

**Exploring the application of environmental communication strategies
for landscape architecture**

by

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ABSTRACT

Exploring the application of environmental communication strategies for landscape architecture

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Environmental communication (EC) examines how audiences connect to information about the natural environment. EC is interested in strategies that frame information to facilitate improved relationships between humans and nature. The aim of this research is to identify key EC strategies and explore how these strategies can apply to landscape architecture. I developed a concept matrix of key strategies within EC through conducting a literature review. A communications expert assessed the identified concepts to affirm their relevancy. I composed a questionnaire and conducted semi-structured interviews with key informant landscape architects. An analysis of interview responses revealed which EC strategies were commonly used in landscape architecture, and the role ethics played in adopting these strategies. I also identified a need to further translate these concepts into compatible design terminology. Landscape architects equipped with an awareness of EC strategies can use this information to communicate the value of nature to different audiences and strengthen human-nature relationships through design.

Keywords: *communicating; framing; human-nature relationship; values*

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Chapter 1: Introduction

Environmental communication is defined as the “process by which meaning about the environment and environmental problems is exchanged between individuals through a system of common symbols, signs and behaviour; it includes verbal and non-verbal activities” (Klößner, 2015 Section 1.6). Environmental communication is concerned with the perceptions people have about the environment, and how these perceptions shape their behaviours and attitudes towards the environment (Jarreau et al., 2017). Research on environmental appeals has begun to look past whether people are concerned about the environment to why they are concerned (Schultz & Zelezny, 2003). Environmental appeals when done effectively can be framed in a way that is not inconsistent with a person’s values or their own self-interest (Kaplan, 2000; Schultz & Zelezny, 2003). While some environmental communication research attempts to influence the adoption of more sustainable environmental behaviours, the focus of this research is on how communicators deliver information in a way that improves people’s connections and perceptions of nature.

Problem Statement

In an increasingly connected world where information from various outlets is competing for the public’s attention, environmental messaging shifts from being a scientist’s problem to a communicator’s problem (Futerra, 2010a; OBC, 2017). A study by Public Agenda in 1999 found that the American public was experiencing apathy and

helplessness towards the environment that led to a decline in concern for environmental issues (Donn 1999, in Kaplan 2000).

The popular environmental narrative in our North American culture is one that views the environment as separate from humans (Lakoff, 2010). There is a need to communicate environmental information beyond the proverbial choir of those who intrinsically value nature to reach and appeal to segments of the population who are not typically engaged with environmental messaging (Scheufele, 2018). This research aims to address this disconnect through the exploration of effective environmental communication strategies.

Goal & Objectives

The goal of this research is to identify key environmental communication strategies, and explore how these strategies can apply to landscape architecture. To meet this goal, I undertook the following objectives:

1. Develop a background knowledge of environmental communications;
2. Identify key environmental communication strategies;
3. Explore and analyze how these strategies are incorporated in landscape architecture design;
4. Comment on the application of these strategies for landscape architects.

Importance to Landscape Architecture

Anyone who participates in discussions about the environment is engaging in the act of environmental communication (IECA, 2018). Landscape architecture is a discipline that engages in dialogue about the environment, verbally and visually during the design process, and experientially through design execution. These two disciplines share common goals of sustainability and enhancing relationships with the natural world. Landscape architects, equipped with an awareness of environmental communication strategies and research, can use this information to consciously strengthen relationships between humans and the environment through design.

Chapter 2: Literature Review

This literature review reveals how communicators develop strategies to disseminate information, and how they engage in the act of framing this information. I also explore how landscape architects engage in communication during their practice. By researching communication in these two fields, I hypothesize that landscape architects are often engaged in environmental communication through their work. I identified a gap in landscape architecture research: there was no mention or incorporation of environmental communication knowledge in the landscape architecture literature I found. This knowledge-gap led me to further explore how environmental communication strategies can be applied to the field of landscape architecture.

Environmental Communication

Environmental communication is concerned with how people communicate and receive information about the natural world (Jarreau et al., 2017). This thesis uses the word *environment* to refer to the Earth's ecology and natural systems. Environmental communication is a byproduct of the modern environmental movement of the 1960s and 1970s, when environmental journalism for a mass media audience sparked discourse between the environmental science community and general audiences (Hansen & Cox, 2015). The academic journal *Environmental Communication* published its inaugural issue in 2007 and marked a milestone in solidifying the discipline in academia (Comfort

& Park, 2018). Climate change communication is currently the dominant topic of research and inquiry in the field (Comfort & Park, 2018).

Environmental Communication is informed by a variety of related fields, including:

- **Psychology:** understanding human behaviour, attitudes, beliefs and cognition.
- **Environmental Psychology:** understanding relationships between people and the environment.
- **Environmental Sociology:** understanding relationships between communities and the environment.
- **Conservation Psychology:** understanding what motivates people to care for the environment.
- **Human Ecology:** how human systems depend on natural systems.
- **Science Communication:** communicating scientific information to non-scientific audiences.
- **Risk Communication:** informing audiences of threats to their wellbeing.

Aim of Environmental Communication

Successful communication techniques acknowledge an audience's existing perspectives and worldviews, and seek to incorporate these perspectives into what is being communicated (Druschke and McGreavy, 2018). Environmental communication is

interested in strategies that intentionally frame information to promote understanding and facilitate improved relationships between humans and nature (Jarreau et al., 2017; Klöckner, 2015). Frames are mental structures that are engaged through word choices, images or narratives (Lakoff, 2010; PRIC, 2018). Society relies on environmental communication to tackle the problems of climate change, pollution, biodiversity loss and other environmental concerns by influencing people's negative attitudes and behaviours towards the environment and promoting good practices (IECA, 2018; Klöckner, 2015).

Developing Communication Strategies

Humans communicate with each other through various methods (verbal or non-verbal, direct or mediated) and scales (one-to-one or mass) (Klöckner, 2015).

