

LOST & FOUND STORIES

Exploring Ecological Storytelling

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STORYTELLING

ABSTRACT

It is widely acknowledged that environmental issues are complicated - that the means we use to try and address them are knotted affairs made up of many, many complicated threads. Too often the response to this tangle is avoidance and denial. Arguably, unsustainable human behaviour patterns are a significant barrier to addressing environmental concerns. This thesis details a design research approach considers approaches for behaviour change through interaction design and personal storytelling. The aim throughout has been to uncover new opportunities that could potentially provoke: environmental awareness, motivation towards changed behaviours, citizen agency.

Environmental researchers are continuously analysing and describing environmental problems. Dissemination of this information is often seen as the main means to not only prove and demonstrate the issues but also to provide evidence that might change our current unsustainable living patterns. Social Media, documentaries, and news reporting provide a plethora of images, scientific facts

and statistics about the issues. These unfortunately are not always effective - rather than motivating people to act - they often provoke responses such as fear, shame and consequent inaction. Acknowledging that objective, rational evidence does not necessarily impact human behavior, this body of work looks to narrative and interactive approaches as a means to invite people to consider environmental problems on a more personalized level. A key goal of my work has been to create means for enhancing and appreciating people's experiences with nature - to provide outlets for people to share and reconsider their relations with the environment. By engaging people with their own personal stories or memories related to nature, I have sought to explore means to merge people's collective memory of nature. Digital strategies that are commonly used in digital marketing campaigns aimed towards consumer agendas have been co-opted and revamped for an alternate purpose; to provide means for people to consider and respond with more motivation towards care for the environment. To that end, an open-ended, generative citizen design research tool intended to widen the perception of the use of interactive platforms for pro-environmental research practices was developed.

01 CONTEXT & FRAMING

In our globalized world, there is an increased recognition and acknowledgment of environmental issues. Unfortunately, the causes of environmental problems are often difficult to identify as they are symptomatic of complex systematic causations (Shenk & Cohen, 2017). Importantly, unsustainable human behaviour patterns are recognized as a significant factor affecting the environment (Polkinghorne, 1988). As Schmuck and Schultz note the “sustainability problem is a result of individual and collective human behaviour” - “current ecological, economic and social trends are not sustainable” (Schmuck & Schultz, 2012). Basic human biophysically needs are overwhelming what the Earth’s ecological systems can provide and sustain. Pro-environmental practices are continuously challenged. In the contemporary context, we not only have to contend with our essential needs but also perceived ones. Socially

driven needs are linked to unsustainable expectations and behaviors (Schmuck & Schultz, 2012). International researchers and scientists repeatedly provide information about the unbalanced relationship between our human needs and the ecosystem. While we have this information available it does not necessarily entice us to change our patterns of behavior. Our everyday desires and perceived needs often lead us to dismiss and ignore the warnings. Many of our current individual behaviors and lack of response to signals of environment crisis are built on problematic longstanding societal assumptions.

Arguably, technological and scientific responses are not the only means for addressing the issue (Polkinghorne, 1988). Unsustainable behavior patterns rooted in social expectation are also being tackled by Designers. As designers our ability to understand user context and create persuasive products is not insignificant - it could be used to alter people’s unsustainable behaviors. Experts in our discipline are using design based approaches to tackle the issue: Communication Designers promote and educate through print and media; Industrial Designers don’t just think about launching a product but also take into account the product’s complete lifecycle and consider sustainable development processes (Deniz, 2002); Interaction designers take up the call by designing a new user journeys that persuade and shifts people’s behavioral tendencies towards to sustainability (Hargreaves 2011).

History provides us with many examples where resources have been extorted from our environment and justified by human needs and gain. Significant moves have been made towards addressing this deeply rooted problem. Globally, international and national policies and joint accords demonstrate a shift in values that promote ecologically-friendly practices & businesses (Schmuck & Schultz, 2012). Environmental issues are, however, complicated. People, both as individuals and citizens, find it hard to identify what needs to be done. Whether we are privileged or non-privileged the majority of us continue to ignore warnings. Many political actions continue to demonstrate this indifference and lack motivation to take on and embrace innovative approaches aimed at reaching sustainable objectives.

As we recognize and live through current environmental issues, consciously and unconsciously we suffer from extraordinary ecological loss and change. The emotional

response that people feel from planetary changes and loss is currently termed as ecological or environmental grief (Cunsolo, 2018). "Research shows that people increasingly feel the effect of these planetary changes and associated ecological loss in their daily lives" (Cunsolo, 2018). Environmental or ecological grief is defined as "the grief reaction stemming from the environmental loss of ecosystems caused by natural or man-made events" (Kevorkian, 2018). The term grief is commonly and primarily referred to in relation to human loss. Contemporary researchers have, however, identified that grief is also relevant to other types of loss - that "people grieve for lost landscapes, ecosystem, species, or places that carry personal or collective meaning" (Cunsolo, 2018). These emotional responses are similar to the concept of solastgia which can be understood as "a form of homesickness" connected to place. Deeply rooted in local experiences solastgia it is a type of grief or distress that is felt at "the loss of a healthy place or a thriving ecosystem" (Cunsolos, 2018). Despite growing acknowledgement of this type of psychological distress we currently "make environmental losses difficult to grieve" (Kevorkian, 2018). While we recognize the existence of environmental grief and loss, there is still a gap between acknowledging and expressing our emotions. We acknowledge our emotional response, but have limited support or places to openly talk and express.

In light of gaps connected to sites to support ecological grief and the pressing need to instigate means to change behavior, my work, detailed below, has sought to identify and build an interactive platform as a means to engage everyday people through storytelling. It explores the development of a new design research tool to bridge the gap and to nudge people to go beyond acknowledging and express environmental grief. Sharing stories has been identified as one of the most effective ways to communicate and influence one another (Quesenbery & Brooks, 2010). Additionally, stories bring new insights and reveal the unseen world for others (Quesenbery & Brooks, 2010). Arguably, we all have a story or two to tell about specific places and times when the natural world has provided us with a lasting memory or valuable moment. A key goal of my work has been to create means for enhancing and appreciating people's experiences with nature - to provide outlets for people to share and reconsider their relations with the environment. I am particularly interested in people's memories of nature as a

means to provide a common narrative theme that can be leveraged for sustainability - towards the development of awareness and potentially future behavior change. Early on I surmised that an interactive storytelling approach might also be used to gather data and that could be aggregated into larger environmental reports for governing bodies, acting as a form of influential evidence shared both on an individual and collective level.

The body of work detailed in the sections below covers various methods I have applied to explore the use of sharing stories of nature. Beyond the act of storytelling I have concentrated on exploring stories of memories of nature that carry a sense of loss and what it means to design and enable interactive sites for revealing grief for nature. In my desire to help disrupt current patterns of behavior I have also explored how stories encourage positive attitudes towards the conservation of nature and potentially instigating changes in behavior.

1.1) STORYTELLING: INITIAL THOUGHTS

Early on in my Master's research, I asked the question: does telling stories about our experiences with nature help us view nature and our environment differently? I wondered, what do people feel when they read stories about environmental loss? Do they feel sadness, are they empowered, or do they become complacent? Following a series of studio explorations, I developed a citizen research tool that explored merging people's memories with pro-environmental storytelling through an interactive platform. From the outset, I have been interested to find out if engaging with other people's stories of loss related to the environment could motivate people to tell their own stories and if this might change perspectives on ecological issues. The storytelling citizen research tool I later developed was an attempt to identify and explore effective ways that might motivate people to contribute to a social app platform.

Environmental movements, sustainable projects, and social innovations are not new. Nonetheless, humanity continues to question and deny environment concerns. (Schmuck & Schultz, 2012). This study focuses on lived experience. It does so intentionally, recognizing that people can't always connect or empathise with environmental situations and perspectives outside of their own experience. For example, most people who live in British Columbia, Canada and have fresh tap water will probably not relate to the uncomfortable emotional disgust that Koreans have of tap water in Seoul. Experiencing - being there - allows us to deeply know a situation like this. Viewed from afar the insight and perspective is less accessible. It might, however, be possible to gain understanding and connection to other people's experiences and concerns through shared storytelling interactions. In other words, while Canadians might not have the lived experience that allows them to understand emotional responses connected to scarcity of water they may gain access to this by hearing stories of others experiences and by sharing their own. Humans have been sharing stories in a natural way to learn and gather information for centuries (Quesenbery & Brooks, 2010). The action of sharing stories has "moved from caves to campfires, to library floors, to become a communication tool" (Sametz & Maydoney, 2010). Telling stories is a significant mode "for storing knowledge and assigning meaning to our experiences" (Parrish, 2006). Stories not only entertain us, they also provide new

insights about the world, influence others, and encourage social innovation (Quesenbery & Brooks, 2010).

Acknowledging the importance of personal experience and shared narrative, my work over the past two years has explored the telling of stories connected to memories of nature. I have been interested in this type of storytelling as a means to develop a research method/set of tools that might draw out both lived experience and personal knowledge, and help shift people's behavior toward more sustainable actions and intentions. I have sought to provide new means, new platforms for people to experience and consider various environmental problems. My work has also explored the potential of emotion - to find appropriate ways to tap into narratives of grief that might allow others to empathize with the sense of loss in nature.

