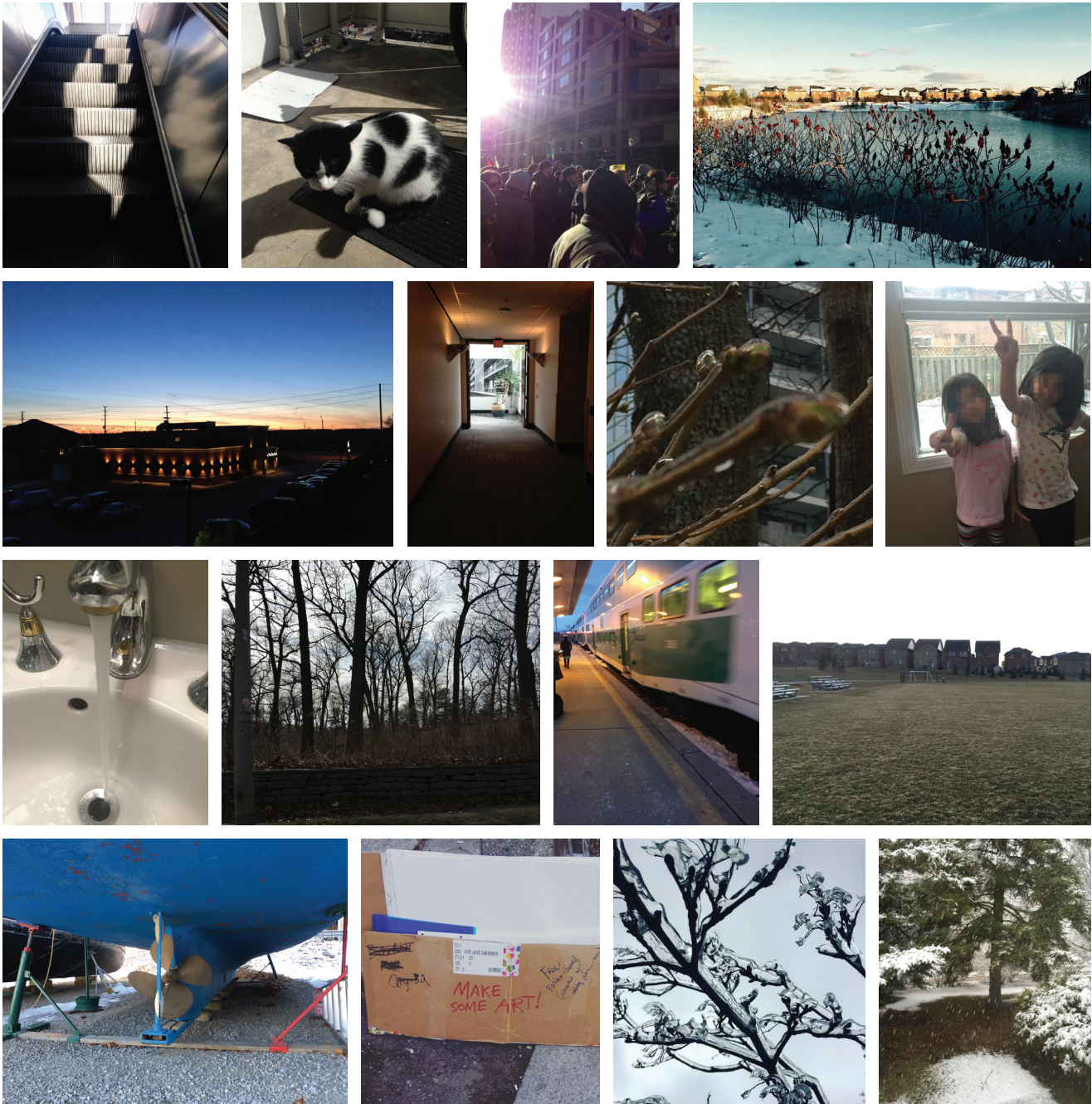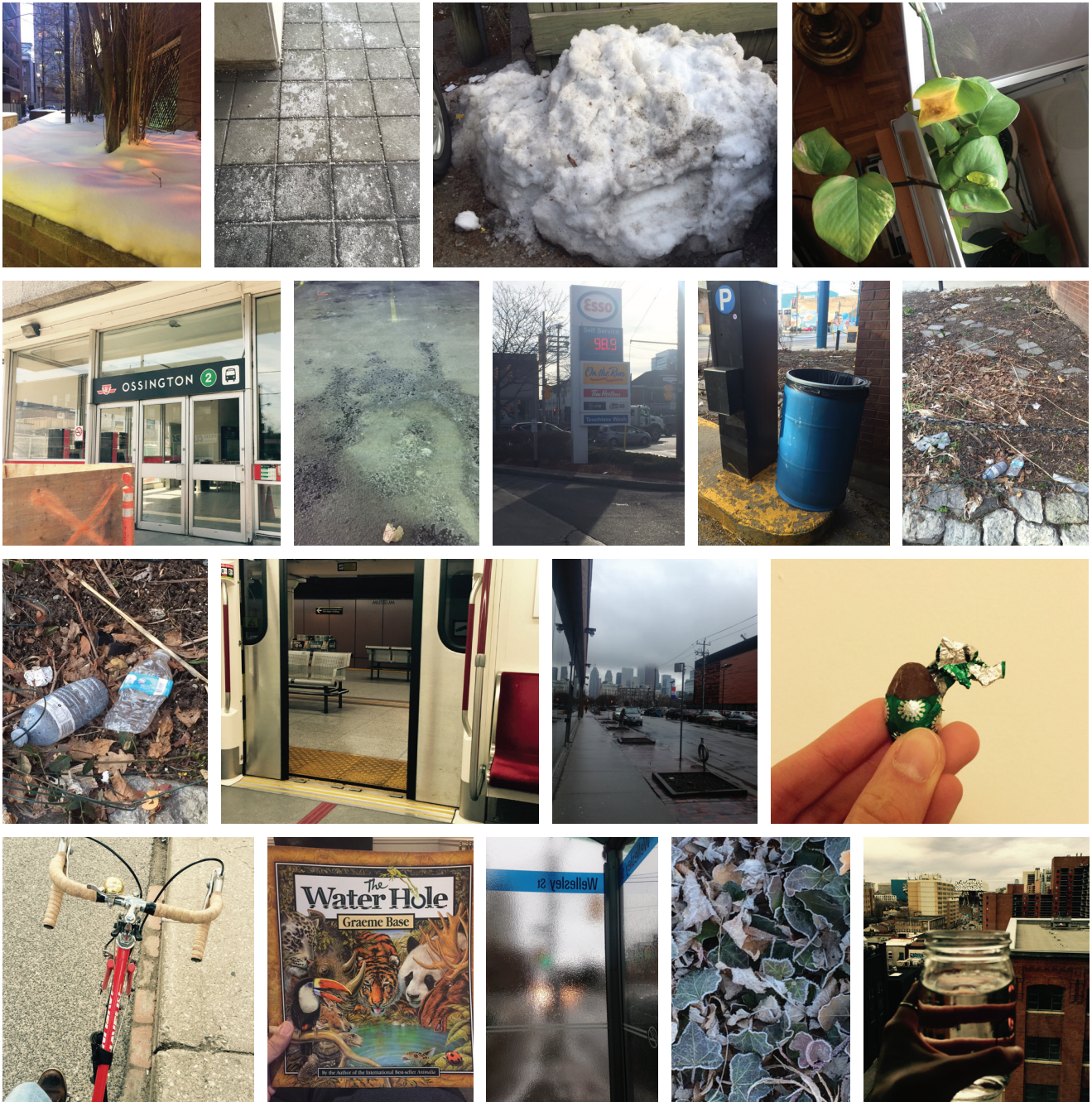
Credit: Photographs Taken by Research Participants
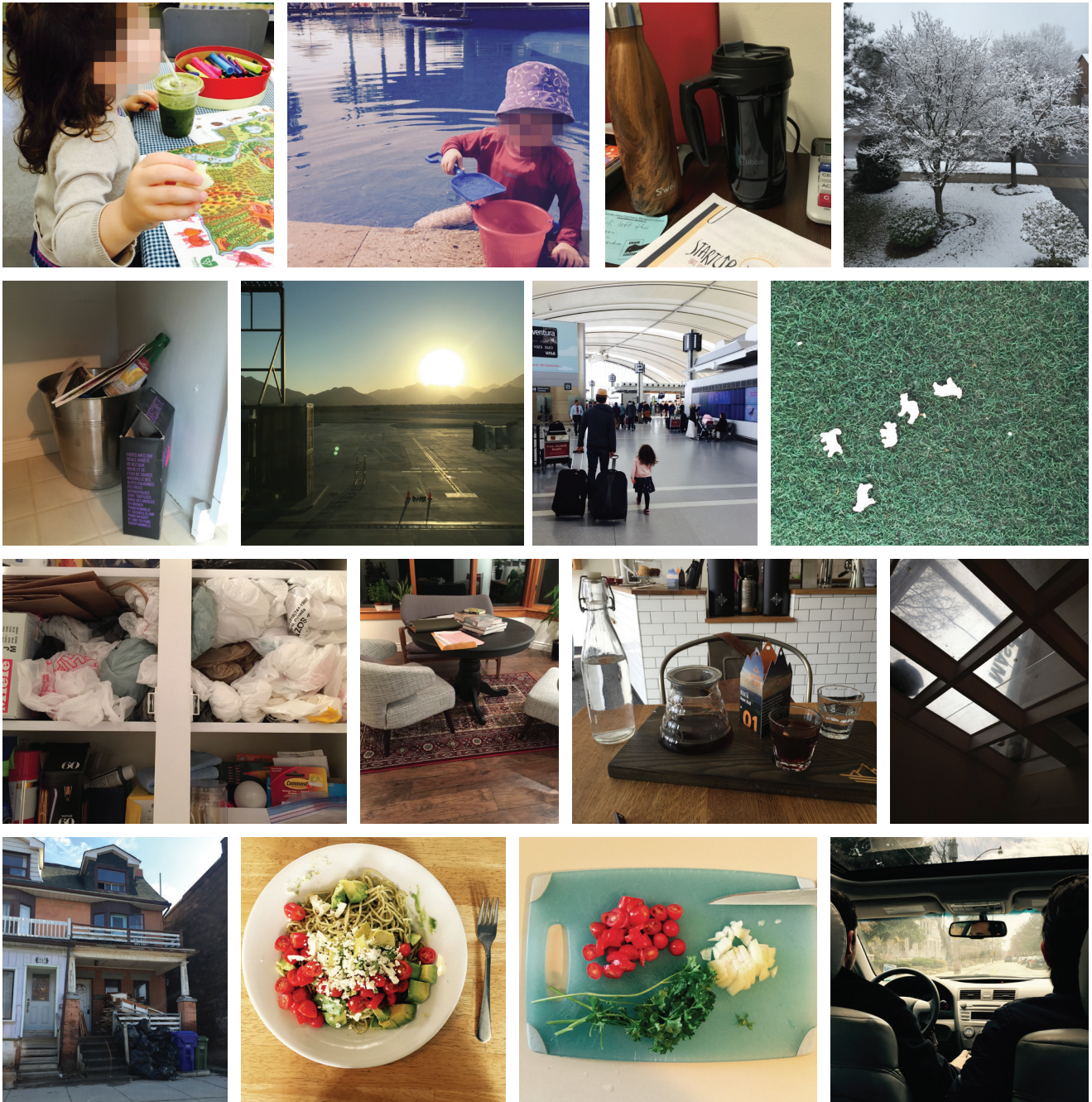