Communication, from a constructivist lens, goes beyond the act of informing and shapes how we experience our world and construct meaning (Gergen, 2011 in Klöckner, 2015). Communication shapes understanding and is considered to be successful when the message being communicated is understood by the intended recipient (Jurin et al., 2010).

The first step in developing a communication strategy is to identify the objective of your strategy. This requires identifying what message you want to communicate and why (Corner et al., 2018; Jarreau et al., 2017). The second step involves identifying a target audience and deciding how to best frame a message so that it is understood (PRIC, 2018). This step implies understanding what your audience already knows, what they value, and how they make decisions (Corner et al., 2018). The third step involves

choosing a method for disseminating your message (Jarreau et al., 2017). This can be done verbally or non-verbally.

Framing information is the act of intentionally activating certain associations, emotions and values in the mind of the audience (PRIC, 2013, 2018). Presenting the same information in different ways can influence the way people understand, feel and respond (PRIC, 2013). Communicators choose to frame information because people understand the world through their own personal perspectives. This understanding of different frames of reference is known as social judgment theory in communication (Valenti, 1998). Humans are not rational or objective – we connect to information based on how it relates to our values and emotions (Futerra, 2010b; PIRC, 2013).

Narratives are an increasingly popular form of communication in the science community (Climate Outreach, 2018). Narratives employ the use of storytelling, visuals, metaphors and meaning to engage audiences on complex issues (Corner et al., 2018). Humans more readily relate to information in the format of narratives or storytelling than they do to scientific facts and figures (Corner et al., 2018; ecoAmerica, 2014). Narratives build bonds of trust between the communicator and the audience and can even activate empathy in an audience (ecoAmerica, 2014, 2016).

Ethical Dimension of Communication

Communication strategies seek to use knowledge of human behaviour and psychology in order to persuade opinion and facilitate the adoption of certain values or

perspectives. In an increasingly connected world, this knowledge is a powerful tool that can be used to promote opinions and behaviours for a societal greater good, or can be used to persuade others for personal gain. Even the concept of a societal greater good can be subjective to the communicator delivering their message – what is considered to be most beneficial? (McEwen, 2014). The legitimacy of information depends on the communicator and what is being communicated; “how a truth is told has a large effect on its interpretation” (Valenti, 1998; McEwen, 2014, p.5). The International Environmental Communications Association (IECA, 2013) members follow a Code of Ethics that is based on principles of “truthfulness”, “respect”, “accuracy” and “transparency”. While adherence to the Code of Ethics is voluntary, it represents an attempt to acknowledge the importance of discernment and integrity that comes with wielding such influential communication tools.

Communication in Landscape Architecture

Communication allows designers to give a voice to their design intentions and to express design value to clients, stakeholders and the public. Damien Holmes (2018), editor of *World Landscape Architecture*, notes that, as a profession, landscape architects often struggle to express the value of landscapes, whether it is through the voicing of added health benefits, improved quality of life, or in dollar value. Landscapes to the untrained eye do not speak for themselves, so designers must communicate through storytelling and narrative to express design, intention and value (Peck, 2015). Charles Birnbaum (2018), in an opinion piece for *Dezeen*, urges landscape architects to

take charge of their message, how they tell their stories, and what they choose to tell stories about.

Landscape Architects as Environmental Communicators

Environmental communicators believe they play a pivotal and ethical role in speaking on behalf of the environment (Cox, 2006). As Cox (2007, p.15) notes, their profession has a responsibility to “enhance the ability of society to respond appropriately to environmental signals relevant to the wellbeing of both human civilization and natural biological systems”. In a similar thread, many landscape architects believe they have a professional vocation to advocate on behalf of the environment. This is well illustrated in the Landscape Architecture Foundation’s *New Landscape Declaration* where professionals are called to action to “create places that serve the higher purpose of social and ecological justice for all peoples and all species” (LAF, 2016, para.5). In a Canadian context, the *Canadian Landscape Charter* seeks to uphold principles that “recognize landscapes as vital”, “consider all people” and “inspire stewardship” (CSLA, 2015 p.2-3). Designers who choose to communicate information about the environment have an opportunity to convey the importance and value of healthy functioning ecosystems to their site users.

Human-nature relationships develop through repeated exposure to positive experiences and emotional connections with nature over the course of an individual’s lifetime (Jarreau et al., 2017; Saunders, 2003). Outdoor activities and educational opportunities within nature give people the opportunity to experience the

interconnectedness between themselves and the natural environment (DiCaglio et al., 2017). Experiences of awe and wonder within nature stimulate values of universalism and unity with nature, and inspire people to protect the environment (PIRC, 2013). Shifting values is a gradual process which benefits from positive experiences that confront our existing beliefs and values (Schultz & Zelezny, 2003). Landscape architects are well positioned to craft narratives and design spaces where intentional relationship building and the valuation of nature can take shape.

Chapter 3: Research Methods

This chapter outlines the research methods used to identify key environmental communication strategies and to explore how these strategies might apply in landscape architecture (see Figure 1). The methods used include:

- 1) a concept-centric literature review;
- 2) the development of a concept matrix based on the literature review;
- 3) a critique of the concept matrix by a communications professional;
- 4) the selection of design projects and firms that have an environmental focus;
- 5) semi-structured interviews with key informants associated with those projects;
- 6) an analysis of the interview responses using the concept matrix as a framework for analysis.