1.2) AWARENESS OF ENVIRONMENTAL PROBLEMS

Scientific measurements, administrative actions, and technological enhancements are currently used to analyze and present detailed evidence of environmental problems (Bertolotti et al., 2016). While this is important and useful it needs to be acknowledged that we perceive environmental problems from a broader perspective (Jackson, 2005). Ecological education and increasing environmental awareness stands to have the most powerful impact on the promotion of sustainable behaviour change (Polkinghorne, 1988). The denial of environmental problems and unsustainable behaviours stem from a lack of ecological awareness (Bertolotti et al., 2016). Greater understanding and raised awareness through educational tools empowers and provides responsibility to human action. For example, dramatic visuals from environmental documentaries, videos, and photos can educate through demonstrating and showing facts while also working on an emotional level. Traditional educational tools, such as text books and learning things by rote, in comparison do not have the same pull. They are missing emotional aspects that trigger human senses play a role in moral cognition. Polkinghorne notes that sustainable behaviour changes are triggered by moral cognitions (Polkinghorne, 1988). Combining both facts and emotions implants an awareness of the issues and an affective desire to respond - the result, ideally being

a change in behavior that is more sustainable. The documentary tactic of visually showing environmental damage as a means to inform and provoke emotions such as concern, horror, and fear is one tactic that has been applied as a means to trigger future response and action. It is important, however, to note that moral cognition requires more than fear to of change our relations with our environment (Hargreaves, 2011). By solely providing fear, as a means to environmental awareness we risk eliciting counter emotional responses such as denial and avoidance. Emotional awareness should be inclusive of tools that mentor and afford people access to means of preventing the destruction of nature via acts of preservation and care. In short, Designers need to find ways for people to love nature, not take it for granted and have the agency to take action if we are truly seeking to contribute to effective positive behavior change. Collective, shared, storytelling experiences may be one key to motivating for more environmentally integrative behaviour.

1.3) BEHAVIOUR CHANGE AND PERSUASIVE DESIGN STRATEGIES

Humanity's unsustainable behavior are increasingly recognized as one cause of environmental challenges and loss in nature. Continuous unsustainable behavior will bring about serious obstacles to the existence of humanity on this planet (Hargreaves, 2011; Schmuck & Schultz, 2012). Acknowledging this, the promotion of and education about sustainable behavior patterns has become important in our global society (Hargreaves, 2011). Related to this, a range of design disciplines have increasingly used Persuasive Design approaches with the aim to address environmental problems and produce needed behavior change (Kals & Maes, 2002).

The work of BJ Fogg a behavioral scientist based out of Stanford University, and founder of the Persuasive Technology Lab has informed Persuasive Design approaches. In the early to mid 1990's Fogg coined the term "Captology," the field of how computers persuade people (Jordan, 2014). Through his work that looked at the emersion of technology and human social behaviors, Fogg and his team developed and innovated the use of persuasive technology through wide range of projects. Fogg's Psychology of Facebook, Peace Innovation Lab Project: sought to forecast how the merge of technology

and social behaviour could promote new insights to global peace. His book *Persuasive Technology: Using Computers to Change What We Think and Do* became Instagram's model to emulate the success of persuasive design (Jordan, 2014). It should be noted that there has been a fair amount of criticism of this earlier work by Fogg. Fogg's work later evolved to a focus on behavior and the development of the Fogg Behavior Model (FBM). FBM asserts that in order to achieve successful behavior change people must have access to/ be provided: appropriate motivation, ability, and effective triggers. Fogg states that these "three factors must be present at the same instant for the behavior to occur" (Fogg, 2009a). As I detail in the section below, titled: *Persuasive design for storytelling*, I have found this more recent work by Fogg helpful for my own design process.

In the environmental realm, the gap between human acknowledgement and behavior change is often due to environmental data and concerns being presented in ways that are beyond the everyday person's ability to understand (Schmuck & Schultz, 2012). Schmuck & Schultz further observe that "many people, from all levels of society, deny the seriousness of environmental problems and the resulting consequences" (Schmuck & Schultz, 2012). There are numerous psychological reasons why people ignore and avoid issues. In his book *Narrative Knowing and the Human Sciences*, Donald Polkinghorne, a Professor Emeritus and Chair of Counseling Psychology at the Rossier School of Education at the University of Southern California, details narrative approaches to organizing research information. Polkinghorne, advocates for two means of enabling people to acknowledge concerns and seed needed behavior change pertaining to environmental problems. Firstly, environmental awareness should be communicated at a level that allows people to easily understand the content and realize the implications. Secondly influential emotions should be considered and communicated in tandem with factual, objective content pertaining to environmental problems (Polkinghorne, 1988). Polkinghorne's perspective informed the approach of this research study, which explores and seek opportunities for pro-environmental behavior change. Likewise, Fogg's perspective which taps in to means of addressing issues of denial mentioned above by taking into consideration motivation factors alongside, ability, and effective triggers has also aided me in framing and developing my work.

1.4) STORYTELLING IN DESIGN

In the design field, the use of storytelling as a persuasive tool and research method has been increasingly applied by researchers (Parrish, 2006). Stories allow people to understand complex concepts naturally, easily, and in an entertaining way (Sametz & Maydoney, 2010). This is highly relevant for many design projects that seek new ways of doing and being in the world. Stories change people's behaviours by demonstrating new insights, perceptions, and identities (Sametz & Maydoney, 2010). Delivering the appropriate story to the appropriate user through communication, product, and experience design is key for success. For example, a company that sells running shoes could deliver or promote their company's advertisement and concept with a story about fitness, healthy life style, or running. The story itself will explain, the company's service, promote its goal (of sales) and also draw in people through an evocative clear narrative.

Communication, product, and experience design employs and builds upon stories to implement higher engagement with users or products (Daisy, 2017). Traditionally designers have gather stories as source of informational data - the telling and sharing of stories is not commonly considered part of the designer's role but rather as a source of information to later inspire design propositions. In a bid to further raise engagement with users, many designers have moved from this mindset and begun to take on the role of providing stories (Sametz & Maydoney, 2010). Along with this shift, storytelling has moved away from linear and unidirectional processes and approaches, in which users tell stories to designers, towards a systematic conversational cycle of users telling stories and also adapting and changing their behavior in response to the stories that designers provide themselves. Design projects frequently make use of stories "during the analysis-in-synthesis or design phase of a project" (Parrish, 2006). Designers first seek and evaluate design opportunities through brief stories. In this way a design project is able to tell a story from a user point of view. Through the act of storytelling, designers, Parrish points out, have the potential to "discover the Pandora box for innovation" - storytelling helps us "to see old things in a new light" and expose "yet unseen opportunities" (Parrish, 2006).

Acknowledging that stories are a crucial element in problem solving and innovation - that they can be shaped

in various forms and told in various ways - is key to the contemporary experience of storytelling. Today, social media is one of the most widely used means for enhanced interactive storytelling. Online social media platforms have become incredibly easy to use. Large numbers of people engage with social media multiple times a day, every day. Beyond making stories more accessible social media also allows and encourages people to contribute and become active storytellers. Here, people are able to share and interact with other stories with ease both locally and at a distance. People individually contribute to collaborative narratives that occur both online and offline. An example of this might be when a person interacts and follows animal rights related topics on social media. This action (of following) allows the individual to both gain information and also contribute to a global movement. They are afforded a means to present their personal concerns and interest in the topic far beyond their local and lived context. The connectivity that is afforded allows diverse people to connect, and develop movements pertinent to their specific interests. Beyond what happens online, social media allows stories to gain visibility, voice and strength and to contribute to public sentiment in the offline world. Citizens interact with the police through Twitter due to privacy concerns (Hubert, R. B., Estevez, E., Maguitman, A., & Janowski, T., 2018). Reciprocally, but to a different end, local police departments interact with citizens through social media to provide instant notice and alerts (Heverin & Zach 2010). Small businesses and the hospitality industry are also affected by social media. As providers of offline services frequently are discussed via stories that people share online (Mening, 2017). Movements in various social media platforms that aim to address concerns connected to environment loss and advocating pro-environmental practices are yet another example of this online offline dynamic. In this context (of environmental concern) stories about habitat loss and change are easily searchable through simple words and tags. On Instagram stories about environment loss can easily be found using the tag words such as: nature, destroying nature, memories for life, love for trees, cutting trees, etc. On Facebook, there are countless pages and posts related to environmental problems.

In light of all of this I have been seeking a means to tap into the contemporary experience of storytelling. Specifically, I have aimed to explore different ways to encourage people to contribute stories about the

environment that might influence the perspective of others. My work has led me to develop a pro-environmental citizen research platform that encourages storytelling and draws on emotional triggers and the capacities of personal narratives to persuade, shift and shed light on people's values toward the environment. The tool I have developed sits intentionally outside of existing platforms such as Instagram and Facebook, which are driven by corporate sponsorship and, as such contain potential biases.

It is important to note that I have taken on an approach that does not use stories as quantitative data; Rather, I have explored the qualitative aspects of storytelling and the different ways that I, as an Interaction Designer might encourage people to voluntarily tell meaningful stories. In other words, the intension of the platform I have designed is to encourage visitors to read and contribute their own stories - to provide an online moral motivational framework that is pro-environmental in nature and capable of seeding new behaviours offline (Polkinghorne, 1988). The sections below will discuss this in more detail.

1.5) SCOPE AND LIMITATION

This thesis explores and is concerned with means of better addressing ecological problems. The terms sustainability and sustainable development emerge consistently as key means to address ecological problems (Polkinghorne, 1988). While the exploration and outcomes of my design work is informed by the important research and design initiatives conducted under sustainability it is important to note that the work below will not delve further into the concept or theory of sustainability. Rather, the project focuses on the interactive relationship between memories of nature and pro-environmental behavior change.

1.6) OUR RELATION AND UNDERSTANDING OF NATURE:

Environment issues are broad and wide reaching. The term environment is often connected to individual personal experiences with nature. The term nature, in turn, can also be understood in many different ways. Perceptions and emotional engagement of nature vary from one individual to the next. Recognizing this, my work has intentionally sought to provide site for people to share understandings of the term nature. I surmised early on that each individual's understanding of nature is heavily informed by personal memory. For some people nature is a way to name aspects of the wild, nonurban environment - forests for example. In this case an individual might understand/ relate/define environment issues to the loss of trees. Other people understand nature as a whole systematic ecosystem. In this second case individuals observe and understand environmental issues as highly complex and interconnected, wicked problems.