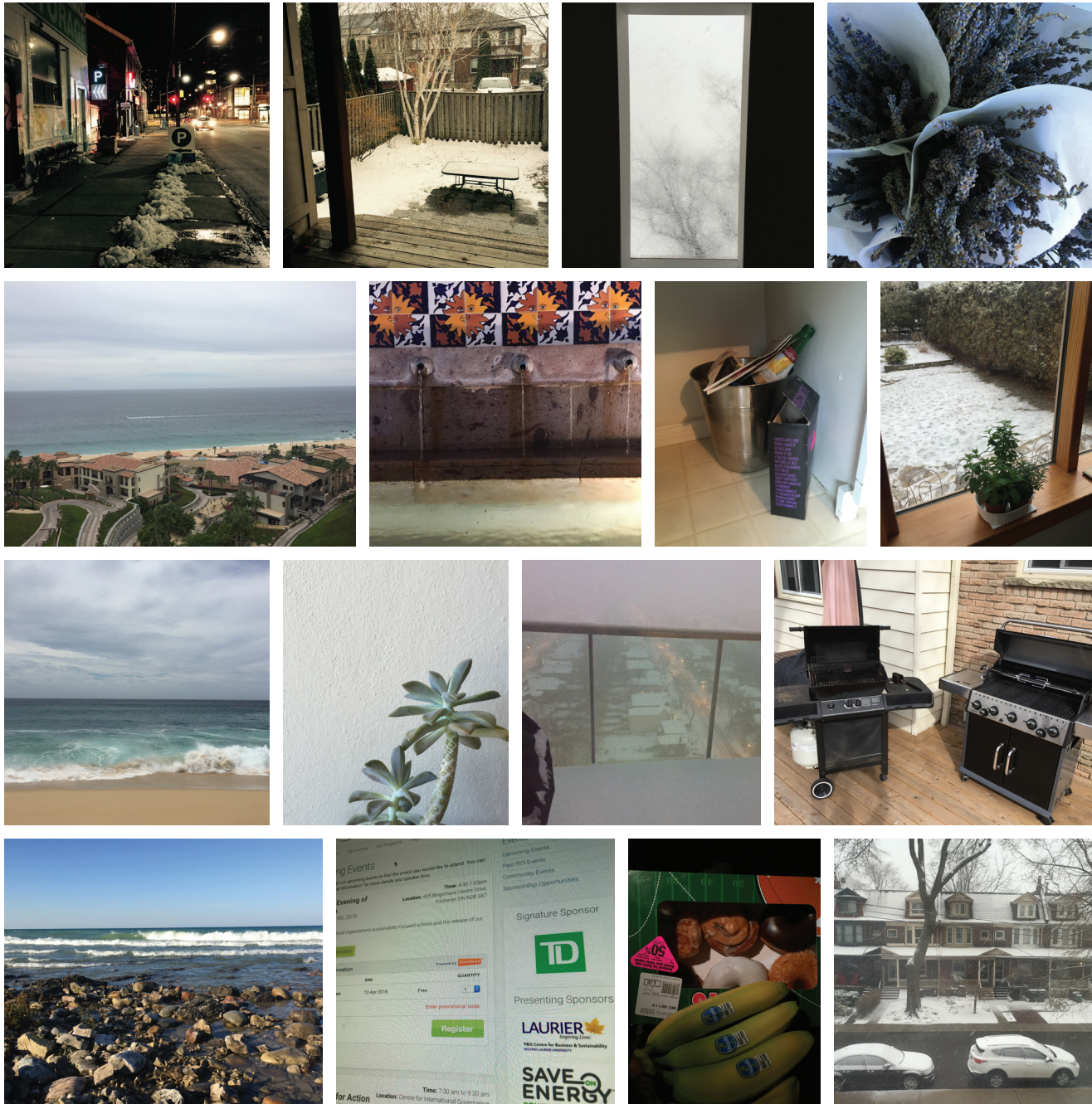
Credit: Photographs Taken by Research Participants
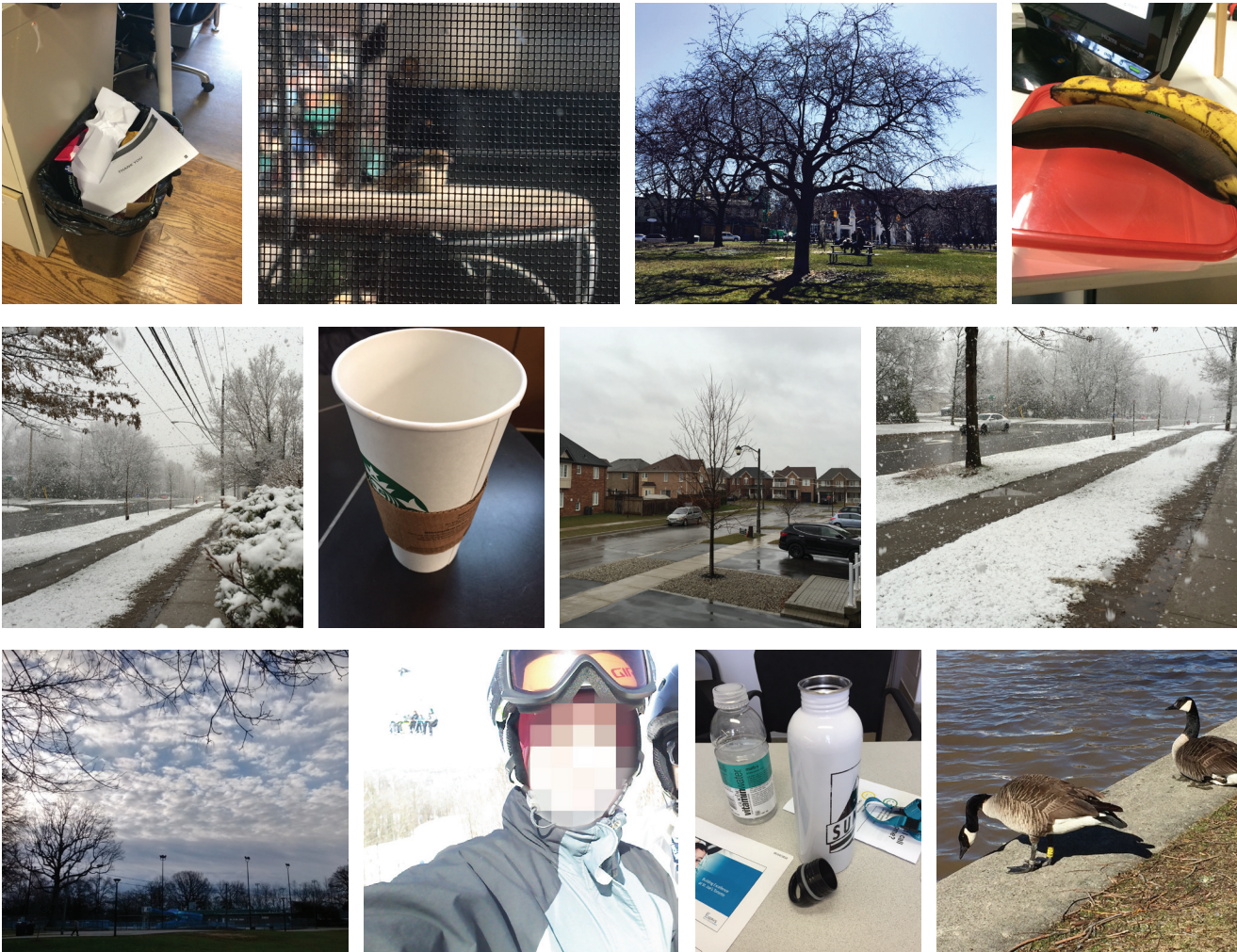
Credit: Photographs Taken by Research Participants