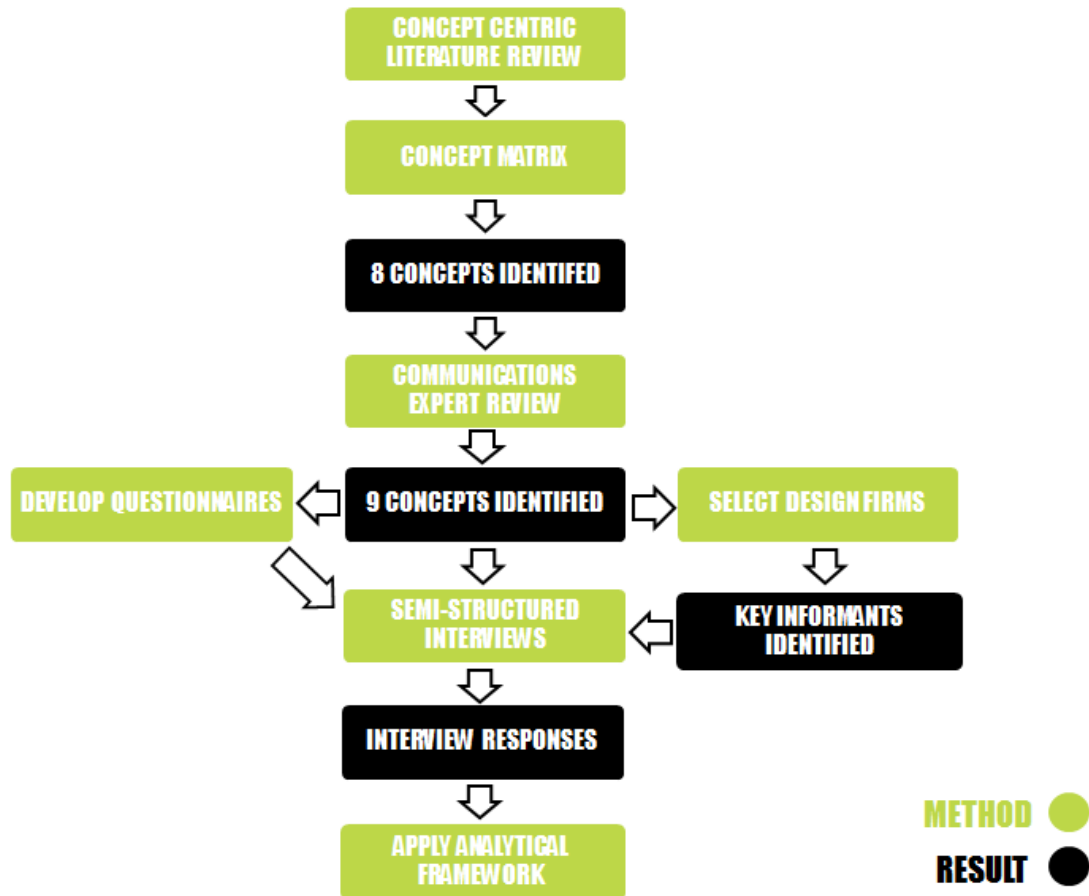


Figure 1: A flow chart of research methods used to identify key environmental communication strategies and to explore how these strategies might apply in landscape architecture.

Method 1: Concept-centric Literature Review

I conducted a concept-centric literature review in order to identify key environmental communication strategies, defined here as the most popular approaches used to facilitate stronger human-nature relationships. This review drew on both academic and grey literature from the fields of environmental communication, environmental psychology, environmental sociology, and public relations.

The Primo search engine from the University of Guelph Library and the Google search engine were used to retrieve sources. The following keywords were used in different combinations to conduct searches: “communication” “conservation psychology” “ecosystem services” “effective” “environmental communication” “strategies” “landscape architecture”. The International Environmental Communication Association’s *Talk.Eco* database was also a key resource repository. The *Talk.Eco* database contained guides and reports written by individuals and organizations that are intended for other environmental communicators. Sources were limited to the years 2000-2019, in order to capture the most recent research and successes in the respective fields.

From the literature review, sixteen sources were identified as being of high quality and highly relevant in understanding key communication strategies. Most of this literature was focused on strategies for communicating messages related to climate change or the biodiversity crisis, as these issues are well-reported-on in their respective fields. All sixteen sources presented recommendations on how to overcome barriers to engagement with the public. These recommendations appear to be applicable across a spectrum of environmentally-focused communication.

Method 2: Concept Matrix

An analysis and synthesis of the concepts found in the literature resulted in a concept-centric framework that organized key concepts and offered an overall understanding of the accumulated knowledge (Webster and Watson, 2002). The concepts in the matrix (see Table 1 in Chapter 4) are informed by the communication

recommendations outlined in the sixteen pieces of literature. Each concept appeared in at least seven of the sixteen sources.

Method 3: Concept Matrix Critique by a Communications Professional

Since the field of environmental communications has not been linked to landscape architecture, I chose to have my concept matrix critiqued by a communications professional. The intent of the critique was to check the validity of the communication concepts that were identified through the literature review, and to identify any important concepts in the communications field that might have been missed.

The communications professional who agreed to this role is a senior communications specialist with an environmental science background. This professional's expertise is in communicating about scientific research, much of it environmentally-focused, in a university context. I chose to recruit this professional because of their expertise in the daily challenges of communicating to many audiences, and because of their accessibility.

Before we met, I sent the communications professional a copy of my abstract, a copy of the concept matrix, and three questions to guide the critique; I also stated that I would welcome feedback beyond the three questions. These questions were:

1. Could you review my eight concepts and verify whether they are prevalent communication strategies?

2. Am I missing any other important environmental communication strategies?
3. Are my concept titles appropriate word choices to describe these concepts, or are there more fitting communication terms for these concepts?

I met with the communications professional for a face-to-face interview to discuss my concept matrix. The interview was recorded, with consent, and notes were taken.

The results of this critique can be found in Chapter 4.

Method 4: Identifying Design Firms with an Environmental Focus

I identified a number of environmentally-focused design projects to determine which landscape architecture firms and professionals I would target for interviews. The criteria to select these projects were that they were required: to be an environmentally-focused design, to be accessible to the public, and to be located within the Greater Toronto Area (GTA), along with the designers who did the work. The citation of environmental focus helped locate projects and designers who would have had an opportunity to communicate information about the environment. I selected practitioners who likely interacted with the topic of environmental communication to gain relevant and rich data; these practitioners are considered “key informants” (Deming & Swafield, 2011, p154). The geographic location of these projects, and the design consultants who did the work, ensured that I could conduct the interviews in person. The key informant also had to be a landscape architect.