Intentionally keeping the scope of understanding environmental issues broad, I have sought to explore, through design, how individual memories of nature change and might provoke pro-environmental behavior. Although my work has focused on stories about memories of nature, my research goal has not been the collection and archiving of environmental stories. Rather, my focus has been to explore possible interactive ways that could encourage people to share meaningful personal narratives. It is important to note that our memories can shift and change over time. Tapping into this aspect of memory, and acknowledging its sometime incongruent relationship with data and scientific approaches to information, my work has focused on uncovering persuasive emotional connections that people have with nature.

A series of prototypes and participatory interventions have allowed me to reconsider the role of interaction design in relation to the development of pro-environmental behavior. Working through a series of prototypes and asking people to engage with them I have been able to better understand the problem space I am intent on addressing. Early prototypes included: co-creational activities, story books, and paper prototypes. Later participatory interventions that applied design activities were held in Da Nang, Vietnam and Young In, Korea. Throughout all of the work uncovering stories that

mark out and speak to people's sense of loss connected to nature provided an important thread. Initially I worked in the Canadian context with people based in Vancouver Canada, I then moved this to an Asian context. Both Da Nang and Young In are cities that developed rapidly in a short period of time and experienced dramatic loss of nature. The purpose of my work in this international context was to collect stories coming from a different culture background than the previous North American context. My initial aim was to find a universal means for collecting stories and providing global site for dialogue about nature and environment loss. As will be detailed in the sections below my experience led me to realize the implications of cultural, language, and geography in framing people's responses to design interventions (as a method) and also concern for the environment. These differences and my own concern over my capacity to address them adequately within the scope of a Master Thesis led me to rethink my approach - I returned to a more localized scenario in a location with a heightened awareness and receptivity to environmental concerns. Thus, the design exploration and theory starts and ends locally, in British Columbia, Canada.

02 DESIGN PHASES

To research how collective stories of memory of nature encourage and persuade people to change their view of our environment, I took on three different design driven research phases.

1. A storytelling session was used to open the study. Here, participants were invited to share their experiences of nature and to explore collaborative learning through stories.
2. Following this I developed a participatory study that extended collaborative storytelling to two different countries in Asia in order to investigate different ways of collecting stories and seek out means of establishing a universal that could be applied in diverse contexts and also potentially connect people in very different regions of the globe.
3. Finally, I developed an online interactive research platform that integrates memories of nature with digital

strategies. This platform was set up as an initial means to explore various design approaches and expand the use of interactive platforms for pro-environmental research practices.

The aim, throughout all of the phases identified above, was to seek out and observe how people's behavior might/or might not change after interacting with stories about nature. The research documented the types of stories shared, participant's comfort level, and alternative non-verbal ways that people used to explained themselves. Through this process of iterative storytelling phases, I began to assess what aspects of each were most effective. My intent to provide site for people to share stories was an attempt to help designers working to produce persuasive designs that influence people's everyday lifestyle (Consolvo et al., 2009). In each design phase I considered Fogg's three factors in the behavior model: appropriate motivation, ability, effective triggers to evaluated my progress. Doing so allowed me to identify which elements of the persuasive design approach were at play, to consider different emotional responses coming from individuals of different cultures, and lifestyles and identify how to respond and take on the next phase of work.

2.1) CAMPFIRE STORYTELLING: APPROPRIATE MOTIVATION, ABILITY, EFFECTIVE TRIGGERS

In the first phase of this study I was filled with passion. I had gathered a plethora of facts, and information about ecological issues but was unsure how to deliver and tap into the emotional aspect of environment loss. As an Interaction Designer, I was well aware of many different types of design strategies used to deliver emotions and concepts. However, I had a hunch that there may be other strategies that I could pull on to effectively connect with emotional responses. It is important to note that the origin of my work in the area comes from a time before I had been trained as a designer and carried a designer mindset.

To provide some context I will briefly describe the place I grew up and a river/ stream I once knew - the river that became extinct. The river was located in a small town called Bo Jeong in Korea which is the town I grew up in and where I went to elementary school. My elementary school had science projects, art classes and different

activities for students out in the river. I spent a lot of time there and have tons of childhood memories playing in and around the river. The river was a place to learn and it was our playground. Ten years after leaving my hometown I returned. I noticed right away that the river had been demolished. Not only was it no longer there, it had changed into a smoking area. There was no water or life. Witnessing this loss was unreal, but the most depressing part was that nobody knew or remembered that the smoking area was once a river. My childhood memories of the river were only then years old but it was all gone. I was horrified that it took less than ten years to not only destroy a river but to blind people's awareness of the ecological loss. This was my first time to experience and witness ecological loss. The impact of this on me was hard. It felt complicated and was full of a mixture of emotions.

My own experience, described above is a raw and intuitive one connected to a natural space and my sense of loss due to environmental degradation. Tapping into this insight - of the power of emotion - I used the first phase of my work to explore environmental loss and emotions through the act of sharing personal stories. I decided to share my own. First I went about writing and illustrating a short story - my tale about my river - that riffed off of the well-known tale by Maurice Sendac called "Where The Wild Things Are". My storybook complete I decided set a scenario to tell my tale - around a 'campfire' in the graduate studios (Figure 1). The participants for this studio experiment were my colleagues: Emily Carr University Master of Design students. Predominantly, international students from many different places around the world each had a different sense and connection to



Figure 1. Campfire, 2017. Craft art. Copyright by Roy Kim

ecological issues and had experienced different levels of environment loss. As Master students and trained designers familiar with a wide spectrum of sense making and problem solving through explorative prototyping they were game play - to sit around my imaginary campfire and listen to a story.

When setting up this activity's I decided to take an open ended approach that would allow me to observe how when given one story people might then begin to exchange stories. I was also interested to see what level of responsiveness that would occur after listening to my own emotional story. My river story was prepared in a linear, traditional way. The topic of the story was selected, research was conducted, and a script was written that developed into a story (Lim & Lee, 2014). Interestingly, after I had ended telling my tale, my participants responded in-kind - in a non-linear way - with their own emotionally and physically engaged stories. Participants gradually contributed by narrating and sharing their own memories of nature. As they did so the conversation began to shift to larger environmental problems. It was clear that memories of nature contained and delivered huge emotional impact for the people gathered. Storytelling is an action of sense-making in human relationships (Lim & Lee, 2014). Stories driven by the purposes of dissemination of information easily end up dry and not resonating (Abma, 2003). In this scenario, however, the stories were grounded in past memories of nature. The emotional aspects people shared seemed to be closely connected to the massively empowering group concern. The impact on the listeners and reciprocal voice had agency to it. This aspect of the studio activity exposed an opportunity: sharing memories of nature opened up a broader discussion related to how to address the concerns and care for the environment and also how to change behavior.

It is worth noting that throughout this storytelling process participants were physically engaged. They were often making gestures and sounds to conjure up memories such one about a bird in South Africa that had become extinct. They also shared family stories and childhood memories related to nature - their responses demonstrated empathy. Overall, the storytelling session bounced all around - similar to interactive storytelling in games. One story - the one I introduced - acted as a catalyst and took the rest of session in various directions

(Abma, 2003). Pulling on Lim and Lee's insight that interactive storytelling atmosphere adds more value for collaborative learning and creating meaning (Lim & Lee, 2014) I had intentionally not structured this event and had refrained from moderating it. In this activity I did not ask or require participants to share their own stories. However, they voluntarily did so. By first providing a story and setting the stage around an imaginary campfire I was able to provide triggers to motivate and invite people to engage in their own impromptu storytelling. This session demonstrated that storytelling, has the capacity to snowball into a positive give and take situation. While positive, this event did lead me to acknowledge I needed to do more work to better understand what it takes to convert listeners into storytelling contributors.

Finally, it is worth noting the aspects of the event that helped people to focus on the realm of storytelling. While I had made visual campfire illusions of fake grass, logs and fire these were not the most significant triggers. Rather, the action of invitation (from me) and finding a spot to sit in a circle made the most difference and seemed to allow/ increase the capacity of the people gathered to collaboratively learn and share (Figure 2). Through this studio storytelling session, I began to link and consider this broad topic (environmental problems and behaviour change), to sites where stories occur and are preserved.



Figure 2. *Storytelling Session, 2017.* Participatory workshop by Roy Kim

2.2) STORYTELLING IN DIFFERENT CULTURES

After the campfire storytelling workshop, the next exploration I took on was to extract and collect stories in locations that have different and arguably more dramatic environmental problems to those in British Columbia, Canada. I decided to conduct two co-creation research sessions in Da Nang, Vietnam and Young-In, Korea. The purpose of this co-creation work was to study how stories might be extracted through various creative activities, and to gather information about participants' perception of environmental issues. Previously, in the campfire session, I had triggered group storytelling by directly providing a story. In this second phase, my goal was to figure out a new trigger and an approach that could be used to extract people's memories of nature. I wanted to know if shared emotional storytelling could happen without telling a story first. The quality of life for people in Da Nang and Young-In isn't affected directly by environmental shifts (such as sea rise, changing weather patterns). Both cities, however, have developed rapidly both economically and physically over a short time period.

Da Nang has long been famous for its stunning 28km coastline. Recently, due to economic growth, this area

has been urbanized and numerous large-scale hotels have been built along the once natural coast line. The result of this change has been the reduced access of local people to parts of the beach belonging to the hotels. Increased traffic and use of the beaches due to the hotel development has also led to the beaches becoming much more polluted than in the past. Based on this, I assumed that Da Nang would offer me the opportunity to collect important, dense emotional stories of past memories of the beach.