After receiving all of the photos, the author found that the majority of the photos were obvious and literal in terms of their relation to climate change, being primarily concerned with representation of weather and plants. The other photos were more obscure: it was difficult to see the link to climate change in them, and intriguing to determine the personal meaning. It was not possible to make assumptions about the message and meaning behind each photo without the interpretation and explanation by study participants.

PERSONAL MEANING

Once participants arrived at the workshop, the depth of the meaning behind each of the photos became clear. Each of the participants shared with a partner why a particular photo provided the most meaning to them. The 14 photographs here are the most meaningful photos selected by study participants along with a description of what each photo represents to its creator.

"I was feeling emotional seeing two generations of moms and it is rare that I am able to see my family."

Figure 14: Most Meaningful Photograph from Participant 6

"This photo is at my sister's suburban house in Calgary. I was feeling emotional seeing two generations of moms and it is rare that I am able to see my family. I stay in Toronto because I am attracted to the vibrancy of the urban life. My work is interesting and provides intellectual stimulation."

"As winters are getting shorter, our summer activities
are replacing our winter ones. "

"I prefer the living environment but it is hard to focus
on protecting it when I'm not physically connected."

Figure 15: Most Meaningful
Photograph by Participant 2

"This photo is from the
Harbourfront because I thought
as winters are getting shorter, our
summer activities are replacing
our winter ones. This created an

optimistic feeling of hope that the
world isn't coming to an end and
that we can find solutions and live
our lives into future generations"

Figure 16: Most Meaningful
Photograph by Participant 12

"This photo is from my office at
work. It shows the juxtaposition
between the "climate-controlled"
office environment and the living
environment. I prefer the living
environment but it is hard to

focus on protecting it when I'm
not physically connected. I can
get caught up in work and my
desire for achievement and need
to constantly reinforce the fact
that I'm in a living environment."

"Plants are indicative that we are at a crisis point. Plants don't lie."

"Rabbits and plants don't get a say and represent vulnerability. "

"Humans are the caged animals in the city."

Figure 17: Most Meaningful Photograph by Participant 5

"This photo is at my home. It was snowing after a balmy week and I saw a rabbit outside. I started thinking about the rabbit and how he might be confused about the

weather. Rabbits and plants don't get a say and represent vulnerability. Do I [human] get to make all the decisions that impact climate change?"

Figure 19: Most Meaningful Photograph by Participant 9

"This photo is of my window and balcony because I was inspired and nostalgic for the bird sunning outside. The bird was really cozy and enjoying itself and yet we live in structured and insulated environments. The bird was in

balance with nature and humans have spent millennia trying to control and dominate nature. Humans are the caged animal in the city. Nature is scary so we try to protect ourselves."

Figure 18: Most Meaningful Photograph by Participant 1

"This is a photo of plants in my house. My plants are super important to my mental health. Some of my plants are dying because of lack of sunlight. Plants are indicative that we are at a crisis point. Plants don't lie."

"The convenience outweighs the guilt."

"Transportation is one of the most exhaustive systems."

"I believe we have ruined the environment."

Figure 20: Most Meaningful Photograph by Participant 13

"This is a photo of my commute to work on the QEW. It is something that I do everyday and probably has the biggest impact on the environment. I drive because it's the most convenient form of transport. I feel guilty but the convenience outweighs the guilt."

Figure 21: Most Meaningful Photograph by Participant 3

"This photo is from the streetcar on King Street West looking over a packed Gardiner Expressway. Transportation is one of the most exhaustive systems and has the most potential to impact climate change. I choose not to have a car and to take the streetcar instead but people feel entitled to their chosen form of mobility. We are all busy looking for shortcuts to increase our non-work related time."
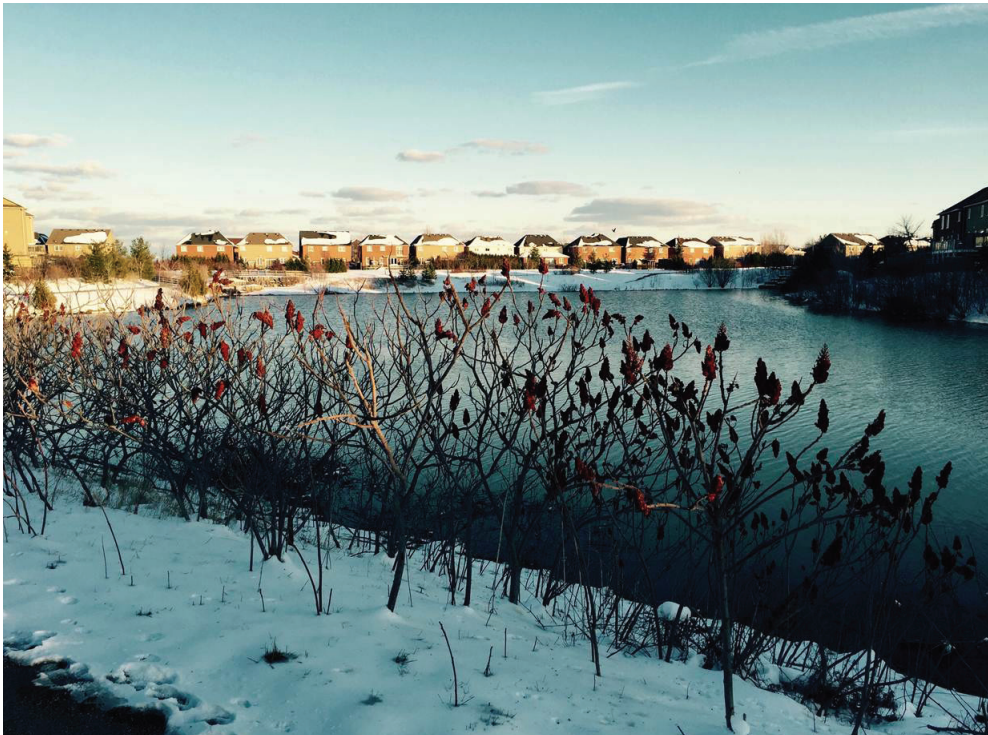
Figure 22: Most Meaningful Photograph by Participant 8

"I live in Oakville and it was -6°C in April. There is snow and you can see that spring has already started. The struggle between spring and winter is present in this photo and represents climate change. I believe we have ruined the environment and have less green space."

"The design of our cities and our built environment can create limits around our climate-conscious choices."

"I was watching the waves and it was the first time that I was afraid of the ocean."

Figure 23: Most Meaningful Photograph by Participant 11

"This photo is of my daily commute via bike. Our everyday decisions can affect the environment and people adapt habits without even thinking how it impacts the environment.

The design of our cities and our built environment can create limits around our climate-conscious choices."

Figure 24: Most Meaningful Photograph by Participant 4

"This is a photo of the ocean in Mexico. I was watching the waves and it was the first time that I was afraid of the ocean. I could easily visualize the waves engulfing us because in the last

10 years there have been many incidents where the ocean has hurt people (tsunamis). I think I see climate change all around me and it's scary."

"My kids will live in an environment that is more hostile."

"Everything is disposable."

"It snowed in April on opening day for baseball, a summer sport."

Figure 25: Most Meaningful Photograph by Participant 10

"This is a photo of my child playing at the Art Gallery of Ontario. The plastic toys he is playing with represent climate change because they don't degrade and their production has a negative environmental impact. The inquisitive look on my child's face represents the new reality that my kids will live in an environment that is more hostile and will need to adapt."

Figure 26: Most Meaningful Photograph by Participant 14

"This is a photo outside of my condo building. It is symbolic of our society right now in the sense that everything is disposable. [We live in] a money-oriented society with endless growth."

Figure 27: Most Meaningful Photograph by Participant 7

"This is a photo of my daughters at home. It snowed in April on opening day for baseball, a summer sport. The [strange] weather signifies a much bigger issue. Climate change feels so big; [I am] focused on myself and [my] family."

"Being physically present and participating in a creative exercise, allowed participants to make meaning together."

WE SEE CLIMATE CHANGE TOGETHER

The second part of the participatory workshop entailed participants, organized into small groups, discussing the photos submitted by all study participants. The analysis of small group sorting is provided in Appendix F.

It was during the workshop that the power of the research study became clear. Study participants were able to understand perspectives from the other members of their small group. The workshop provided an opportunity for participants to pause and reflect on climate change through a hands-on interaction. Being physically present and partici-pating in a creative exercise, allowed participants to make meaning together.

Through the group discussions, participants discussed the importance of daily behaviours (routines and habits) and how this plays an important role in relation to climate change. It is not the dominant dialogue associated with climate change: rising sea levels, droughts, and strange weather events. It had nothing to do with carbon dioxide reduction, scientific graphs

or emissions. Study participants concluded that the most personal way to address climate change in their day-to-day lives was to address convenience and daily routines. Participants felt that the "small choices" that make up many of our daily behaviours have the most impact: such as the use of coffee pods and water bottles, and transportation choices. Many study participants recognized their contribution to climate change with their transportation choices. Participants felt that this was one aspect in which they may make an immediate impact through their daily choices. Participants reflected that riding a bike and taking the streetcar as part of their daily commute make them happy. Driving a car alone to work everyday made one participant feel guilty; but the conve-nience associated with that choice had a greater impact. For these participants, transportation represented a focus on convenience and trying to take shortcuts to increase non-work related time. In a sense, participants felt entitled to their choices and felt they had a right to the freedom associated with their daily behaviours.

Figures 28, 29, 30, 31, 32: Image Sort from Groups 1, 2 and 3.

"My life is so routine"

Figures 33, 34, 35, 36:
Representative Photographs of Routines
and Habits Discussed During Workshop

"Convenience is everywhere"

"Daily choices are often overlooked."

"Daily commute"

Ultimately, participants didn't consider their daily actions to be conscious choices at all. Often, individuals continue to do the same thing every day because of their routines and habits. Many participants expressed that their daily actions are often overlooked and are unconscious activities that are part of a routine. "If you do things every day, you start to forget that you're making a decision about them". As a result, the most meaningful discussion related to climate change was in relation to our daily routines and habits.

The feeling of guilt was prevalent throughout the discussion of daily choices and convenience. One group even created a scale of guilt for transportation choices that individuals make every day. This seemed to be a strong emotion in relation to individual behaviours, but it did not change the behaviour of study participants. The positive benefits of seeing family, drinking a daily coffee, and driving alone all seemed to outweigh the negative feelings of guilt. One group labeled this as "trade-offs". They felt there were always positive and negative outcomes of our daily behaviours;

and yet, the positive benefits of the actions would always outweigh the environmental impact. The positive benefits seemed to be stronger motivators for the study participants. This is consistent with the psychological influences discussed in Section 1. Climate change is subject to loss aversion where individuals are afraid of losing in the short term rather than dealing with obstacles in the future.

WE SEE THINGS DIFFERENTLY
After the workshop, the study participants were surveyed to obtain feedback on their experience and how it had impacted their perspectives in relation to climate change. 79% of study participants completed the survey and shared their thoughts about the experience. The detailed responses are provided in Appendix G.
Based on the survey responses, the level of worry about climate change increased as a result of participating in the research. This confirmed the level of worry, fear and hopelessness that exists surrounding climate change.