I browsed the Canadian Society of Landscape Architect’s award winners from the last 10 years to select my projects and their firms. Each is a past recipient of a Regional

Award in different design categories. Selecting former award-winning projects ensured a level of design quality and professional experience for the firms I would interview. After contacting six firms in the GTA, five firms confirmed their interest and availability to participate in an interview. I reached out to specific landscape architects at each firm but also gave them the opportunity to invite a different team member to participate. The firms and the key informants' names have been kept confidential.

Method 5: Conduct Semi-structured Interviews

A component of my research goal is to explore how environmental communication strategies apply to landscape architecture. I sought to address this goal through conducting semi-structured interviews, which is a type of interpretive research method that collects information on what others have experienced and tries to understand meaning in the responses (Deming & Swafield, 2011). The interview had a clear structure that was repeated with each key informant, but the questions remained open enough to allow the interviewer to provide follow-up questions, and to allow the key informant to offer information, opinions and ideas. I chose to conduct semi-structured interviews in an effort to achieve my research objectives without projecting my opinion as the researcher.

In-depth interviews occur as a one-to-one in-person conversation. To maintain confidentiality for the key informants, each was assigned a code (e.g. Landscape Architect 1, etc.). Interviews were recorded and transcribed using the software

application *Otter ai*, and the resulting transcripts were analyzed using the nine key environmental communication strategies.

Semi-Structured Interview Questionnaire

The interview questions were developed based on the nine key environmental communication strategies that emerged from the Concept Matrix process and the critique of the Concept Matrix by a communications professional. My questions were aimed particularly at the environmentally-focused work of the key informants. Below is the questionnaire used for the interviews:

Accessible Language

Accessible Language refers to avoiding jargon and using plain language to communicate information about the environment. Does the concept of *Accessible Language* play a role in your design work?

Anthropocentric Perspective

Anthropocentric Perspective acknowledges that humans relate to the environment from their personal point of reference, and addresses how people benefit from environmental wellbeing. Does the concept *Anthropocentric Perspective* play a role in your design work?

Appeal to Emotions

Appeal to Emotions acknowledges the power of evoking certain emotions when communicating about the environment. Emotions like love are favoured over a reliance on fear-based emotions. Does the concept *Appeal to Emotions* play a role in your design work?

Appeal to Values

Appeal to Values refers to the importance of investigating, understanding and appealing to different audiences' values when communicating about the environment. Does the concept *Appeal to Values* play a role in your design work?

Current Timeline

Current Timeline refers to the importance of communicating information about the environment through short, relatable and human-friendly timescales. Does the concept of a *Current Timeline* play a role in your design work?

Human Agency

Human Agency communicates the tangible actions people can take to respond to environmental issues. Does the concept of *Human Agency* play a role in your design work?

Know Your Audience

Know Your Audience refers to understanding and incorporating your audience's perspectives and worldviews when communicating about the environment. Does the concept *Know Your Audience* play a role in your design work?

Local Scale

Local Scale refers to the importance of communicating the direct impacts of broad environmental issues at the scale of local people, flora and fauna. Does the concept of *Local Scale* play a role in your design work?

Storytelling

Storytelling seeks to engage audiences on environmental topics through the use of storytelling tools like sequencing events, introducing local players, and highlighting elements of conflict. Does the concept of *Storytelling* play a role in your design work?

Method 6: Analyze Responses through an Analytical Framework

The interview responses were analyzed using the nine key environment strategies as an analytical framework. I sought to identify patterns in the responses across each interview question. I constructed a chart (see Table 2 in Chapter 4) that summarized responses to each question in a format that would allow for comparison. The results of this analysis can be found in Chapter 4.

Chapter 4: Results and Analysis

This chapter summarizes the results from the following methods (the results of the other methods are in Chapter 3):

2) the development of a concept matrix based on the literature review;

3) a critique of the concept matrix by a communications professional;

6) an analysis of the interview responses using the concept matrix as a framework for analysis.

Concept Matrix

The results of the concept-centric literature review are organized within a concept matrix (see Table 1 below). Each concept is then described in more detail.

Table 1: A concept matrix constructed from a concept-centric literature review.

CONCEPT MATRIX								
LITERATURE SOURCES	CONCEPTS FOUND IN THE LITERATURE							
	ACCESSIBLE LANGUAGE	ANTHROPOCENTRIC PERSPECTIVE	APPEAL TO VALUES	AVOID USING FEAR	CURRENT TIMELINE	INSTILL PRIDE	KNOW YOUR AUDIENCE	LOCAL SCALE
Centre for Research on Environmental Decisions (2009)	X			X	X		X	X
Climate Outreach (2018)	X		X	X	X		X	X
Climate Tracker (2017)	X		X	X			X	
Corner et al. (2018)	X		X				X	X
ECOAmerica (2014)	X	X	X	X	X	X	X	X
ECOAmerica (2016)	X	X	X	X				X
Futerra (2005)			X	X		X	X	X
Futerra (2006)	X		X		X		X	X
Futerra (2010a)	X	X	X	X	X	X	X	X
Futerra (2010b)		X	X	X	X	X	X	X
Jarreau et al. (2017)	X		X	X	X	X	X	X
Ontario Biodiversity Council (2017)	X	X		X	X	X	X	X
PRIC (2013)	X		X	X		X	X	
PIRC (2018)	X		X	X		X	X	
The National Audubon Society (2011)	X	X	X				X	X
United Nations Environment Programme (2005)		X		X			X	

Accessible Language

When audiences cannot understand what is being communicated, they do not have a chance to connect with the message. Effective environmental communicators attempt to simplify complex concepts by avoiding jargon, using plain language and being clear and to-the-point (CRED, 2009; ecoAmerica, 2014; Jarreau et al., 2017; OBC, 2017). Analogies and metaphors can create mental shortcuts for people (Corner et al., 2018; ecoAmerica, 2014; OBC, 2017). Accessible language also involves selecting appropriate words to evoke the desired feelings or experiences for your audience (Futerra, 2006; TAS, 2011). Words can stimulate certain frames in the brain and influence how people think or respond (PIRC, 2013).