The participants of my co-creation workshop in Da Nang were intentionally chosen. They were people that work for hotels along the coast. The co-creation tool kit (Figure 3) was made up of four participatory exercises intended to slowly build on one another and provide a means to extract participants' perceptions and emotions surrounding environmental issues. First, participants were introduced with the topic and concept of the study by a simple questionnaire. The first activity didn't require participant's opinion but was a gentle way to invite people to the study. The second activity provided face cards (eyes and mouth) and environment related images. Participants

were invited to represent and express their emotions for each image with the facial cards and to write one keyword. The third activity was a collage exercise where participants categorized the provided images in three different ways. By looking at participant's decisions, the activity observed the level of the participant's awareness of the general environment issue. The last activity provided participants with various keywords related to emotions and provided a map of a 5 stage recycling process. Participants were asked to cut and paste two words, related on their emotional response for each recycling process/ phases (product development-consume-trash-recycle). This exercise directly required participants to select their emotional thought, and to respond to each of the recycling phases. After the participants had completed the activities, a closing interview was conducted with each person.

Significantly, the research session revealed unexpected responses. Through the process the participants expressed that they fully understood and acknowledged

the fact of environmental issues in the activities. Later during the final interview stage, however, they contradicted themselves and denied that they agreed that we are facing environmental issues. At the beginning of the session the participants spoke about an emotional sense of loss for Da Nang's past coastline and access to it. As the interview questions built up and began narrowing down to issues of rapid urban development on the environment participants suddenly put up a barrier, denying environmental issues and ecological loss. My assumption going into the interview segment of the co-creative workshop was that participants would gradually reveal and speak about their memories of nature connected to ecological loss and that this could be done by narrowing down the conversation and asking straight forward questions. In response to the interview questions, however, participants expressed that they did not miss nature and that they felt positive about economic growth in their cities. This perception that the recent rapid hotel development and subsequent economic growth was a positive change confounded me. Later while discussing with an interpreter familiar with both Western and Vietnamese culture it was pointed out to me that these contradictions and shifts in the types of responses may have occurred because the participants felt that they would be undermining their employers (the hotels) if they expressed a yearning emotion for the past.

From a Western, North American perspective it seemed to me that the participant's views of economic wellbeing created a barrier that interfered with their level of ecological awareness. Environmental studies, suggest ecological awareness is increased when human materials

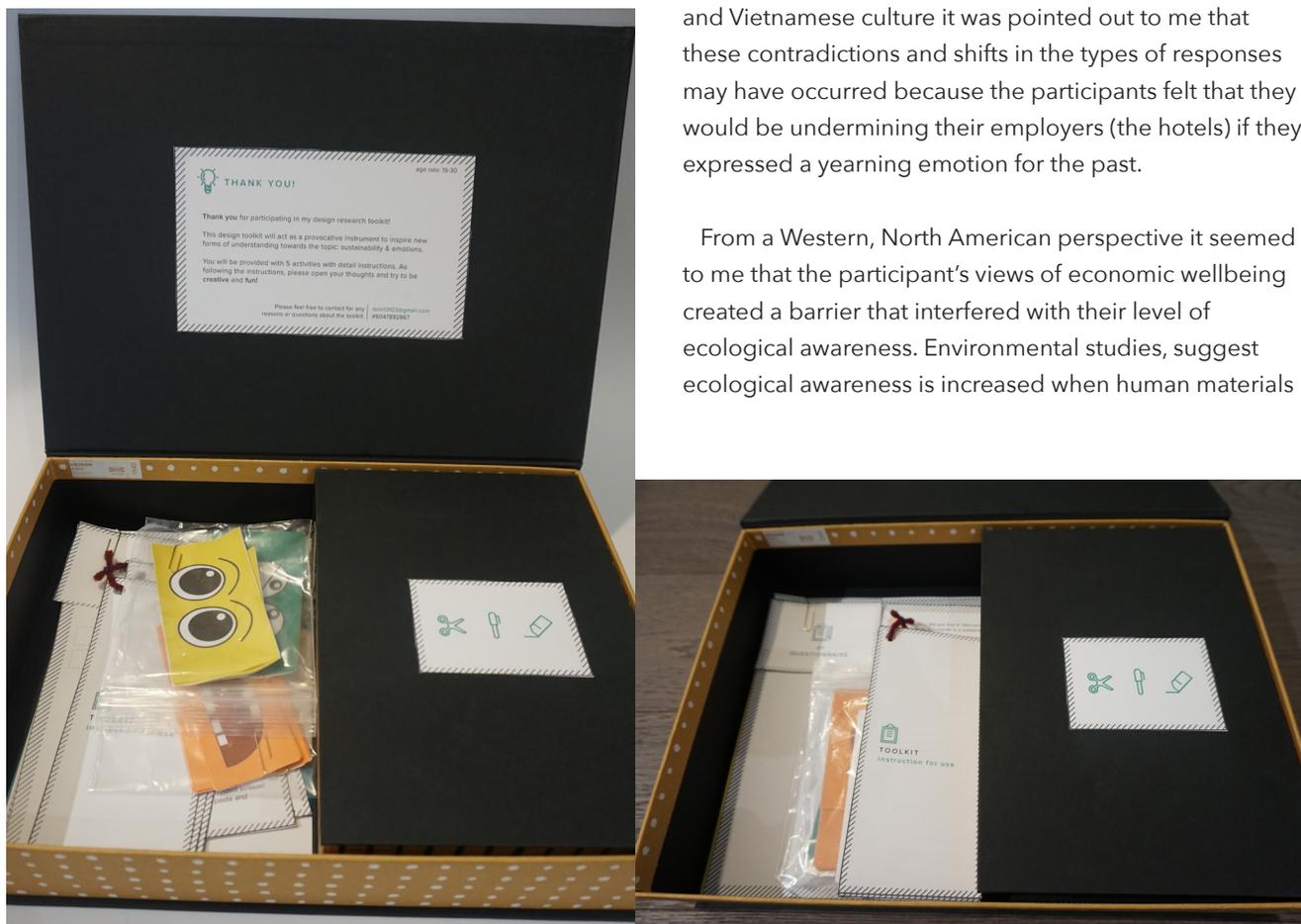


Figure 3. Design research method, 2017. Co-creation tool kit Copyright by Roy Kim

and values are met (Eevi, 2013). Statistically analysis of this phenomena further identifies that “environmental awareness tends to be lower in countries where people encounter serious environmental problems in their country” (Eevi, 2013). There are long standing debates that pit environment issues versus economic ones. Often in these debates, people with middle-class lifestyles are accused as contributing to environmental issues (Powell 2013). Messaging delivered to us through Media and in many social contexts, often reinforces the idea that middle-class and working class people can't afford to be environmentalists and they are the ones that need to change (Carey 2018). This, however, is misleading as generally middle-class people actually do put more effort and care into addressing environmental issues and doing less damage than lobbyists, large corporations, and the wealthy (Schmuck & Schultz, 2012). While it is having been beyond the scope of this Master thesis to examine the relationship between economic class and environment awareness, the feedback from participants in Vietnam provided me with an insight about the relationship between ecological awareness and economic development and something to consider for future research. My work in Vietnam provoked me to reflect on how environmental issues and concerns are perceived and expressed, depending on the local cultural and economic situation.

Drawing on the feedback and responses to my participatory study in Vietnam. I approached the second research session in Young-In, Korea differently. After the creative tool kit exercises, I decided to replace the closing interview with a storytelling workshop similar to the studio campfire workshop I had held earlier in Vancouver. An example story about memories of nature was provided to the Korean participants who were then invited to share their own stories. Yet again I was faced with a different and unexpected response. Instead of sad stories (such as the ones told in Vancouver) or denial of environmental issues (as in Vietnam) my Korean participants focused on sharing old fun memories that were not related to nature. The past was taken up as the discussion but the link to the environment was not made - the sharing of emotional aspects (such as loss) connected to experiences with nature did not figure high in the discussion.

In hindsight I realized that the tenor and direction of the conversation amongst my Korean participants was

informed by the design of the creative tool kit I had given them earlier. In this kit each activity was designed in a cartoon style (figure 4). It would seem that the participants understood the visual style that I used to convey information as light hearted. Their responses reflected the visual que I had provided - rather than tales of concern (for environmental issues) they shared funny stories about their past. Despite this set back (having participants who were not discussing and talking about environmental issues) the people in the study were engaged - intensely talking and interacting with one another. My approach did facilitate the conversation and sharing. Even if the research session still did not achieve my expectations and goal I learnt about how to open and spark conversations and storytelling sessions. My use of storytelling vs a questionnaire enabled a more open and inviting space for participants to contribute to.

Researching storytelling in two different cities in two different cultures provided unexpected results. The co-creation tool kit and a follow-up interview was intended as a means to experiment and explore different ways of extracting stories. The research, however, made it clear that motivation and engagement with environmental content is different depending on the cultural and economic context. It became clear to me that an appropriate culturally specific mood needed be delivered and provided in order to facilitate an openness and potential to kindle emotions (of sadness) through storytelling. Overall, the framework of the co-creative study that I had designed didn't fit well with either the Korean or Vietnamese cultural context. My initial goal was to create a global platform that applied universal principles to attract and draw people to contribute. As I worked with participants and tested out my ideas in these two different cultural contexts I began to realize that my assumption that everyone would respond the same way was misguided. Different social, political, economic environments, different lived experiences, work environments, education all contribute to how we see and navigate in our world. My assumption that I could produce a platform that would work for all was not viable. Culturally appropriate strategies for different regions are needed. We all like stories but the way we enter into them, the stories we are willing to share and our assumptions about how to do so vary greatly from one place to the next. As a designer I became aware that a more nuanced understanding of place is needed. There

are many instances where cultural probes and co-creation toolkits are not necessarily the most appropriate means to understand a culture. Mindful of cultural misalignments and of the place from which I was working (BC Canada), I chose to refocus the last stage of my work, locally, in Vancouver, British Columbia - within the Western, North American context.