72% Before the workshop we were very worried or somewhat worried about climate change

91% After the workshop we were very worried or somewhat worried about climate change

18% Climate change is currently impacting me a great deal

73% In 5-10 years, climate change will impact me a great deal

Participants also shared comments about their experience. It was the social aspect of the workshop that was meaningful to participants. The participants thought the experience was fun, enjoyable and positive even though the level of worry related to climate change had increased. Participants shared that, based on their experience taking photos and participating in the workshop, they are more observant and thoughtful about their day to day activities.

"It opened my eyes to my daily routine and to the beautiful nature surrounding me."

"It made me think more critically and be more observant about my immediate environment."

"It was a new way of putting a public lens on my private life, which is appropriate given that the topic is something that has such broad public implications."

"It made me think about climate change all the time".

"Thinking about climate change as it relates to others was the most valuable part of the study for me. This project took me from an individualistic outlook to a more collective point of view of climate change."

"I found the experience of cataloguing life to be very satisfying. I regularly take pictures, but having a research project to apply this habit towards gave a much deeper sense of purpose. It was very exciting to see my photos printed out, and I really enjoyed exploring the photos others took."

"The survey findings are consistent with the value of art and creative endeavors by creating a space to explore subconscious thoughts and feelings associated with climate change."

Insights

"I think this is a wonderful activity and I wish everyone could do it."

"I liked the framing/photography part because it made me think about the way the viewer would perceive the pictures and I found myself struggling sometimes to get my message across through the pictures. It was interesting to think so much about those pictures."

"If the assignment was to only take 2-3 photos I don't think I would have gotten the same understanding of how my daily decisions and actions have a permanent impact on those around me."

"I think that I now appreciate the topic of climate change much more, especially after noticing that many people in the group had similar photos. Many of them took photos of their kids which reflect their concerns about the future, while other photos focused on transportation as a leading cause for pollution and something that we can change at the individual level."

Through the survey, study participants indicated that they did not make any changes in their behaviour as a result of the photography and workshop; however, the experience did help participants to see things differently. The exercise caught the attention of study participants and took them out of their everyday to create an opportunity for self- and collective-reflection. The survey findings are consistent with the value of art and creative endeavors by creating a space to explore subconscious thoughts and feelings associated with climate change. It also provided space for emotional and social support, being consistent with art and healing. The workshop and participation in the research itself, provided an opportunity to explore climate change fear and hopelessness in a welcoming and fun environment.

Insights

By creatively exploring climate change and identifying personal and collective meaning, this research project has identified four insights.

INSIGHT 1 – THE CLIMATE CHANGE SIZZLE

Futerra, a UK-based sustainability communications agency, suggests that we need to "sell the sizzle!" in relation to climate change. They reference Elmer Wheeler a 1930s salesman that said "don't sell the [steak] — sell the sizzle". "Elmer knew that the big secret to successful selling is that you don't advertise the [steak] itself — because it's the desirable sounds and smells which get the juices flowing and the people hungry" (Futerra, 2015). We need to stop selling climate change and learn how to sell desirable meaning in relation to climate change.

How might we take the ordinary experience of commuting to work, or getting a coffee, and make it more meaningful in a way that enables a low carbon future?

This participatory research project provided a window into what point of intervention was most important in relation to climate change. By using photos and the workshop sorting, deeper insights and meaning were uncovered: insights and meaning study participants would not have expressed verbally. By further analyzing the research findings, it is possible to narrow in on a few meanings that participants desire in their daily life. It is by focusing on the participants' needs in relation to meaning, that it may be possible to 'sell the sizzle' for climate change.

In *Making Meaning*, Diller and Shedroff explain how to create meaningful customer experiences. This can be applied to this experience with study participants. The authors explain that humans have evolved to value increasingly complex meaning in their lives (Diller, 2008, pp31). Based upon many interviews, the authors determined there are 15 meanings that emerge most frequently and appear to be universal[1]. Through the workshop sorting and discussion, the key theme raised in relation to participant's reflection on climate change was convenience. By looking at this theme in the context of the 15 core meanings described in this book, it is possible to extrapolate a potential point of intervention for individuals.

It is the "small daily choices" that were important because there is a need for convenience and personal preference. Participants felt justified in making choices with respect to daily behaviours even if there were broader societal consequences. This key theme reflects the meaning of *freedom*. Freedom is the "sense of living without unwanted constraints" (Diller, 2008, pp34). Not surprisingly, study participants expressed the need to be able to live their lives based on their own choices and desires.

If we apply the concepts in *Making Meaning*, it is possible to build upon this key need expressed by study participants. In fact, many climate-friendly behaviours are in complete contrast to the meaning of freedom and convenience. In order to reduce car emissions, individuals might need to go out of their way to take public transit, to carpool, to bike, and so on: thus leading to a strong feeling of inconvenience. Climate-friendly choices are often portrayed as constraints. "We need to do this… to prevent something in the future". This does not feed into individuals desire for freedom. Is it possible to adjust the frame of climate-friendly behaviours? How might we create a climate-friendly experience that evokes *freedom*?

Currently there are many climate disruptive options that are founded in the meaning of freedom. Cars represent choice, control and freedom. "Cars have long been symbols for personal freedom" (D'Costa, 2013). One can go anywhere in a car, and this makes individuals feel in control and able to control their future. "Cars are empowering. Ownership means that you have the means to be independently mobile, that you own not just a vehicle but choice as well" (D'Costa, 2013). Automobile marketing continues to propagate this message of freedom and that a car is a partner in our lives. In 2012, automobile marketing in the U.S. accounted for $15 billion across all media (Statista, 2016). Car manufacturers are marketing freedom and choice in the form of cars.

[1] Core Meanings from Making Meaning: accomplishment, beauty, creation, community, duty, enlightenment, freedom, harmony, justice, oneness, redemption, security, truth, validation and wonder

"By taking an ordinary experience like getting to work everyday, perhaps it is possible to make it more meaningful by supporting an individual's desire for freedom."

In contrast, there are few, if any, marketing campaigns that take a climate-friendly daily behaviour and frame it in the context of freedom. By taking an ordinary experience like getting to work everyday, perhaps it is possible to make it more meaningful by supporting an individual's desire for freedom. Perhaps cycling to work every day can move from inconvenient to freedom by 'selling the sizzle' of climate-friendly behaviours.

Another way to address the desire for convenience and choice may be to explore the concept of a "nudge". Richard Thaler has discussed how people have a strong tendency to go with the default option or status quo. He has published the concept of a "nudge" as "any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler, 2008). His theory is that we can influence the default options to enable nudges in individual's behaviours. He also explains how people do not get feedback in relation to environmental behaviour.

If your use of energy produces air pollution, you are unlikely to know or appreciate that fact, certainly not on a continuing basis. Even if you know about the connection, it is probably not salient to your behaviour. The underlying problem is that energy is invisible, so people do not know when they are using a lot of it. (Thaler, 2008, pp185)

Thaler provides an example of a success story that produced an environmental blacklist. In the aftermath of the Chernobyl nuclear reactor disaster in Ukraine, the Emergency Planning and Community Right to Know Act was passed in 1986. The Act included a disclosure requirement that resulted in the Toxic Release Inventory. Now more than 23,000 facilities disclose information about their toxic release including over 650 chemicals. The unintended consequence is that now there is list of companies on the "blacklist" with the results being social pressure that causes them to adjust their emissions (Thaler, 2008, pp190).

There are a number of examples of climate change-related projects that are aimed at creating social nudges and addressing daily behaviours.

Example	Description
Gas Pump Labels	Our Horizon, a national not-for-profit organization, has created climate change labels for gas pumps to communicate the hidden costs of fossil fuels to end users. "It engages people in a different way from newspapers, television and books," said Rob Shirkey. "It drives the issue into the palm of your hand. It makes the issue more personal." On November 16, 2015, the City of North Vancouver became the first jurisdiction in the world to pass a law requiring climate change labels on pumps at gasoline retailers (Shirkey, 2016).
Project Neutral	Project Neutral is focused on supporting local greenhouse gas reductions by allowing households to benchmark and compare their carbon footprint to other households. From 2010-2013 over 1,000 households participated in the household carbon footprint survey and 80% of the households that completed the survey all three years achieved an average of 20% reduction per household (Project Neutral, 2016). In a recent study, "researchers showed that homeowners would lower their energy usage if they simply were told that they were consuming more than their neighbours" (Mena-Worth, 2016). "Small step-by-step changes in the choices and practices of individual families can help to generate new norms" (Mena-Worth, 2016).
Ambient Orb	Thaler includes this example in Nudge as a way to make energy visible. In Edison, California 120 people were given the Ambient Orb that was connected to the local grid to visualize current load and relative price of electricity. The little ball pulsed red when energy costs were high. In a period of weeks, users of the Orb reduced their use of energy, in peak periods, by 40% (Thaler, 2008, pp194).
Walk Your City	Matt Tomasulo has created informational street signs that show the distance, in minutes, to amenities on foot or by bike. It has involved an installation of 168 signs at 25 intersections in Grand Rapids, Michigan. The online company also allows users to analyze transportation data to increase walkability. "Our primary goal is to get people out of their cars and walking between our great art galleries, bars, restaurants and shops. We know people on the streets encourages other people to walk, and it makes a city feel more alive and energetic" (Kline, 2015).

Table 1: Examples of Environmental Nudges

Social nudges can become group norms. Ross et al. recently published about the power of social psychology in relation to climate change. They discuss a "psych-wise" initiative in a San Diego suburb where energy use was influenced through doorknob signs that said "the majority of your neighbours are undertaking energy saving actions every day" (Ross, 2016). The authors say that "individuals nudged without coercion or huge incentives to act in accord with environmentally friendly values come to hold, endorse and even spread those values" (Ross, 2016). Through this "virtuous cycle" where values reinforce each other, the expectations of the community might evolve to become more likely to support low carbon initiatives.