Anthropocentric Perspective

People relate to the world around them from within their own personal point of reference. We are “the center of our own universe” (OBC, 2017 p10). It is important to accept that most people are humanists or egoists when it comes to their relationship with the environment – nature is not always viewed as having intrinsic value (Futerra, 2010b; OBC, 2017). It is effective to identify what your audience gains personally by choosing to value the environment (ecoAmerica, 2016; Futerra 2010a; TAS, 2011). People rely on healthy functioning ecosystems and value the benefits that nature provides for their health and wellbeing (Futerra, 2010b). The human health frame is an increasingly popular way to engage audiences on the personal effects of environmental issues (ecoAmerica, 2014).

Appeal to Values

Communication becomes meaningful when you understand what your audience values and you speak to those values (Futerra, 2010b; Jarreau et al., 2017; TAS, 2011). Environmental communication has often failed to consider the viewpoints and values of people who think differently than environmentally-conscious audiences (Jarreau et al., 2017). Effective communicators speak directly to an audience's values instead of trying to force them to adopt new values (ecoAmerica, 2016; Futerra, 2006, 2010a; Jarreau et al., 2017). Choosing frames that are consistent with your audience's values ensures information is more engaging and readily digested and not filtered out (Corner et al., 2018; ecoAmerica 2014; TAS, 2011). Avoiding the use of contradicting values in the same narrative alleviates cognitive dissonance, or inconsistency between information and beliefs (Climate Tracker, 2013; PRIC, 2013). There is some debate in the literature as to which values should be appealed to; some authors argue the focus should be on "self-transcending values" over "self-enhancing values" (Climate Outreach, 2018; PIRC, 2013, 2018).

Avoid Using Fear

Fear is sometimes used by communicators in an attempt to capture an audience's attention (Climate Tracker, 2017). Images of impending doom and human suffering trigger a phenomenon in the brain called the heuristic switch that cause people to expect what they can imagine most vividly (Futerra, 2010a). People have a limited capacity for how many things they can worry about, and will experience emotional

fatigue from repeated exposure of fear-based messages (CRED, ecoAmerica, 2014). Using fear as a communication strategy was found to create barriers to audience engagement as it bred a sense of hopelessness, apathy and a “perceived lack of control” over one’s circumstances (Futerra 2005; Jarreau et al., 2017 p158; OBC, 2017; PRIC, 2013; UNEP, 2005). One method to overcome this barrier is to leverage the heuristic switch phenomenon by helping audiences to vividly imagine a desirable sustainable future scenario (ecoAmerica, 2014; Futerra, 2010a).

Current Timeline

Environmental issues operate within timeframes that often fail to engage audiences because of a perceived temporal distance from them (OBC, 2017). People tend to discount events or threats that are communicated too far in the future (CRED, 2009; ecoAmerica, 2014; Futerra, 2006). As with geographic scale, meaningful engagement happens within timeframes and contexts that are relatable to someone’s everyday life. The present is the most effective timeframe to reference, and a timeline of five years is considered a human-friendly scale with which to communicate conservation concepts (ecoAmerica, 2014; Futerra, 2010a, 2010b; OBC, 2017).

Instill Pride

Communication that focuses on appreciation is engaging and inspiring (Futerra, 2010a). Pride for the environment appeals to our emotional connection with nature and focuses our attention on cherishing what we still have (Futerra 2010b; OBC, 2017). One analysis of successful biodiversity campaigns found that connecting to feelings of pride

was the most valuable emotion for engagement (OBC, 2017). Instilling pride on a local scale in one's own community can trigger a sense of place attachment (Jarreau et al., 2017). When taking pride in nature, we can be motivated towards stewardship (OBC, 2017).

Know Your Audience

Targeted messaging is an effective and classic marketing concept (CRED, 2009; Futerra 2005, 2006, 2010a, 2010b; Jarreau et al., 2017; TAS, 2011; Thompson et al., 2016; UNEP, 2005). Targeted messaging segments audiences purposefully by their similarities. People receive and relate to information through the filter of their mental models, and communicators frame information to be compatible with these models (CRED, 2009). Knowing how your audience receives and relates to information is integral for relevant communication (CRED, 2009; Futerra, 2006; TAS, 2011). This strategy involves doing research on your audience and engaging with them to better understand what motivates, inspires and challenges them (TAS, 2011; UNEP, 2005).

Local Scale

The impacts of environmental issues such as biodiversity loss and climate change occur over vast geographic scales. Communicating at this scale is challenging and can leave audiences feeling either overwhelmed or disengaged with the information being presented (Futerra, 2005; OBC, 2017). Communication that links macro-environmental issues to local imagery and contextual analogies is referenced multiple times in the literature as an effective strategy (Corner et al., 2018; Futerra 2005, 2006,

2010a, 2010b; Jarreau et al., 2017). Local narratives about local environments are relatable and become platforms for understanding complex global environmental issues (ecoAmerica, 2014; Futerra, 2010b).

Concept Matrix Critique by a Communications Professional

Below are key points from the communications professional's critique:

- Communication is always an exchange between two or more parties, the communicator and the audience. I was asked to clarify who each party was in the context of my research. I stated that the communicator was the landscape architect, and the audience was the site users of their projects. Site users are typically the general audience, but could be a targeted audience like a specific neighbourhood population.
- We spoke about the difference between communication that tells people what to think and that which draws an audience's attention but lets them come to their own conclusions. I mused that the focus on my research was not behaviour modification but on bringing awareness to environmental stories or issues in a way that responds to many people's disconnection from the environment.

Could you review my eight key concepts and verify whether they are prevalent communication strategies?

- All eight concepts were confirmed as strategies used by communication professionals.