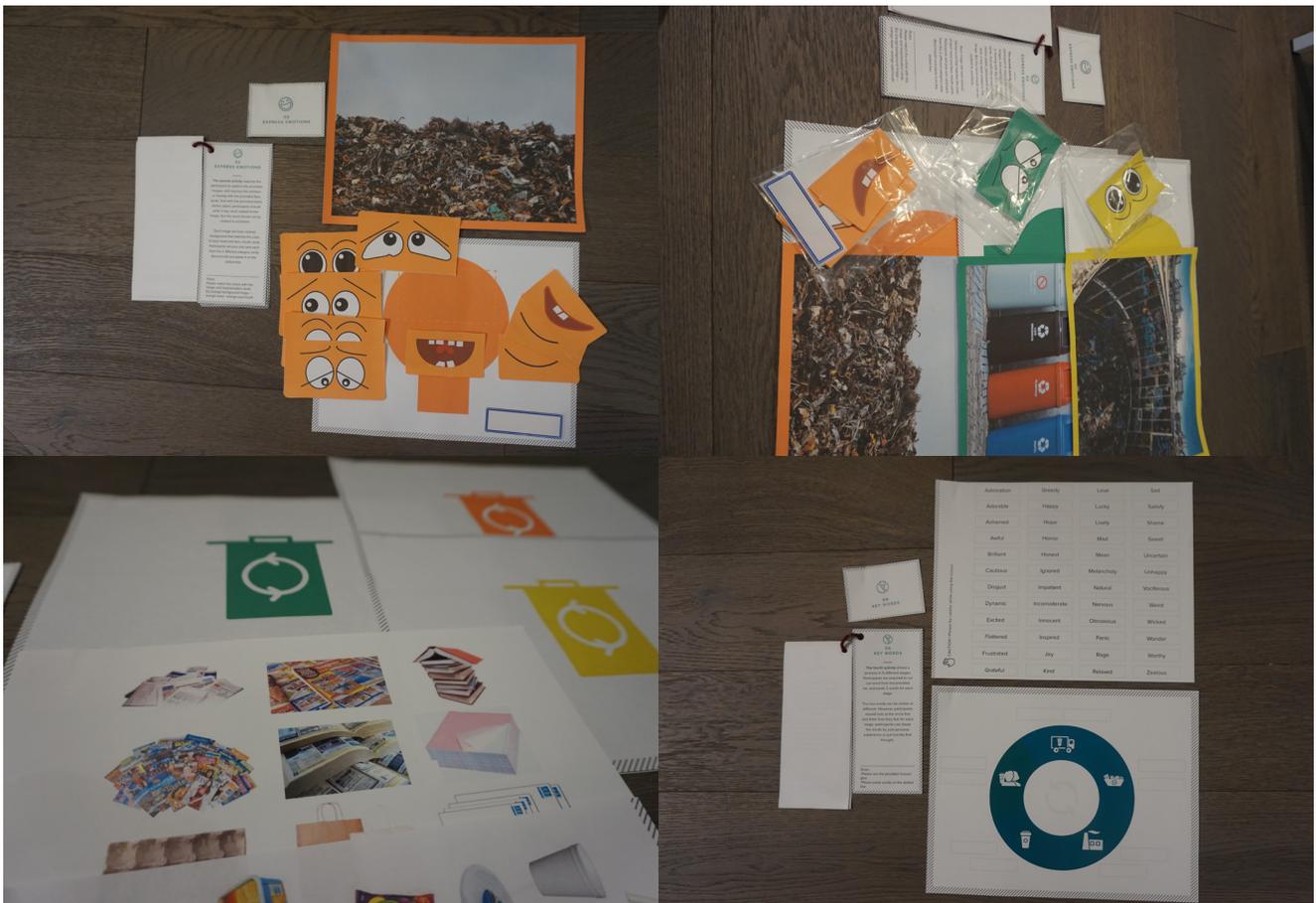


Figure 4. Design research method 2, 2017.
Co-creation toolkit Copyright by Roy Kim

03

MANIFESTATION

After conducting three different design research investigations (in BC, Vietnam, and Korea) and reflecting on my work. I began to create and develop a new digital research tool for citizens to share memories of nature that might persuade people to value the environment differently and to present the sense of loss in nature. I designed a mock-up of my digital citizen research tool that could simulate the performed actions of storytelling online. Through sharing and listening to memories of nature this digital research tool was intended to allow people to explore 1) persuasive design for pro-environmental storytelling, and 2) a new digital research method that facilitates connection by providing a place to interact and respond to other people's memories of nature. Further details are discussed in the section below.

3.1) PERSUASIVE DESIGN FOR STORYTELLING

Stories and personal narratives are tools for sense-making and allow people to experience the unknown. The action of storytelling impacts and influences others, which could potentially persuade people's behaviour pattern to value the environment (Quesenbery & Brooks, 2010). For this reason, the digital citizen research tool that I developed draws on storytelling methods. In addition, aspects of persuasive design were used to develop the approach and elements of the stories on the digital platform. The Interaction Design Foundation notes that "persuasive design is an area of design practice that focuses on influencing human behavior through a product's or service's characteristics" (Interaction Design Foundation 2002). Further, persuasive design experiences are frequently used to promote long term engagement with a product or service system (Interaction Design Foundation 2002).

In the case of the digital citizen research tool, overarching principles of persuasive design as laid out by Fogg were applied as a means of create a persuasive platform (Figure 5) towards ecological awareness. In order to target a behavior to occur, Fogg states that the user should carry sufficient motivation, sufficient ability, and provide an effective trigger. Ideally all three factors should be present at the same instant (Fogg 2009a). Interestingly they also work separately. In my own experience, motivation (to act) was fostered once I witnessed ecological loss. However, motivation at this stage bonds deeply with emotions. Instead of an urgent action or solution, I was emotionally motivated to feel sad,

fear, and to share my emotions, that could be defined as ecological grief. After getting motivated my ability was applied to creating my storybook about the river. Abilities could be expressed differently from various educational background, culture, or personal preferences. The storytelling workshop and the campfire setting was a trigger for me - people's reactions and reflection on my story enabled me to consider and plot out my next steps. Even though people gain great motivation and ability, an appropriate and a solid trigger must occur to gain change in behavior (Fogg 2009a). In advertently, I was applying and making use of Fogg's behavior model of motivation, ability and trigger (Fogg, 2009a). I am aware that there is fair amount of criticism of Fogg's behaviour model for behaviour change, linking it to a mechanism often applied to unethical luring of people to consume more products (a sustainably dubious behavior). Nonetheless, it has provided a useful model for me to think about. I have aimed to encourage positive behaviour change outside of the marketing context. I am rerouting Fogg's model (usually applied for marketing techniques) for a different outcome/purpose.

The main aspect of the platform I designed is to share experiences. Key to this is a means to motivate people to write or recount their memories of nature. Providing motivation, however, is (as my earlier work in Korea and Vietnam attests to) challenging. Throughout my thesis I have tried to find means to connect people with senses of loss in nature. Grief in this context is an initial emotional factor. My earliest thoughts were that by providing site (an app) and voice (stories) connected to loss in nature,



Figure 5. Process of persuasive design, 2018. Adopted from BJ Fogg's *8steps in early-stage persuasive design*, Visualization by Roy Kim

people would feel grief and potentially be motivated to respond. I wanted to create a citizen digital research platform that would encourage people to write their stories and participate in a community effort in order to bring impact.

The purpose of this digital platform is to provide a means for group participation and to gather stories. Potentially used as research tool and as a means to track emotional response with social networking communication features, and after consuming stories, stories would provide the main influential element - to persuade and empathy. The topic "memories of nature" naturally carries a wide range of different emotional responses depending on the context: the person telling the story; the means of telling the story; the situation of telling the story; and of course the content of the story itself. My thought is that as I need to draw on the insight that stories contain deeper emotional aspects, they are more able to potentially influence people's perception more fully (Sametz & Maydoney, 2010).

The purpose of this digital citizen research platform is to facilitate a broad range of people the capacity to speak about and share environmental concerns. Because memories are shared and communicated through stories the platform requires a skillset of both story tellers and listeners: to write. For example, an international student could have the best quality story about nature, but the student might lack the English skills to deliver the story effectively. The platform I have created accommodates for people with varying degrees of motivation and ability (Figure 6). As Fogg notes the most effective way affect behaviour, as a whole, is to boost either one (motivation or ability) through simple user experience design (Fogg, 2009b). With this in mind, my prototype explored different interactive features to simplify the experience of storytelling: recording stories, geotaging, gamifying, podcasting, and different styles of commenting.

As stated above, environmental problems are complex. In cases like this it is challenging to make people act and change their perspectives. Knowing that I wanted to