Imagine if there were many social nudges at play that adjusted our daily choices but still provided convenience, personal preference and freedom. Over time, we might start to see ourselves differently. Self-perception theory "holds that one of the ways that we learn about ourselves is by observing our own actions. In other words, if I'm someone who exercises all the time, then I learn that I'm a healthy person" (Torres, 2016). Perhaps we can start observing our own climate-friendly actions and then learn that we are low-carbon advocates?

"In order to achieve a societal shift in our response to climate change, the majority of the public needs to be engaged and mobilized around the issue."

INSIGHT 2 – SOCIAL HEALING

The more interesting and surprising insight from this research study didn't come from the outcomes and key themes identified through the group discussion. It wasn't the details of what people took photos of or what they meant that provided the greatest insight. It was the participation in the primary research itself that provided an opportunity for social healing in relation to climate change. Through participation in the research, it was an opportunity to acknowledge, share and discuss the fear and anxiety associated with climate change. The workshop worked because it had four key elements that are congruous with art and healing: self-expression, fun experience, social connections, and connecting head and heart.

Self-Expression – During the research phase of this project, participants were able to create photographs for a purpose that allowed self-expression and self-exploration. Participants shared their thoughts about climate change through non-verbal communication in the form of the photographs, and then explored their own thoughts: by selecting the most meaningful photo, followed by a group exploration of the meaning behind a broader group of photographs. This research study provided the space and freedom to share unconscious thoughts related to climate change. The underlying knowledge was shared with other participants through the stories and emotions that surfaced. Participants were provided with a moment to acknowledge climate change through the self- and group-reflection that occurred. "Acknowledgement is the death of denial, the awakening to the real" (Stoknes, 2015, pp79).

Fun Experience – Even though people shared personal and negative emotions related to climate change through the workshop, the overall experience of taking photos and participating in group discussion was quite fun, enjoyable and positive for most participants. The participation in a creative activity enabled an enjoyable and engaging experience for study participants.

Social Connections – Building an understanding of the other study participants was an important part of the experience. The photography alone would not have had the same impact on study participants. It was the sharing and dialogue that occurred at the workshop in relation to the photos that was meaningful. The workshop gave participants permission to share their inner thoughts and emotions in relation to climate change and ultimately helped to establish connections with strangers. Through the dialogue, it became personal. Strangers entered the workshop and got to know each other at a much deeper level than they likely anticipated during a two hour period.

In Community: The Structure of Belonging, Block claims that the "challenge is to transform the isolation and self-interest within our communities into connectedness and caring for the whole" (Block, 2008). We need to shift our attention to the possibility of community transformation and increase our social capital. (Block, 2008, pp5) This research project created an opportunity for participation and for building community. "Community is about the experience of belonging." (Block, 2008) Participants acted as creators and co-owners of their community through the process with the quality of "aliveness" in the room.

To feel a sense of belonging is important because it will lead us from conversations about safety and comfort to other conversations, such as our relatedness and willingness to provide hospitality and generosity. Hospitality is the welcoming of strangers, and generosity is an offer with no expectation of return. These are two elements that we want to nurture as we work to create, strengthen, and restore our communities. This will not occur in a culture dominated by isolation, and its correlate, fear. (Block, 2008, pp3)

Block also explains the power of the small group to build community. "Most everything important happens in a small group. Peer-to-peer interaction is where most learning takes place." Participants in this research study most likely learned something in their small groups from the other participants and the sharing of their stories. As a result of participating in the workshop activities, study participants may be able to start the process of building community and belonging in relation to climate change. One study participant said, "thinking about climate change as it relates to others was the most valuable part of the study for me. This project took me from an individualistic outlook to a more collective point of view of climate change." The experience momentarily took participants out of their self-focus to consider the broader impacts. "The 'we', the togetherness, the caring about the other, is the catalyst for change." (Glalhos, 2015, pp273)

Connecting Head and Heart – During the workshop, the primary emotions that were expressed related to hope, fear and guilt. It was made clear, through analysis of the discussions, that these emotions were quite strong. Some participants were surprised by how great an emotional response was created through discussion of the photos. Participants said they realized they were much more connected to climate change than they initially thought. After seeing the photos from other participants and talking about the experience, one participant said that "talking about it with others has helped me feel more hopeful".

INSIGHT 3 – A MENTAL HEALTH ORIENTATION

In order to achieve a societal shift in our response to climate change, the majority of the public needs to be engaged and mobilized around the issue. The Pacific Institute for Climate Solutions (PICS) has conducted research to understand innovative ways to mobilize the public. "Social mobilization is central to any large-scale response to climate change and is a process that raises awareness and motivates people to demand change" (Sheppard, 2015). The PICS report states that social mobilization involves "collective action and responsibility and is transformative over the
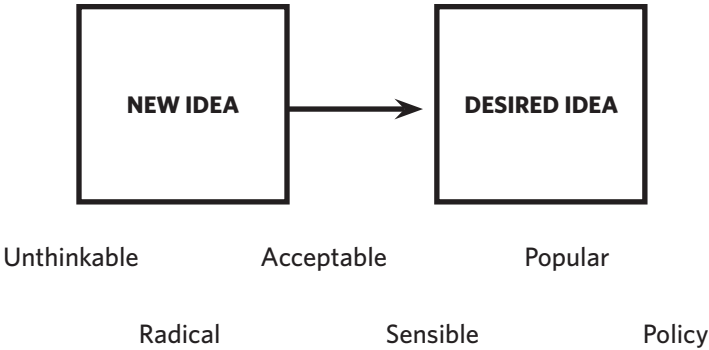
The Overton Window