- *Anthropocentric Perspective* was noted as an important concept and one that addressed the disconnect between people and nature, putting the audience of the communication “into the picture” and addressing “why does our audience care about this?” This is often an overriding question that determines whether or not a communicator might even communicate a message or story.
- *Local Scale* and *Current Timescales* were connected concepts that related with *Anthropocentric Perspective*. “Why does this matter to me at home?” is the question being responded to within this concept. These concepts find the local players that make these messages relatable.
- *Accessible Language* was noted as key to communication work. An audience’s attention is lost if jargon is used and explanations are not crafted for a general audience.

Am I missing any important environmental communication strategies?

- Conflict resolution was identified as a communication concept that was missing from the matrix. Conflict was described as an inherent part of storytelling that tells of the tension between players, and the resolutions that result. It was suggested that this concept could be captured within the terms *Conflict Resolution* or *Storytelling*.
- The concept of “So what?” was also missing. This concept addresses the human agency that goes along with complex environmental issues and themes. Noting the small things that people can do in response to what is being communicated

allows people to feel less overwhelmed and disconnected. I chose to refer to this concept as *Human Agency*.

Are my concept titles appropriate word choices to describe these concepts, or are there more fitting communication terms for these concepts?

- The concept *Avoid Using Fear* fits more appropriately under a heading that speaks to the full spectrum of activating human emotions during communication. *Appeal to Emotions* is a concept title that is more encompassing of the range of human emotions.
- The concept *Instill Pride* fits more appropriately within the concept of *Appeal to Values*, as pride is a response to something someone values.

As a result of this method, my existing concepts were consolidated into more encompassing concept titles, and new key concepts were added. The resulting nine key environmental communication concepts are listed alphabetically below.

Key Environmental Communication Strategies:

- **Accessible Language**
- **Anthropocentric Perspective**
- **Appeal to Emotions**
- **Appeal to Values**
- **Current Timeline**
- **Human Agency**

- **Know Your Audience**
- **Local Scale**
- **Storytelling**

Analyze Responses through an Analytical Framework

Key Informant responses were analyzed using a framework based on the concept matrix (see Table 2 below).

Table 2: Interview response analysis.

INTERVIEW RESPONSE ANALYSIS									
KEY INFORMANT	CONCEPTS FOUND IN THE LITERATURE								
	ACCESSIBLE LANGUAGE	ANTHROPOCENTRIC PERSPECTIVE	APPEAL TO EMOTIONS	APPEAL TO VALUES	CURRENT TIMELINE	HUMAN AGENCY	KNOW YOUR AUDIENCE	LOCAL SCALE	STORYTELLING
LANDSCAPE ARCHITECT #1	<p>YES</p> <ul style="list-style-type: none"> Ensuring terminology is universally understandable in public meetings Thought about when preparing public presentations Make design communication/stories self-evident; immersive experiences Plain language in interpretive elements Multi-demographic audience makes it challenging to attain universal understanding 	<p>YES</p> <ul style="list-style-type: none"> How do you assign value to a landscape? It is not just about the direct function of something like a storm-water pond, but the benefits downstream as well (drinking water, recreation) It is more challenging to sell an idea for a landscape where people are not a part of it 	<p>NO</p> <ul style="list-style-type: none"> Emotional overtones are more prevalent in commemorative work, versus environmental work 	<p>YES</p> <ul style="list-style-type: none"> This concept is a precursor to design All projects start with objectives that originate from the values of community groups or site users Values are understood through the consultation process Values are things that people appreciate Values are then overlaid with the corporate mission Try to ensure that design benefits the most amount of people Environmentally-focused design solutions can bring secondary benefits to the community 	<p>NOT REALLY</p> <ul style="list-style-type: none"> Design timelines are critical Current timelines are not as relevant, as projects have a long life span When working with big environmental/restoration project, people do understand that change does not happen overnight Implementation-style projects are more time-sensitive The example of losing residential trees to the Emerald Ash Borer has taught people that things in nature take a long time to establish 	<p>NOT IN DESIGN, BUT IN MESSAGING</p> <ul style="list-style-type: none"> Terminology of this question is confusing – inspiring stewardship may be more appropriate Question of how people can have a positive impact on their daily landscapes There are ancillary benefits to inspiring stewardship Can be the catalytic part of a project Required a degree of educating audience Success comes from planting the seed, providing support and focusing actions on tangible results You do not want to inspire stewardship that is going to fail There is lots of engagement and success with these types of community-driven projects Showing people costs or physical examples so they see how easy it can be 	<p>YES</p> <ul style="list-style-type: none"> This theme is critical to how you design and communicate your design You are always communicating at different levels It is important to think about how your audience is going to receive your message Programming relies on knowing what people want to do Collecting feedback is an increasingly challenging task; attention spans are getting shorter Various means of engagement to respond to this challenge (dialog, interviews, surveys, 3D visualizations) 	<p>NOT SCALE, BUT OWNERSHIP</p> <ul style="list-style-type: none"> Terminology of this question is confusing – scale means something different in design About knowing what stake people have in the place you are working Question of how larger projects relate to the community level Do not see a parallel between the scale of the project and the scale of the public interest 	<p>MOST PROJECTS</p> <ul style="list-style-type: none"> Weave storylines into most projects Natural heritage projects will also draw on cultural heritage elements to tell the story of a landscape People are interested in the stories about how people have shaped the landscape Storytelling is sometimes about cause and effect Trail design allows for sequencing, strong storytelling and framing views Storytelling can be playful and informative There can be dual storytelling between design and signage Working with artists is a way to strengthen storytelling element