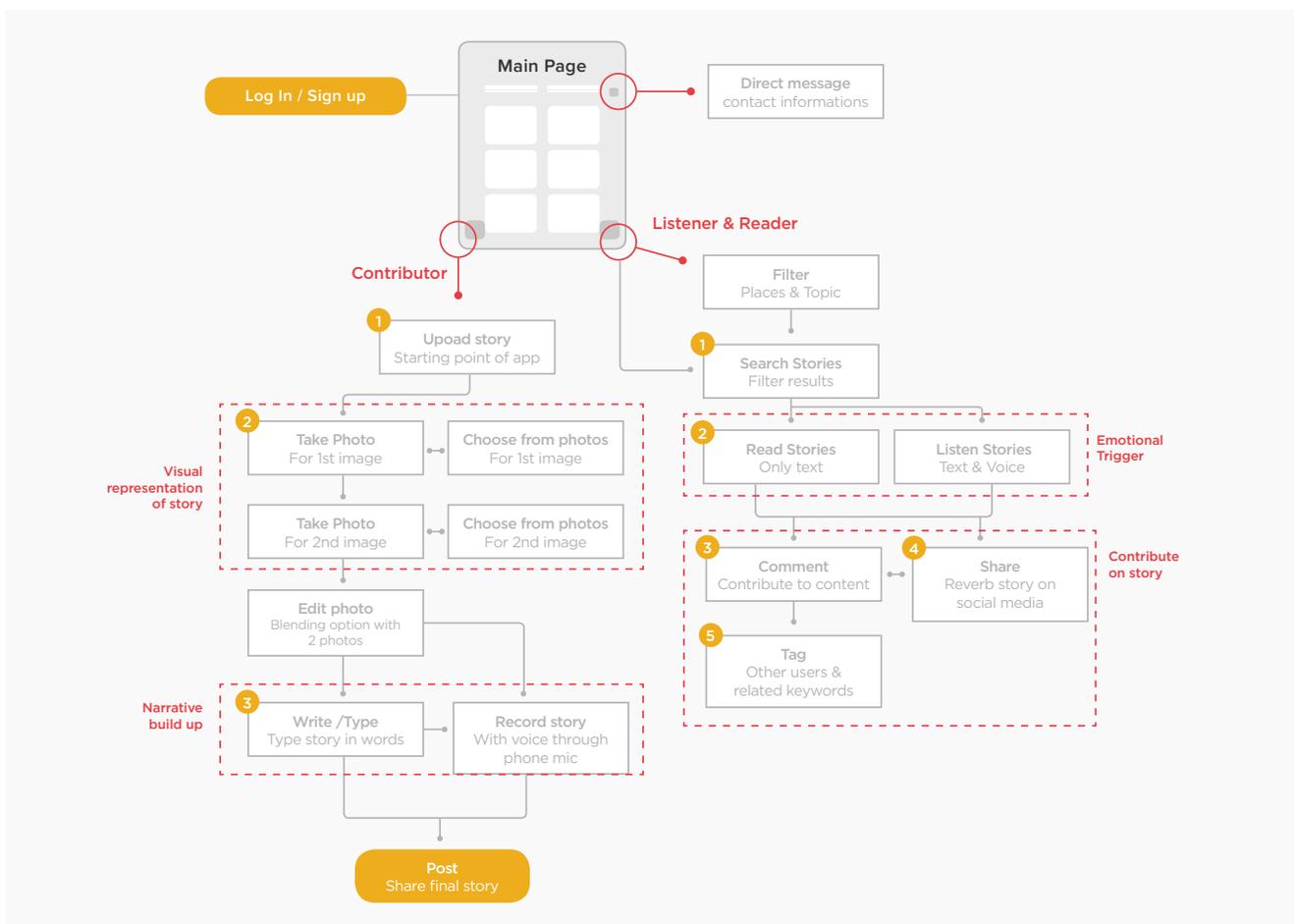


Figure 6. Architecture site map, 2018. UX design. Designed by Roy Kim

encourage action and changed behavior patterns, I chose to look to a field that seeks to affect people's behaviour: Marketing. Experts in marketing engagement theory investigate what makes people act. To finalize a transaction of a product, experts in marketing note the effectiveness of first exposing and making people aware of a product. This is followed by learning about the product and in doing so gaining more interest (Fogg, 2009a). Consumers go through this process by considering products, reading reviews, and comparing prices between competitors. In this way people evaluate products (for their own use) and finalizes their decisions leading to a final purchase. Marketing theory also recognizes that people and consumers are often diverse. In this context marketing funnels are used to help apply various means to draw in and target a more specific audience. Drawing on its overall concept and purpose of bring people in I have adapted the concept of the marketing funnel to increase traffic and involvement but placed new concepts of the funnel to fit the purpose of my study. The marketing funnel such as the one used by TrackMaven visualizes the journey

of converting leads into customers. It presents five phases of how people engage with products and eventually act to purchase in a marketing (and sales) perspective (White 2016). Similar to this funnel, the platform I have developed proposes four phases to persuade people (Figure 7). In phase one: attention, people are introduced to a new social media platform that draws attention to environment issue through stories that can be read. In phase two: involvement, people read stories provided by others and spurred to participate more actively themselves. In phase three: contribution, people become involved and choose to write their own stories or to comment on other's story. In phase four: there is momentum and growth as people increasingly contribute to the platform.

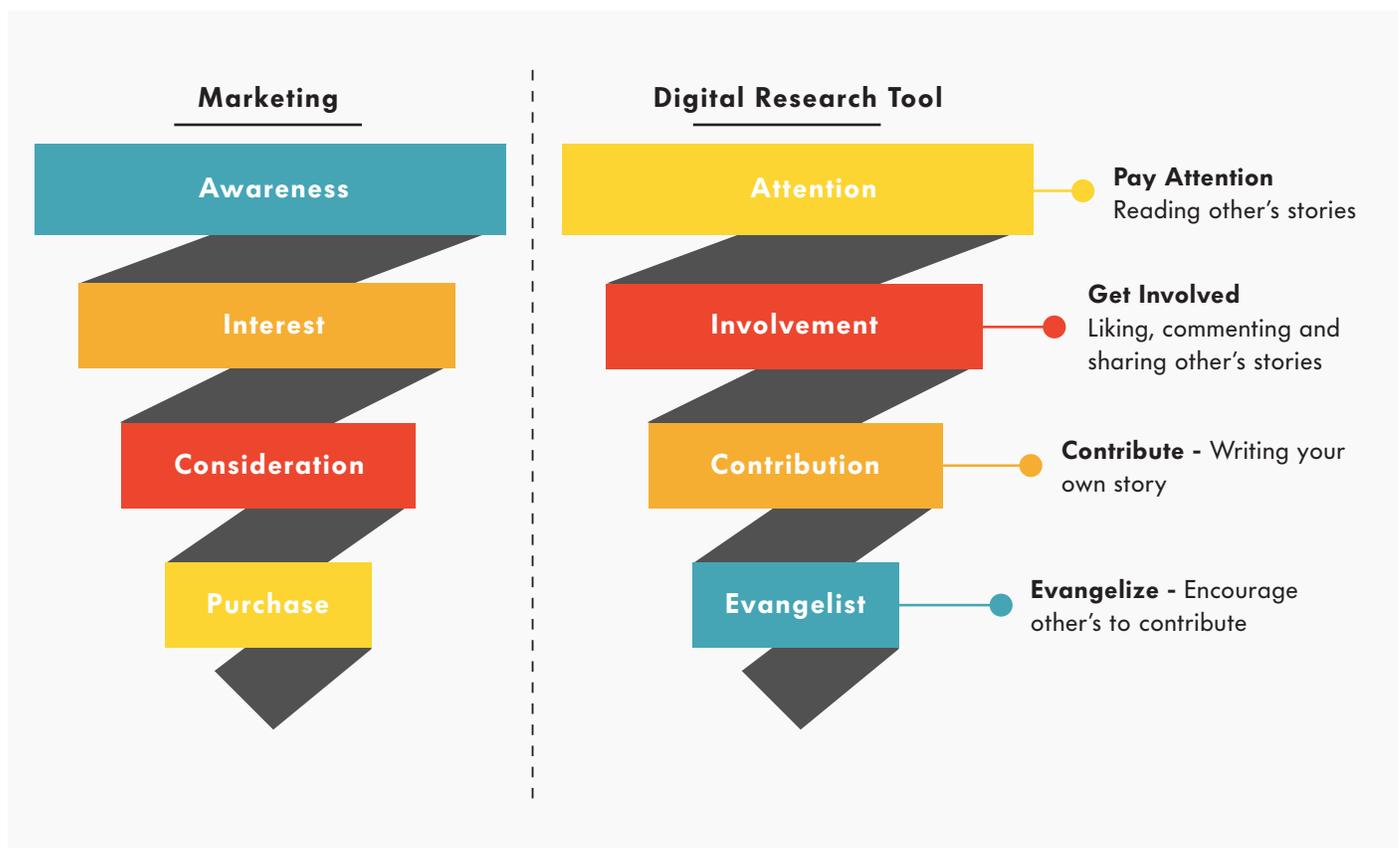


Figure 7. The Marketing Funnel, 2018. Adapted from TrackMaven, Visualization by Roy Kim

3.2) TOOL TO RECALL STORIES

This section details elements of the citizen research platform's prototype that has been developed and the assumptions that have been used in the design of the wireframe. The platform seeks to draw users through the three features key to behavior change as identified by Fogg: motivation, ability and trigger. It motivates people by showing other's stories. It provides ability through the platform's features. It triggers people's behavioral emotional as users write, share and comprehending their own story.

The platform also applies four phases to persuade people: attention, involvement, contribution, momentum. This encouragement journey (Figure 8) would begin when the user arrived on the landing page, presented with various stories, users attention, awareness and interest would be stimulated. By clicking onto specific stories, users would be able to read or listen to the narratives left behind by other contributors to the app. They would begin to be involved. To further encourage involvement, the landing page would provide users with the ability to comment, like or share the story (similar to Instagram, and Facebook). Users would also be given the prompt to sign up and contribute in more depth by not only interacting and responding to others stories but also by sharing and contributing their own memories (Figure 9).

ATTENTION

Recognizing the importance of local context, the citizen research platform would launch its landing page based on the user's local community and location. The main page of the platform would start feature various stories that are generated from the user's neighborhood. For example, if a user lives in Vancouver, False Creek area, the platform would be connected to False Creek's community based stories (Figure 8).

INVOLVEMENT

Through listening and reading the stories on the platform users would begin to have a new picture of their neighborhood. They would be informed in a new way. They would see how their local area had changed, have a better idea of the environmental issues that were concerning their community (Figure 8).