Figure 37: The Overton Window

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┌─────────────┐          ┌─────────────┐
│             │          │             │
│  NEW IDEA   │ ──────▶  │ DESIRED IDEA│
│             │          │             │
└─────────────┘          └─────────────┘
```

Unthinkable   Acceptable   Popular

          Radical   Sensible   Policy

long-term, becoming embedded in social norms and practices" (Sheppard, 2015). Social mobilization can occur at multiple levels such as dialogue within communities to achieving carbon reductions over years (Sheppard, 2015).

As the premise of social mobilization is that citizens are engaged in developing and implementing climate change solutions, it is necessary for social mobilization to be preceded by social learning. In addition, the PICS research identifies that "processes that go beyond visual experiences, as in hands-on interactive or creative exercises and physical activities such as field walks or tree-planting, can be very effective and rewarding for participants" (Sheppard, 2015).

In addition to social mobilization, the "Overton Window" postulated by Joseph Overton provides a framework for social change in order to understand what is needed to shift the culture. The Window is a political concept that represents the range of policies that are politically acceptable in the current climate. Ideas or policies that fall outside the window are considered unthinkable or radical and are unlikely

to be successful based on public opinion. In order to obtain support for a new idea, it is necessary to shift the window (Russell, 2006). "When the window … is moved along the political spectrum, the impossible becomes desirable and the simply desirable becomes imperative" (Russell, 2006). To make each shift of the window, there are specific parameters to be considered (Dreher, 2014).

1. **Unthinkable to Radical** – Grab the attention of academics or fringe group to initiate the social change

2. **Radical to Acceptable** – Change the language of the debate through euphemism

3. **Acceptable to Sensible** – Frame the debate within the dominant worldview

4. **Sensible to Popular** – Personalize the issue with stories and real people

5. **Popular to Policy** – Commission a public opinion poll and then get the government involved

For a low-carbon culture to become popular and policy, the Overton Window needs to shift. The window has shifted in relation to climate change thinking over the last twenty years. In Canada, the public perception has shifted from complete denial that global warming is occurring to greater acceptance that there is an issue. This is particularly true given the recent global agreement signed to significantly reduce carbon emissions. In terms of individual behaviours and culture however, the Overton Window is still quite narrow in relation to climate change. To shift the window from radical to acceptable, it is necessary to change the language of the debate.

Perhaps we need to consider climate change in the context of mental health instead of something related to "the environment" or "strange weather". The language around climate change could shift from a distant external problem to a current problem that is impacting many people. This is consistent with observations made by Dr. Anthony Levitt, Sunnybrook Health Sciences Centre's director of research in the department of psychiatry, that there are increasing levels of climate change anxiety presenting in our society. "For most people who are anxious about climate change, the anxiety is escalated by the fact they do not see an answer or a way to make a change. Worry plus powerlessness leads to distress" (MacDonald, 2014).

If we shift our orientation to mental health, the potential interventions also shift. The majority of climate change communication is focused on convincing people that climate change is a problem. Dr. Renee Lertzman suggests that instead of assuming people don't care enough about climate change, we should be shifting our orientation to ask "how can I support you" and use tools such as motivational interviewing that have been used to address addictions, diet and smoking changes (In Deep Radio, 2016). Lertzman suggests that it is through empathy and listening that we may be able to create a space for collaboration and

supportive change (In Deep Radio, 2016).

It is possible that by addressing this emotional state first, we will have more success in moving toward social mobilization and social change. A creative exercise such an individual photography and social learning may create an opportunity to release the distress that lays dormant in our unconscious and allow for a meaningful dialogue with our neighbours and community. This type of exercise may be a way to begin the healing necessary in order to move the Overton Window and create a societal transformation.

INSIGHT 4 – HOPE

Hopelessness is a negative feeling that there are no solutions for and no expectation of a good outcome in relation to a particular situation, in this case, climate change. By feeling hopeless, it is not possible to conceive of a future without the significant consequences of climate change. If we have no hope, we give up the pursuit for a better situation. The opposite of hopelessness is the optimistic attitude of hope— the expectation and pursuit of positive outcomes. If we have the feeling that the best outcome is possible, we are more likely to be motivated to create a world that reduces the impact of climate change. Hope theory can provide some insight into how to create climate change hope. If we develop visions of positive, desirable and climate-friendly futures, humans can see a path for getting there and recognize their role along the way (Moser, 2007).

Charles Richard Snyder is well known for his publications related to "positive psychology"and "hope theory". Hope is a positive emotional state resulting from successful goal pursuit (Snyder, 2002). Snyder explains that there are three elements that comprise hope: goals, pathways, and agency (Hanson, 2016). Goals are the "targets of mental action sequences" and may be short- or long-term (Snyder, 2002). Pathways are routes to achieve goals and the perceived ability to achieve goals (Hanson, 2016). Agency is the motivation and

Figure 38: Climate Change Anxiety

perceived capacity we have to undertake the routes towards our goals (Hanson, 2016).

Hope in relation to climate change tends to be relatively limited. This was apparent through the photographs and anecdotes shared at the workshop that revolved around fear and guilt. This "environmental melancholia" acts as a barrier to achieving hope. It may block humans from creating climate change goals in the first place. It is also likely that this emotional state impacts individual perceived agency to achieve climate change goals. Goal attainment is associated with creating the positive emotion of hope and "cycles back to influence subsequent perceived pathways and agency" (Snyder, 2002). Through a similar intervention that was tested through this research, there may be a way to develop climate change hope by enabling short-term achievement of goals. It is recommended to influence the "environmental melancholia" by asking participants to take photographs of climate change hope and by identifying individual climate change actions.

LIMITATIONS OF THE STUDY AND FURTHER RESEARCH

It is recommended to extend the research. This research study was limited to 14 participants and as a result the findings cannot be extrapolated more broadly without further exploration to understand the replicability and insights in relation to climate change actions. It is recommended that the research be repeated, with measures undertaken to reach greater participant diversity as regards to their age groups, communities, ethnicities, socioeconomic statuses and predispositions to thinking and worrying about climate change. In addition to broader representation, a rigorous research design is needed that includes an additional check-in with participants over a longer-time horizon to determine any impact to feelings and/or behaviours.

CHAPTER 5

Proposed Intervention – Clim-Art 10 Day Challenge

Proposed Intervention – Clim-Art 10 Day Challenge

Figure 39: Clim-Art 10 Day Challenge

Given how meaningful the research experience was for the 14 study participants, it is recommended to create a program built upon this exercise with some modifications. The details below provide the framework for the CLIM-ART 10 DAY CHALLENGE.

PROGRAM

Step 1 – Join the Conversation
This societal issue became personal by talking about how climate change impacts the day-to-day lives of the study participants. There is an opportunity to make this societal issue more personal by literally giving it a face. Volunteer facilitators who participate in the 10 Day Challenge could become 'the face' of climate change in their own social networks, and extend the dialogue. In order to reach a large number of individuals to participate in the 10 Day Challenge, invitations will be distributed via peer networks. Facilitators will need to receive more detailed instructions and a toolkit to host a clim-art dialogue and will be supported by a website: http://clim-art10daychallenge.com

Step 2 – Take Photos
Based on this research study, the photography instructions could change so that participants focus on finding examples of climate change hope in their daily lives. As the discussion that occurred through this research study primarily triggered an emotional response of fear and guilt in relation to all of the daily behaviours that contribute to climate change, a focus on hope and action from the start may trigger a different emotional response as discussed in Section 4.

Participants will be invited to the challenge and be asked to take and submit photos of #climatechangehope that they see in their everyday life; 1 photo per day for 10 days. For each photo submitted, participants will include a brief description of the photo and why they took it.

Step 3 – Clim-Art Club
One study participant said the experience was "a new way of putting a public lens on my private life, which is appropriate given that the topic is something that has such broad public implications."
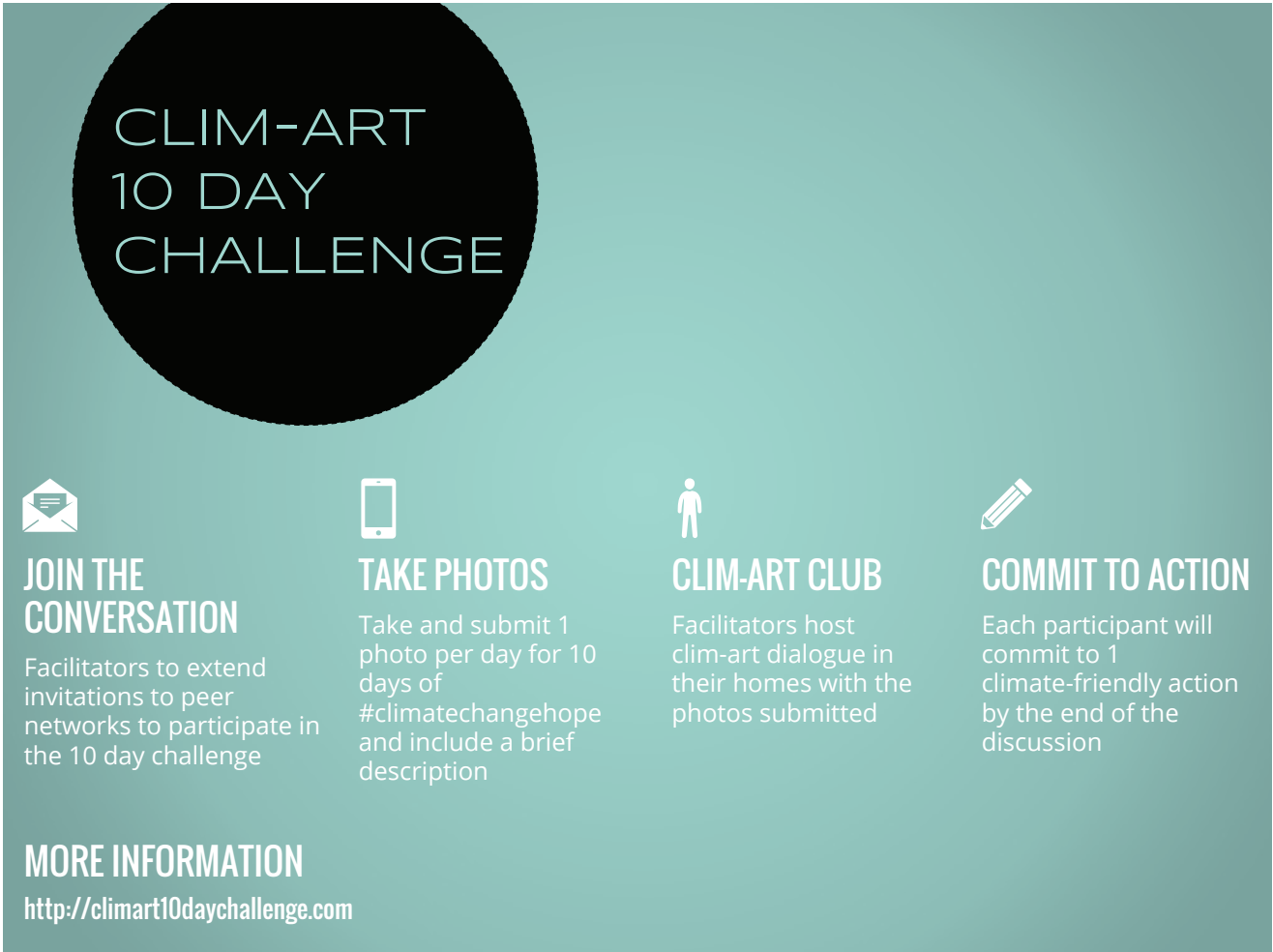
What if the facilitators could help others put a public lens on their private lives? Imagine the network effect of continuing the conversation.

Facilitators will host a clim-art dialogue with all of the photos submitted and will project photos on the wall using a virtual projection app. Each of the participants will be able to share their photos and stories with all of the participants. This could be framed within a fun and social context and a discussion amongst friends and acquaintances around a topic that would not normally be discussed. A toolkit with potential discussion questions will be developed.

Step 4 – Commit to Action
At the end of the clim-art challenge, participants will commit to one climate-friendly action to be completed within the next two weeks and post on the website.

"I will _____."

Since the discussion will be held with friends, neighbours and acquaintances, there will be some accountability and social pressure to complete the action. According to a Harvard Business Review article that discusses promise-based management, most people strive to make good on public

"The Clim-Art 10 Day Challenge responds to the need of citizens for community and socialization with friends, family, neighbours and acquaintances to discuss a common issue."

declarations and the most effective promises are voluntary (Sull, 2007). This will also address the need to influence daily routines and habits that surfaced as a key theme through the workshop discussion. It will be possible for participants to identify one way that their habits would change over a two week period and then achieve that goal, in order to feed a positive cycle of goal attainment. This final step in the program will also contribute to creating climate change hope by contributing to achieving goals.

In this instance, of reaching a larger group of citizens, a mechanism for follow-up will be required to determine whether actions were completed and what changes should occur if the challenge were to take place again.

More Information:
http://clim-art10daychallenge.com

BUSINESS MODEL

Value Proposition – The Clim-Art 10 Day Challenge responds to the need of citizens for community and socialization with friends, family, neighbours and acquaintances to discuss a common issue. The Challenge also builds upon a common activity of taking photos with smartphones to share with friends via social media and adds to this by allowing citizens to take photos for a purpose and share the meaning behind each photo with their social networks.

Customer Segments/Relationships/Channels – The Clim-Art 10 Day Challenge is targeted to any Torontonian who is interested in participating in the challenge. The design of the challenge builds upon existing social networks so that friends, neighbours, colleagues and others can engage with each other in a fun, artistic and meaningful dialogue about climate change and how it impacts their lives. The challenge is designed to reach a broad network of people by focusing on peer-to-peer networking and personal relationships.