INTERVIEW RESPONSE ANALYSIS									
KEY INFORMANT	CONCEPTS FOUND IN THE LITERATURE								
	ACCESSIBLE LANGUAGE	ANTHROPOCENTRIC PERSPECTIVE	APPEAL TO EMOTIONS	APPEAL TO VALUES	CURRENT TIMELINE	HUMAN AGENCY	KNOW YOUR AUDIENCE	LOCAL SCALE	STORYTELLING
LANDSCAPE ARCHITECT #2	<p>YES</p> <ul style="list-style-type: none"> • Landscape architecture is filled with jargon • Public consultation work starts with a glossary of terms • Careful with word choices as they raise different associations for different people • In consultation work, you can communicate by asking people direct questions that you can relate to design; (how do you get to work – that describes wayfinding) • Requires rehearsing before meetings and putting yourself in audience's shoes • Requires understanding cultural dynamic of audience • Shifting use of language to get people interested in a project (ex. meadow vs. wildflower meadow) 	<p>LOADED QUESTION (I'D INTERPRET NO)</p> <ul style="list-style-type: none"> • Philosophy of deep ecology and holistic worldview guide design – not an anthropocentric view • Holistic view is hard for people to accept because of our relationship over resources; it has a selling problem • Using metaphors and analogies allows you to bring people to a mutual understanding • Framing problems as puzzles helps to spur creative thinking 	<p>YES</p> <ul style="list-style-type: none"> • Appealing to emotions is fundamental • People want to express their emotions about nature and design but may have anxiety to do so • Landscape architects have to be sensitive to creating environments that are comfortable for people • Try to understand people's emotions as best you can, this is tricky to do with our own personal interpretations 	<p>(I'D INTERPRET YES)</p> <ul style="list-style-type: none"> • Our values dictate our understanding of how nature works • Our profession understands the interconnectedness of systems • Different groups will experience sharing their values differently • Good design takes different parts to make a cohesive whole 	<p>IT DEPENDS</p> <ul style="list-style-type: none"> • Timeline depends on the project, client and feelings towards the project • Timelines vary for scales of projects and types of clients 	<p>AGENCY IS A LOADED WORD</p> <ul style="list-style-type: none"> • The terminology is loaded with meaning • Community engagement makes more sense as a term here • Success from how you present the information – working "with the landscape" versus it being another thing you have to do • Examples of successful community and homeowner initiatives when you give people the knowledge and tools to contribute themselves 	<p>YES</p> <ul style="list-style-type: none"> • It is about building trust and rapport • Know your audience through doing engagement and facilitation work 	<p>UNSURE OF HOW THIS WAS INTERPRETED</p> <ul style="list-style-type: none"> • The term scale has broad meanings and understandings • Role of distance when designing a sidewalk or streetscape • The distances between things like front porches can build or inhibit social capital 	<p>YES</p> <ul style="list-style-type: none"> • Plays a role in facilitation work and how you get people to tell stories about how they experience design and landscapes

INTERVIEW RESPONSE ANALYSIS									
KEY INFORMANT	CONCEPTS FOUND IN THE LITERATURE								
	ACCESSIBLE LANGUAGE	ANTHROPOCENTRIC PERSPECTIVE	APPEAL TO EMOTIONS	APPEAL TO VALUES	CURRENT TIMELINE	HUMAN AGENCY	KNOW YOUR AUDIENCE	LOCAL SCALE	STORYTELLING
LANDSCAPE ARCHITECT #3	<p>YES</p> <ul style="list-style-type: none"> • There have been instances in public meetings where people do not like certain word choices • Sometimes in communicating and elevating design work, it can separate us from the people you are designing for • It requires packaging and presenting it at different language levels to different audiences • This concept comes up when proposal writing 	<p>INTERESTING QUESTION</p> <ul style="list-style-type: none"> • More crucial to communicate public benefits than science benefits • Their approach is about how design impacts people and public life • Some places and projects lend themselves to talking about different kinds of benefits 	<p>I DON'T THINK SO</p> <ul style="list-style-type: none"> • History plays a big role in engaging people's emotions • History is tied to themes of pride and ownership of place 	<p>YES</p> <ul style="list-style-type: none"> • How you frame a project depends a lot on who you are designing for • It is a challenge to do this in spaces that are blank slates (mall redevelopment) • Firm has a set of core values of what is important to incorporate • Sense that people do not connect with the metrics of a project • People are more engaged with things that are important or relate to them (like a certain bird species) 	<p>NOT REALLY</p> <ul style="list-style-type: none"> • People are most interested in immediate timelines for residential design • Public space design operates on 3-5 year timelines and beyond these people are not as interested in what is happening • Larger projects require communicating on longer time scales 	<p>HARD TO IMPLEMENT</p> <ul style="list-style-type: none"> • Incorporating human agency into a design project is hard to implement • This often does not succeed without curation or management of a program • Agency does not happen without someone facilitating the agency • People do not always know how to interact with nature or with what you have designed • Educating the public is also needed 	<p>TRICKY</p> <ul style="list-style-type: none"> • Design work does take the community into consideration • This concept is not a guarantee that we will do something in design just because people have a particular view • Public engagement also involves guiding expression because of client agendas • You cannot learn much about visiting a site as an outsider, you need to talk to community and interest groups • People tend to be more honest when the feedback is anonymous 	<p>NO, I DON'T THINK SO</p> <ul style="list-style-type: none"> • Thinking about broader environmental issues is inherent in our work • Sometimes communicating issues is scary and people want to focus on the fun aspects of design • Try to educate people about things like urban tree survival • Plant material selection is limited because of tougher climate and pollution conditions <p>We need to manage expectations for the feasibility of what can and cannot be planted in a space</p>	<p>HISTORY YES, ENVIRONMENT NO</p> <ul style="list-style-type: none"> • A lot of storytelling about history • Natural history is sometimes included • It can be hard to tell stories about things such as change in forests • Example of bringing a buried creek to the surface in a current project, and how this is not treated as storytelling but inherent in their design thinking