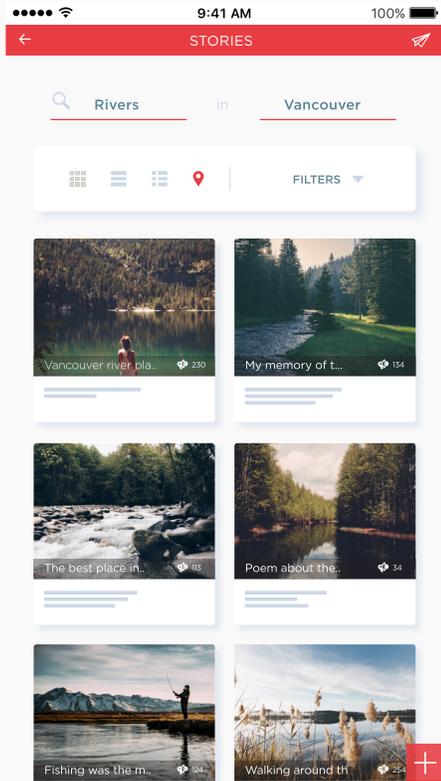
CONTRIBUTION

User generated stories combined with designed prompts for interaction would invite visitors to the site to contribute as well. Users would: write their own story related to the environment; upload photos related to the story; geotag the story, and add an audio recording or a video (Figure 8). For example, a user might write a story about a favorite tree that disappeared and upload an old photo of that tree with a geotag identifying the location where it once was. Beyond the image, written story and geotag the user might choose to record and narrate the story with their own voice, adding deeper emotion, mood and context. Ideally, I see users carrying their phones, visiting sites where they have experienced environmental loss, and actively recording their story while walking around the scene.

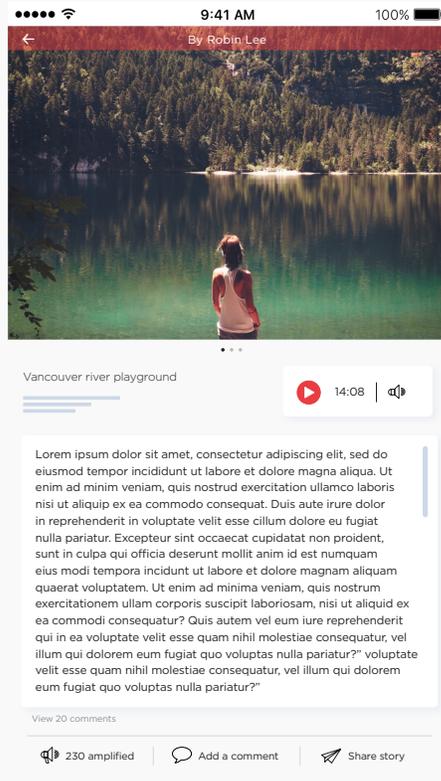
However, the whole purpose of this platform isn't to solve or prove that a digital storytelling platform could provoke pro-environmental behavior change. The platform stands as a citizen digital research tool that could further research the potential of stories and people's emotional reaction be reading and contributing memories of nature.

MOMENTUM

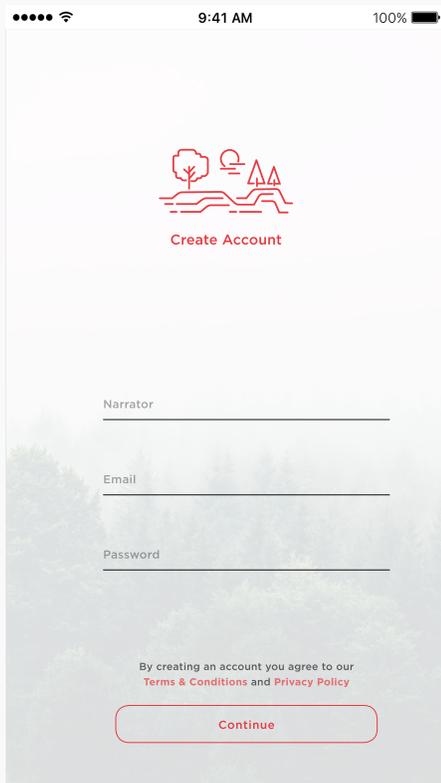
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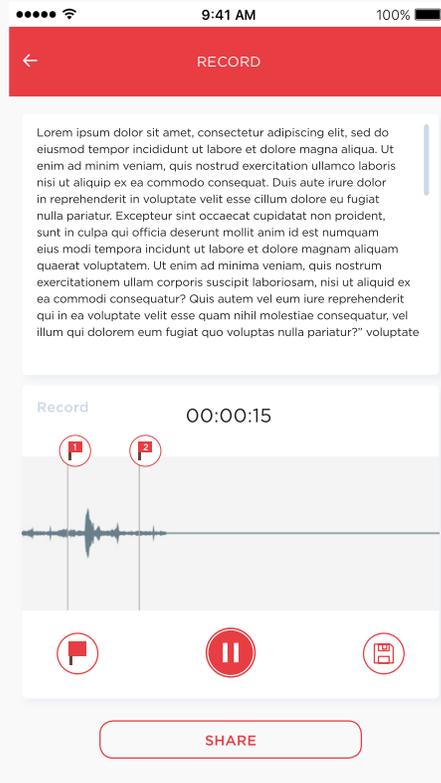
Attention



Involvement



Contribution



Momentum

Figure 8 . Digital platform Interface, 2018. UX design. Designed by Roy Kim

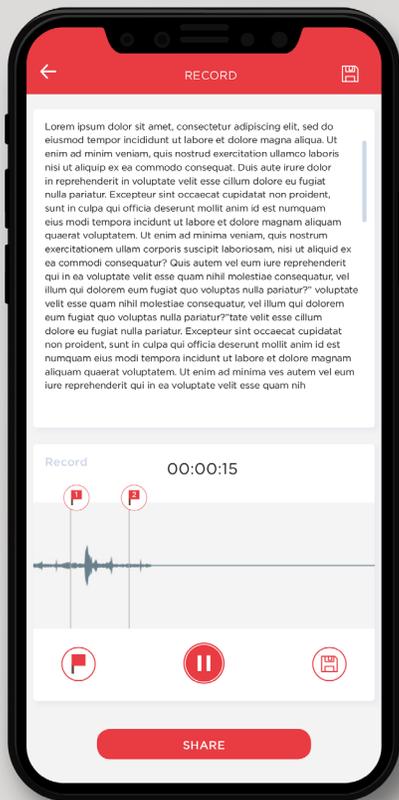
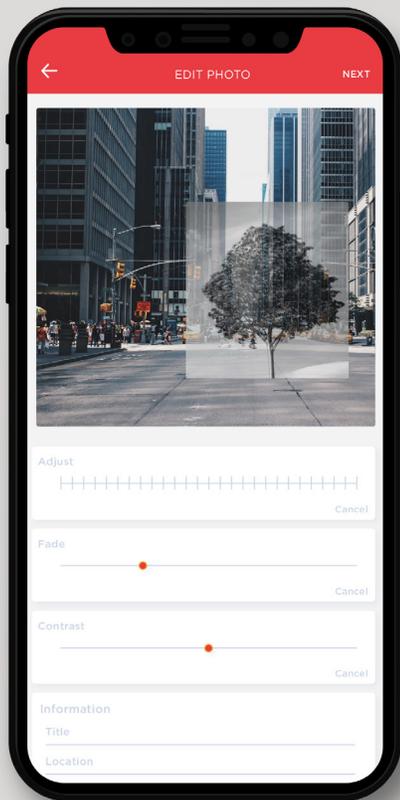
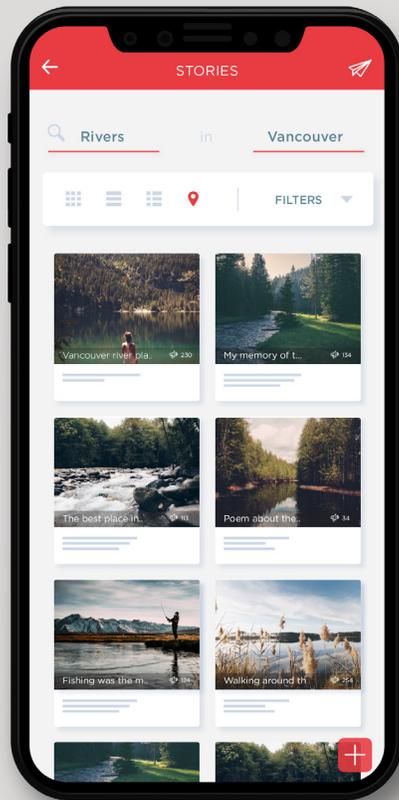
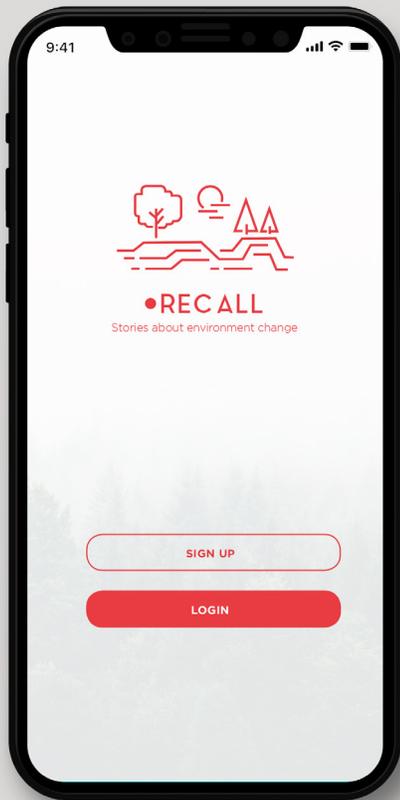


Figure 9. Citizen Digital Research Tool 2018. Mock up. Designed by Roy Kim

04 REFLECTION

4.1) ON THE WORK I DID

The citizen design research tool has been developed as a new digital research tool that merges storytelling of people's memories of nature and interaction design strategies, as a means to widen the perception of design in pro-environmental research practice. Initially, very early on in my Master studies, my work in the studio focused on collecting stories of environment issues. These stories revealed facts about climate change and individual, felt suffering. They did not, however, successfully provide any emotional draw for the people they were presented to. I realized that this was probably because the stories that heavily focused on facts about environmental issues. These stories did not resonate with people, perhaps because they were already over exposed to the obvious issues I was speaking about. Initially this caused a gap, I was un-enabled to find ways to encourage people

to speak about their perspectives on environmental problems. After my successful campfire session in January 2017, my strategy shifted. I redeveloped my approach and found a way to bridge the gap I had been having problems with. The campfire storytelling session pivoted the types of stories I was telling. Earlier, as noted above, the stories I was using and sharing were based on facts about well-known environmental incidents. However, during the campfire event participants shared their own personal emotional stories. These stories were closely tied closely to nature. During the session I realized that the concept of the story (of my river) itself gained more power to persuade people. Another pivotal moment occurred during the co-creative research workshop in Vietnam. Here I came to realize that motivational engagement is different from cultural and economic differences. Prior to my work in Vietnam and Korea my intent was to create a platform that would spread as an international project. Participant feedback and responses to my workshops exposed the complexity taking on a globalized that sought to engage people about the environment. I shifted from my initial goal to explore and develop a digital research tool to allow everyday people to be more aware of global environmental issues and simultaneously encourage pro-environmental design practices. However, after international research, the overall scope shifted to focus on a local scenario as a means to better understand the base of the framework of storytelling.