Partners – The Toronto Atmospheric Fund (TAF) has recently launched TransformTO which is meant to enable climate action for a healthy, equitable, prosperous Toronto. TAF is responding to the City of Toronto goal to reduce greenhouse gas emissions by 80% by 2050. A huge component of developing the short term (2017-2020) and long-term (2020-2050) strategies involves community stakeholder engagement. The Clim-Art 10 Day Challenge program is a way to creatively reach many Torontonians and builds upon the already developed relationship with Toronto Public Health. This proposed program could be one vehicle for TAF to build out their community stakeholder engagement.

Key Activities/Key Resources – To launch the Clim-Art 10 Day Challenge there are some activities and resources needed. The challenge will need to develop materials (toolkit), branding and marketing/publicity, communication channels, including a website, as well as a platform within which it is being launched. Human resources will be needed to operationalize the challenge and complete all of the key activities.

Profit Model – The Clim-Art 10 Day Challenge is a relatively low cost way to engage a broad group of citizens in a personal discussion around climate change. It is recommended that TAF either allocate funds for this type of citizen engagement as part of the overall TransformTO project or apply for funds from McConnell Foundation to scale this program innovation.

NEXT STEPS

Further develop the CLIM-ART 10 DAY CHALLENGE concept and pitch innovation proposal to Toronto Atmospheric Fund as part of Transform TO.

Conclusion

Climate change is a large-scale environmental threat and yet we have made little progress in addressing the potential consequences. There is widespread societal inertia to address this problem, in part due to "environmental melancholia", the anxiety that blocks us from taking any action. An alternative approach is needed to engage people's emotions in framing the problem so that more people can move toward action and enacting solutions.

This project was aimed at understanding whether creativity and a visual-arts based approach might reduce the paralysis associated with climate change and bring individuals to action. As a result, visual art was explored from various perspectives: clim-art, art and social change, as well as, art and healing. The initial hypothesis was that, by accessing participants' creativity in relation to climate change, participants will share their subconscious thoughts and actions and identify potential points of intervention to enable climate-friendly actions. The author believed that, through

this self-reflection, climate change paralysis could be temporarily suspended, and that an understanding of tacit and latent knowledge can be achieved.

The surprising insight found through conducting the participatory research with study participants, was that there was meaning created through participation in the process itself. The experience for participants created a space for self-reflection, emotional exploration and community building. While climate change paralysis and individual behaviour change did not change as a result of this research, this exercise may provide an opening to acknowledge the paralysis and inertia associated with climate change. This type of exercise may also be helpful to address the increasing levels of climate change anxiety that is presenting in our society.

This research was meant to be exploratory in nature, and a starting point for future interventions, in order to modify our daily lives in a climate friendly direction. As a result of this research

project, there are opportunities to explore this further and build upon the learning that study participants enjoyed participating in a creative process to discuss a topic that normally goes undiscussed.

This project also allowed the author to explore her own dark cloud and provided a creative outlet for self-expression and self-exploration. By completing this research project, the dark cloud has lessened with the understanding and hope that the study participants were interested and willing to explore the problem together.

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Appendix

APPENDIX A: RESEARCH METHODOLOGY

Participants were recruited through an invitation email distributed to professional and personal networks. In the invitation, it was requested that the recipient forward the invitation to other individuals, with the aim of selecting participants with whom the author does not have a personal connection. Participants were meant to be adults (18+) who reflect demographic diversity (age, gender, community, ethnicity, socioeconomic status). See Appendix B for the letter of invitation.

1. Individual Photography
In this study, a modification to both "photovoice" and "design probe" was conducted to understand how climate change fits into day to day activities. Participants were asked to take photographs as part of their day-to-day life that represent people, objects, environments, messages and services as they relate to climate change and their connection with nature. Participants were asked to take one photograph per day over a 10 day period (10 photos in total). See Appendix C for the photography instructions provided.

2. Participatory Workshop
A generative session bringing together all study partici-pants was designed to explore collectively the common and divergent elements relating to climate change in everyday life. The intent of the workshop was to identify the meaningful points in individual's lives in relation to climate change, and to explore participants' emotions and values using the

photographs submitted through the individual photography. See Appendix D for the Workshop Discussion Guide.

The semi-structured workshop involved two key components:

a) *Most Meaningful Photograph:* In this activity, participants were provided with a package of their printed photographs and then asked to select the most meaningful photograph. Next, in pairs, participants interviewed each other using the "5 Whys" technique and documented their answers (Mankelow, 2011). This technique allows participants to quickly delve into the deeper root causes, emotions and values behind the photograph.

b) *Image Sorting:* The second part of the workshop involved discussions in and by small groups. The small groups were provided with a package of all photographs that were submitted; they then participated in an image-sorting session (Kumar, 2013). The groups were asked to sort and label the images into small clusters. Ultimately, groups were asked to determine which group of images resonated the most with the group, and to state why this was so.

3. Survey
A short electronic survey was distributed to all research partic-ipants 10 days after the workshop to evaluate their workshop experience and to determine what, if any, impact the workshop has had on their outlook related to climate change and their daily actions. See Appendix E for the survey questions.

4. Analysis & Synthesis
The findings from each stage of the research design were reviewed and processed independently using qualitative research analysis (Lichtman, 2013). These findings were then synthesized to reveal broader patterns and themes.

APPENDIX B: LETTER OF INVITATION

You are invited to participate in a research study on climate change and personal action. This research is part of a major research project at the Ontario College of Art and Design University (OCADU) Master of Design in Strategic Foresight and Innovation program.

We are seeking individuals interested in taking photographs and sharing their stories in relation to climate change.

Participants will be involved in the following activities:
  • Individual photography of your day to day life over a 10-day period;
  • Workshop with other study participants on <insert date>; and,
  • Post-workshop survey.

The Workshop will involve looking at, sorting and telling stories about the photographs that you and the other study partici-pants have taken.

Note that all personal identifiers will be kept confidential in the final report, and at the end of the project, all raw and intermediate data will be destroyed.

Your participation will lead to a better understanding of how to create a personal connection to climate change.

If you are interested in participating and believe you meet the criteria above, please respond to this email and we will get in touch to provide further information.

Thank you in advance for your interest in this research.

Heather Russek
Principal Student Investigator
Master of Design Candidate, Strategic Foresight and Innovation

APPENDIX C: PHOTOGRAPHY INSTRUCTIONS

March 20, 2016

Dear [name of participant],

Thank you for agreeing to participate in a research study as part of a major research project at the Ontario College of Art and Design University (OCADU) Master of Design in Strategic Foresight and Innovation program.

As part of participating in this project, you are being asked to take photographs of people, objects, environments, messages and services as they relate to climate change and your connection with nature.

The photographs are meant to be within the public realm and no different from photos you may take on a day-to-day basis.

Please take 1 photograph per day over the next 10 days and email them directly to me.

Your participation will lead to a better understanding of how to create a personal connection to climate change.

Thank you in advance for your interest in this research.

Heather Russek
Principal Student Investigator
Master of Design Candidate, Strategic Foresight and Innovation

APPENDIX D: WORKSHOP DISCUSSION GUIDE

Date: Saturday, April 9th 10:00 am – 12:00 pm
Location: OCADU 100 McCaul St (MCA 652)

Introductions (10:00 – 10:15 AM)
Hello, my name is Heather Russek, and I am a Graduate student at OCADU. I am currently conducting a research project around climate disruption, behaviour change and art practice.

Thank you for participating in this study to date and for attending this workshop today. This workshop will last approximately two hours and during this time we will be looking at the photographs that you have taken over the last few weeks.

Let me remind you that the specific contents of this workshop will be kept confidential between myself and the other participants in this workshop. After this workshop, I will be analyzing your responses as part of the overall research project. In the final report, I will not use any identifying information about you and will destroy all raw and intermediate data created in the process of completing the final report.

Let me also remind you that this workshop will be audio recorded and your photograph may be taken as part of the session. The photographs taken during the workshop may be used as part of the final research project.

You may choose to withdraw from the research project at any point during the workshop.

Let's start by getting to know each other. Please introduce yourselves and how you felt about taking photographs about your life.

Meaningful Photograph (10:15 – 10:45 AM)
At this point, we are going to give you a package of your printed photos from the previous few weeks. Please take a few minutes to look through your photographs and select the most meaningful photograph from all the photos you took.

Main Question:
What is your most meaningful photograph?

Additional Questions:
Why did you take it?
Where did you take it?
What does it represent for you?

Individually, take 2-3 minutes to fill in the first two questions on the 5Whys template.

In groups of 2-3, interview your partner to ask Why and complete the rest of the template.

Small Group Image Sorting (10:45 – 11:30 AM)
In small groups (4-5 people; 3 groups), sort the package of images into small clusters on the table. Grouping a minimum of two photographs together, organize the photos into as many clusters as you want.

As a group, answer the following questions:
• What was your experience taking the photos?
• What label would you give each grouping?
• Why did you group the photos this way?
• What photos were the easiest to categorize?
• What photos were the most difficult to categorize?
• Which grouping resonates the most with you? Why?
• Any surprises or observations after seeing all the photos?

Leave the photos organized at each table.
Photograph the final sort.

Each group has an audio recorder, facilitator and package of photographs taken by all participants.

Group Discussion (11:30 – 11:45 AM)
Each small group to share the highlights of their sort.

Main Questions:
• Which group of photos resonates with them the most?
• Why?

Final Reflections & Close (11:45 AM – 12:00 PM)
Thank you for participating in this workshop. I will remind you that I will be analyzing the results of this workshop as part of my research project.

Do you have any final comments before we close the workshop?

Materials:
• Refreshments
• Name Tags
• Audio Recorder (3)
• Camera
• Package of Photos for each Participant
• Package of Photos for each Small Group
• Blank Category Cards and Markers
• 5 Whys Template and Pens

APPENDIX E: SURVEY

Thank you for participating in a research study as part of a major research project at the Ontario College of Art and Design University (OCADU) Master of Design in Strategic Foresight and Innovation program.
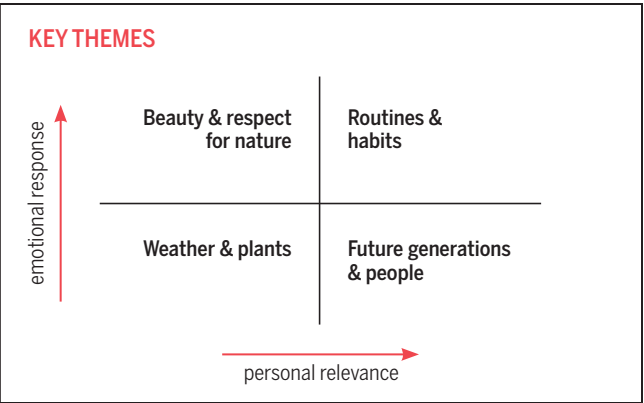
Please complete the attached survey as the final step in the research project. It should take approximately 10 minutes to complete the survey.

1. How worried are you about climate change?
   a. Before the workshop – Not at all worried, not very worried, somewhat worried, very worried
   b. After the workshop – Not at all worried, not very worried, somewhat worried, very worried

2. How much, if at all, do you think climate change is currently impacting:
   a. Canadians – A great deal, a moderate amount, only a little, not at all, not sure