Mid way through my Master's Studies, when my work began to branched out and draw on insights from my own personal experience of environmental loss I made several assumptions. I assumed that people would openly talk about their environment loss stories and that these stories would have similar emotions to my own. After conducting international and local interviews, I realized that the process of sharing stories is fragile and complex. A slight difference in my facial expression, voice tone, and gestures, could easily affected the mood and the context of the stories people share to me (and others) in return. In the design of my mock up for a citizen research platform, I limited and restricted any possible detours in order to provide a stabilized platform for sharing and discussion.

4.2) WHAT I WOULD LIKE TO DO NEXT

In the future I would like to continue the project but take a different approach. Rather than restricting detours I would like to open up the flow to enable alternate routes and broaden the process of sharing to extend the potential of storytelling. Noting that open research studies provide “people with an opportunity to figure out for themselves how various broadly defined goals can be met” (Jackson 2005) I would like to refrain from setting prescriptive boundaries and directive paths through the platform. Reflecting on Kaplan’s distinction between three different understandings of behavior change, I would like to take on an approach to user testing that involves “first telling people what to do, then asking them what they would like to do, helping them to understand issues and finally inviting them to collaboratively explore possible solutions” (Jackson 2005).

Most of my work has drawn on and been informed by Fogg’s behavior change model. Moving forward, however, I see the need to research different models and theories about behavior change. Researching different theoretical frameworks applied to behavior change such as Norm-activation theory, persuasion theory, cognitive dissonance theory, and balance theory (Jackson 2005) would help inform the behavioral influence that each features in my citizen research platform. Norm-activation theory has been used to explore pro-environmental behavior change such as recycling, car use and water conservation (Jackson 2005). Applying insight from Persuasion theory might allow me to effectively encourage cognitive responses which place “a greater emphasis on individuals as active participants in the persuasion process” (Jackson 2005). I also see it as a means to further explore ways to change attitudes or behaviors in a pro-environmental direction for government policies. Balance theory “suggests that it is possible to exploit the action of suggesting or highlighting inconsistency-in order to change people’s attitudes (Jackson, 2005).

The mock-ups I have developed for the citizen research platform (Figure 9 & 10) are aimed at using memories of nature to raise awareness of our environmental problems. Further research and testing of this platform is needed as a means to increase its accessibility for everyday users (Figure 10). Future stages of work, I think, will require an emphasis on exploring the effectiveness and degree of impact that sharing memories related to nature through

storytelling provide to shifting receptiveness to acting on and addressing environmental problems. The main purpose here would not be to calculate or prove if storytelling could save our ecological system. Rather, it would concentrate on ascertaining if this platform is capable of providing new insights towards collaborative learning and behaviour change.

In light of the emphasis that I feel needs to be put on collaborative learning and behaviour change. I am also curious to see if the stories provided by people and gathered through the platform, could help to suggest innovative citizen initiated solutions for environmental problems. I also see the mock ups of my platform as a prototype that could be taken on by municipal, provincial governments as means to better understand and respond to the needs and desires of their constituents. For example, a citizen might post a story of a river. The story could detail how much this person misses the river, and also be connected to other people’s emotional stories. Other citizens might respond and add to this narrative. A different picture of the citizen and citizen’s desires might then emerge. In one instance citizen researchers would gain agency and a means to inform the situation and persuade the government to create a law that protects future river loss or a means to remediate the existing loss of natural river habitat. On the flip side demonstrators and government officials might gain a better understanding of the people they serve and respond in a more adequate manner to citizen concerns.

Overall, the platform itself could be transformed into a multi-use network that different organizations and constituents could use to gather information of people's perspectives on the loss of natural habitats. The citizen research platform might also provide the means to branch out and act as part of service hub for addressing environmental problems. Future iterations, might adjust to different community needs - acting for example as an informal voting system - and a repository of 'best stories' that changed people's perceptions and behaviour towards nature. If effective the platform might also transform and branch out to address wider groups of people. Hosting live presentations of personal stories for example would further extend the practice of citizen digital research connected to the environment that sustains us. My hope is that further refinement of my citizen research platform will allow it to develop and transform into an effective generative research platform used for a myriad of different local scenarios and purposes.



Figure 10. Citizen Digital Research Tool 2, 2018. Mock up. Designed by Roy Kim

4.3) CONCLUSION

My Master's thesis has concentrated on better understanding if people's value of the environment could rise by the use of personal storytelling about nature. My work has concentrated on people's memories of nature, which carry a sense of loss and grief. I have been invested in finding a positive way to apply these types memories of nature towards an overall goal of encouraging storytelling that might help people to engage in new ways with environmental concerns. I have sought to explore people's behaviour of sharing and listening memories of nature. Three research methods have been applied to further explore storytelling as a tool for communication: a co-creation workshop, a storytelling workshop, and prototyping. My thesis work concludes with a mock-up of a digital platform for citizen research. Aimed at promoting pro-environmental research practices the platform merges storytelling with interaction and persuasive design strategies. In the future I would like to refine and develop this digital storytelling tool further - to apply it toward efforts that support individual and community agency and that contribute to pro-environmental behaviour change. Ultimately, I see our world as a huge storytelling group that could be connected and provide important influence and support. As an interaction designer I would like to contribute to this effort.

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APPENDIX

RIVER STORY

Where are all the wild things? At summer night, he wore his boots and made splashes and ripples all around the river He yelled "box them to the corner!" And his small feet stomped liked a giant while the wild things were running in fear After that night, the river slowly dwindled and decreased. And decreased until rocks and green moss showed themselves above water. And a green golf course came by with fertilizer, pesticides and blocked local water supply to provide fake lakes and difficult courses. By weeks, months and over a year. Where are all the wild things? And when he came back to the place where the wild things are, he tilted his head, Where are all the wild things? And every day he walked back home with dry boots like the river and like his heart. As time passed he moved to a place where the river had all the wild things with maple leaves placed on top. He stomped and splashed of joy and yelled "let the wild march begin!" However, as he enjoyed the place where the wild things exist, he got lonely and missed his first place. So, he went back to check his place just in case if the wild things came back/ And in his very own place, he found nothing, just dry rocks and cigarette butts. So he asked "where are the wild things?" "where did all the wild things go?" And they say "there was nothing here just dry rocks and sands" Nobody knew there was once a place for the wild things Fishes, frogs, and water disappeared not by itself but with our memories. Am I only the one who remembers?

RESEARCH TOOL KIT

The research started off by sharing my personal story softly invited the participants by an unstructured conversational interview with a welcoming question. "Do you have any positive stories or childhood memories of what you miss related to nature?". And after inviting the participant and observing their stories, the research provided formal structured questions. Interviews were mostly conducted in groups to make participants more comfortable, and to observe both behaviors of when participants were placed in a sharing capable situation.

Image sorting method was conducted since the study heavily focus on people's association and perceptions related to our loss in nature. The research activity provided images of nature and asked the participants to sort out the images according to what is lost and what still

exists. As participants sorted out the provided image, I planned to conduct an unstructured interview asking their emotions, and stories to extract narratives that reflect their perceptions. All images didn't carry any negative or disgusted emotions; it was neutral images of nature.

At last, I created a creative tool kit that could extract creative approaches and formal content of participant's perception of our sustainable development (instructions, questions, activities in figure#). The tool kit included four participatory exercises that slowly builds up and extracted participant's emotions through creativity. The first activity is a simple questionnaire about the participant's background and which state of mind that they come from. The questionnaire introduces the brief concept and the area of research that this tool kit is about. Strong opinions aren't required in this stage, it's a stage to gently invite the participants into my research field. The second activity requires observant and playfulness. The activity provides three images and playful comic face cards. Participants should explore the image first and select the closest face cards (eyes, mouth) that represent their emotions towards the image, and write one keyword unrelated to emotional terms. However, with vibrant colors, and comic style faces, participants are still invited in a playful atmosphere where they aren't pressured or influenced by the seriousness of "researching". The third activity is a collage exercise. Participants have to cut out images from the provided image sheet, and paste it each image on different colored trash cans (green, yellow, orange) from their preference. The instruction clearly says to not think about recycling, and should think about the connection of color and object. Starting from this activity, the tool kit slowly requires the participant to emotionally think about their experience, and requires decision making. However, the trash cans are still illustrated in a comic style, which doesn't give a sense of serious trashing issues, or other related emotions that a real trash can could provide. The last activity provides various words related to emotions, and provides a map of a 5 stage recycling process. Participants have to cut and paste two words, related on their emotional response for each recycling process. This exercise directly requires participants to select their emotional thought, and to response in each stage. The overall tool kit's visual style is illustrated with icons, comic style, and vibrant colors to lower the participant's guard, and to provide constructive outputs through creativity and playfulness. emotional response as they go through each activity was important.

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