   b. Torontonians – A great deal, a moderate amount, only a little, not at all, not sure
   c. Your Family – A great deal, a moderate amount, only a little, not at all, not sure
   d. You - A great deal, a moderate amount, only a little, not at all, not sure

3. Over the next 5-10 years, how much if at all, do you think climate change will harm:
   a. Canadians – A great deal, a moderate amount, only a little, not at all, not sure
   b. Torontonians – A great deal, a moderate amount, only a little, not at all, not sure
   c. Your Family – A great deal, a moderate amount, only a little, not at all, not sure
   d. You - A great deal, a moderate amount, only a little, not at all, not sure

4. After the workshop, how are you feeling about your connection to climate change? [free text]

5. After the workshop, have you taken any personal actions in relation to climate change? [free text]

6. Overall describe your experience taking photos of your life and participating in the workshop [free text]

APPENDIX F: WORKSHOP FINDINGS

The 14 study participants were divided into three groups to sort, label and discuss all of the photos taken by the group (140). The three small group discussions were reviewed and processed independently using qualitative research analysis. (Lichtman, 2013). The raw data collected from each of the discussions were then analyzed to identify codes, categories and ultimately concepts. Based on the overall analysis completed of all three small group discussions and the most meaningful photographs, four key themes emerged according to the participants' emotional responses and personal sense of relevance.

KEY THEMES

(y-axis: emotional response; x-axis: personal relevance)

Beauty & respect for nature	Routines & habits
Weather & plants	Future generations & people

Weather and Plants
Emotional Response - Low
Personal Relevance - Low

The majority of photos represented either "strange weather" - given the time of the study, with snow following some warmer weather - or plants, both indoors and outdoors. These photographs seemed to represent a strong association with climate change when individuals were taking photos prior to the workshop, but provided little meaning and discussion at the workshop in small group discussions. These photographs seemed to represent the 'typical' images of climate change and were easy for the groups to categorize; they were then immediately ignored for the remainder of the workshop.

Beauty and Awe for Nature
Emotional Response - High
Personal Relevance - Low

While the photos of weather and plants had the least meaning for participants, there were sub-categorizes created that did represent the beauty and awe of nature in relation to humans. Our respect for trees, water and the air all relates to our interconnectedness with nature. Participants commented on how we are out of balance with nature. The built environment seems to them to be competing with the living environment.

Many of the study participants reported feeling disconnected from nature, either in their homes or workplaces, and find that it requires effort to immerse themselves in nature. From their perspective, humans are trying to control nature with insulated and "climate-controlled" environments. One study participant talked about how "humans are the caged animals in the city." Participants referred to the "power" of nature both positive and negative. On the other hand, several participants discussed how plants and animals are in balance with nature and provide an indication of the disruption taking place. One participants asserted that nature "doesn't lie" and allows us to see when something is going wrong. There was reference to the power of nature to disrupt individual security. In this regard, nature is perceived as being quite hostile and powerful.

Future Generations and People
Emotional Response - Low
Personal Relevance - High

Another element that created meaning for the study partici-pants was their connection with other people. Family connections and children elicited feelings of hope for future generations and the sense of "thinking beyond ourselves". Participants talked about the legacy left for future generations and also about how children can be educated to make a positive impact in relation to climate change. Participants identified a strong sense of fear associated with climate change and in particular how it would impact on their family, children and future generations. Children will, they concluded, need to adapt and create a new reality in order to deal with the impact of climate change. This was seen as an inevitability.

Routines and Habits
Emotional Response - High
Personal Relevance - High

This is not the label that the participants gave to this element of their discussion; yet all groups talked about their daily behaviours and how this plays an important role in relation to

climate change. It is not the dominant dialogue associated with climate change: rising sea levels, droughts, and strange weather events. It had nothing to do with carbon dioxide reduction, scientific graphs or emissions. Study participants concluded that the most personal way to address climate change in their day-to-day lives was to address convenience and daily routines. Participants felt that the "small choices" that make up many of our daily behaviours have the most impact: such as the use of coffee pods and water bottles, and transportation choices. Many study participants recognized their contribution to climate change with their transportation choices. Participants felt that this was one aspect in which they may make an immediate impact through their daily choices. Participants reflected that riding a bike and taking the streetcar as part of their daily commute make them happy. Driving a car alone to work everyday made one participant feel guilty; but the convenience associated with that choice had a greater impact. For these participants, transportation repre-sented a focus on convenience and trying to take shortcuts to increase non-work related time. In a sense, participants felt entitled to their choices and felt they had a right to the freedom associated with their daily behaviours.

Ultimately, participants didn't consider their daily actions to be conscious choices at all. Often, individuals continue to do the same thing every day because of their routines and habits. Many participants expressed that their daily actions are often overlooked and are unconscious activities that are part of a routine. "If you do things every day, you start to forget that you're making a decision about them". As a result, the most meaningful discussion related to climate change was in relation to our daily routines and habits.

APPENDIX G: SURVEY FINDINGS
The electronic survey was distributed to participants 10 days after their workshop experience. 11 of the 14 participants completed the survey (79% response rate).

1. Before the workshop how worried were you about climate change?

Very worried	Somewhat worried	Not very worried	Not at all worried
45%	27%	27%	0%

2. After the workshop how worried are you about climate change?

Very worried	Somewhat worried	Not very worried	Not at all worried
55%	36%	9%	0%

3. How much, if at all, do you think climate change is currently impacting

	A Great Deal	A Moderate Amount	Only A Little	Not At All	Not Sure
Canadians	18%	64%	9%	9%	0%
Your Community	9%	64%	18%	9%	0%
Your Family	9%	55%	27%	9%	0%
You	18%	55%	18%	9%	0%

4. In 5-10 years, how much if at all, do you think climate change will harm

	A Great Deal	A Moderate Amount	Only A Little	Not At All	Not Sure
Canadians	64%	27%	0%	9%	0%
Your Community	55%	36%	0%	9%	0%
Your Family	55%	36%	0%	9%	0%
You	73%	18%	0%	9%	0%

5. After the workshop, how are you feeling about your connection to climate change?

There were 9 responses to this question. In general, partic-ipants felt their connection to opposing / reducing climate change to be the same or more positive after participating in the workshop. Participants said they were more thoughtful about their day-to-day activities, including transportation and purchase habits that were looking for smaller signs that climate change is present in their immediate environment. Participants said they realized they were much more affected by climate change than they had initially thought. After seeing the photos from other participants and talking about the experience, participants said that "talking about it with others has helped me feel more hopeful."

6. After the workshop, have you taken any personal actions in relation to climate change?

There were 9 responses to this question and the general answer was that, No, participants did not make any changes in their behaviour as a result of the workshop. Participants did express that they noticed climate change more often and were thinking about making changes to their purchase and transportation habits.

7. Overall please describe your experience with taking photos of your life and participating in the workshop.

Even though people shared personal and negative emotions related to climate change through the workshop, the overall experience of taking photos and participating in group discussion was quite fun, enjoyable and positive for most participants.

The participants expressed that they had a very positive experience, in particular, taking photos of their life. It allowed participants to have a sense of purpose when taking photographs of their life and they enjoyed seeing the photos printed out.

Participants were forced to be more observant about their environment and they spent time thinking about what to include in their photographs.

"It opened my eyes to my daily routine and to the beautiful nature surrounding me."

"It made me think more critically and be more observant about my immediate environment."

"It was a new way of putting a public lens on my private life, which is appropriate given that the topic is something that has such broad public implications."

"I found myself struggling sometimes to get my message across through the pictures."

"After that I really had to think about what climate change meant to me on a deeper level because I ran out of immediate subject matter. "

Participants said that it "made them think about climate change all the time".

"Thinking about climate change as it relates to others was the most valuable part of the study for me. This project took me from an individualistic outlook to a more collective point of view of climate change."

One participant provided a suggestion that it would have been beneficial to hear the stories from all study participants and to understand all of the photos that were submitted.

APPENDIX H: RESEARCH LIMITATIONS

There are a number of limitations with the research completed as part of this project.

The sample size and diversity of participants - The aim of the study was to have 8-10 study participants who represented a diversity of ages, gender, communities, ethnicities, and socioeconomic status. Ultimately, 14 individuals participated in the research: seven men and seven women between the ages of 20 and 45 years. The group of participants were well-educated and did not represent a diversity of socioeconomic status. Since this is a relatively small sample size with limited diversity of age and socioeconomic status, it is not possible to make broad claims about the applicability beyond this research study.

Most study participants were already conditioned to think about climate change. Only 27% of study participants were not very worried about climate change prior to their participation in this research project. The participants' predisposition to think or talk about climate change may have impacted the nature of the photos taken and the subsequent discussion that took place. Hosting a similar process with individuals who all identified as not very worried about climate change may have resulted in different outcomes.

Meaning of each photo — As discussed previously, each photo could not be interpreted for its message and meaning without the participant's providing the story behind the photo. Participants submitted their photos without any written narrative, in order to limit the burden of participation; however, this meant that photos couldn't be interpreted based on the deeper meaning, absent explanation and narrative. Due to the workshop design, not all photos were discussed in depth. Not every photo's meaning was explored through the workshop discussions, and participants in one group did not get to hear the discussions held in the other groups. In some cases, the small groups sorted the photos into the "wrong" categories without the photographer's interpretation. There might have been further insights generated by understanding each photo created for this research study, which could have been gathered from individual interviews with study participants and have generated greater self-reflection. In addition, another element of the workshop could have included a longer discussion where all participants could share their photos with each other.

Survey responses were the least personal - The short survey distributed to study participants following the workshop provided the least value as part of this research study. Not all study participants completed the survey and some participants did not fill out the free text sections of the survey. The brief comments shared provided some insight into the overall experience however the limited depth did not allow for a complete understanding of the overall experience for all study participants. A follow-up interview with each study participant may have been helpful to clarify the meaning behind their photos and to discuss their experience.