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	ACCESSIBLE LANGUAGE	ANTHROPOCENTRIC PERSPECTIVE	APPEAL TO EMOTIONS	APPEAL TO VALUES	CURRENT TIMELINE	HUMAN AGENCY	KNOW YOUR AUDIENCE	LOCAL SCALE	STORYTELLING
LANDSCAPE ARCHITECT #4	YES <ul style="list-style-type: none"> • Think about this concept regarding font size, colour, contrast and accessibility polices • Try and create signage that is tactile for the visually impaired 	YES <ul style="list-style-type: none"> • Our job is to incorporate a variety of interests, perspectives and stakeholders and translate those into design • Design professionals have to be mindful that they are designing for all the players involved, not just the greater good • It would be naïve not to consider the human perspective • An act of trying to get the most out of every project; in addition to sustainability, there are things like economic development that have to be incorporated 	YES <ul style="list-style-type: none"> • As creative professionals, we are moved by emotion • We see what is beyond the surface and evoke something beyond the functional • Engaging in poetics allows for an optimistic perspective to being inundated with challenges and constraints • It is about uncovering the spirit of the place 	YES <ul style="list-style-type: none"> • Values and interests are intertwined • Our role is the glue that keeps all the parties together and the funnel that all the values come through • We need to stay connected to all of the players at the same time • Have to listen and ask questions • With clients, the public and the law: 3 sets of values you are designing for • Gaining consensus and common ground allows for project efficiency 	I THINK SO <ul style="list-style-type: none"> • Current timeline is unfortunate • It has to be a timeframe that people understand and we understand • Would like to think about longer timelines; however, scope of projects do not always allow this • As landscape architects we are aware of the influences of time, change and climate on a landscape • People understand timelines when they are associated with function of projects • Landscapes are malleable 	NO, I WOULD LOVE TO <ul style="list-style-type: none"> • A lot of our trail designs are made to keep people away from certain areas • In conservation areas nature takes priority and humans take a back seat • Using narrow paths and open vistas tell people where they can and cannot go • We could do a better job understanding human agency, we tend to expect the worst of people • We do not have the time to facilitate this 	YES <ul style="list-style-type: none"> • This is a challenge • There is a tension between people having opinions about what should happen; however, they do not have the expertise or information of design professionals • We want to open people's minds to the possibilities, and mindful of own bias • Asking questions to identify the potential of the design and the site, not about having a definitive idea 	TO SOME EXTENT <ul style="list-style-type: none"> • We are inherently aware of soil conditions, native vegetation and climate • Aware of the presence of local importance within broader systems • Example of a project where it was important to create iconic signage to alert people to the fact the site was ecologically significant to a broader continental migratory route and convinced client of this 	YES <ul style="list-style-type: none"> • Thinking about this all the time • Especially with trail design work • People experience a sequence of events that are revealed and highlighted during trail use • Think of trail design as writing a script that is all based on a narrative

INTERVIEW RESPONSE ANALYSIS									
KEY INFORMANT	CONCEPTS FOUND IN THE LITERATURE								
	ACCESSIBLE LANGUAGE	ANTHROPOCENTRIC PERSPECTIVE	APPEAL TO EMOTIONS	APPEAL TO VALUES	CURRENT TIMELINE	HUMAN AGENCY	KNOW YOUR AUDIENCE	LOCAL SCALE	STORYTELLING
LANDSCAPE ARCHITECT #5	<p>YES</p> <ul style="list-style-type: none"> • As soon as you use jargon you are not on the same playing field as people • Typically you want to make things simple and easy for people to understand so that you can move forward with consensus • You need to know when to use jargon • Jargon could make sense to certain audiences (engineers) or you may want to use it to demonstrate a level of expertise • We have the ability in our profession to pull players together 	<p>I DON'T THINK ABOUT THIS AS A SEPARATE ITEM</p> <ul style="list-style-type: none"> • We need to put aside the notion of what nature is or that it needs to look a certain way • We personally take a design approach that is an organic response to what seems natural to us as humans 	<p>YES, I THINK SO</p> <ul style="list-style-type: none"> • Hard to pinpoint certain emotions • There are positive and negative emotions within everything, idyllic approach to try and get everyone happy • We try to remove the negative through crime prevention through design, and focus on positive emotions that we are designing for 	<p>YES</p> <ul style="list-style-type: none"> • Concept is so important • If you do not understand the value of current or future people then you have failed • We strictly design based on context • Stakeholder engagement is essential for any project • Working in isolation does no service to the project • We shape the land and the land shapes us, so design that is uninformed can shape us negatively 	<p>YES</p> <ul style="list-style-type: none"> • Not one project where concept of timeline is not brought up • People usually want things done quickly • You can communicate the value of designing something properly by showing people the transformation timeline and what can come of it in a few years • When doing neighbourhoods, public realm gets done first, the profession knows that landscapes need time to mature and that they set the tone for the community 	<p>YES</p> <ul style="list-style-type: none"> • Concept plays a role in every project, always look for an opportunity to do so • Human agency makes the project stronger • Themes of ownership and stewardship come up • In projects where this is present there is more engagement after the design is done • Leaving spaces for people to get involved and be creative • Sometimes it is difficult to do in large scale projects, who is the agent 	<p>YES</p> <ul style="list-style-type: none"> • You need to understand people and they need to understand you • Example of knowing when to use certain jargon • Clients are usually looking for money, so it can feel like you are pitching sustainability, but things are changing • Good design speaks for itself and is the best marketing for why something works 	<p>YES</p> <ul style="list-style-type: none"> • We think about this concept a lot • We see the trends of climate change and we will point out examples of this • We always remind people that we have to be more resilient and certain things may not be feasible in a few years • Example of fluctuating water levels in Southern Ontario a few years ago; this is something we can point to as an example when talking to people 	<p>YES</p> <ul style="list-style-type: none"> • Design is all about stories • You cannot take someone along with your idea without telling them a story • Stories are how you engage people • You want to pull people into the story • Not just us telling stories; there are stories the landscape is telling us about what is happening

In analyzing the key informant responses, each question produced a yes, no, or uncertain response as to whether that concept played a role in their design work (see Figure 2). While the focus of my questions was on the environmental work of these professionals, it was often difficult for them to separate out their environmental work from the rest of their work.



Figure 2: A visual overview of interview responses.

Accessible Language (5 Yes)

All five key informants said that the concept of accessible language played a role in their environmentally-focused design work. Four of the five informants mentioned that this concept primarily came up in their public consultation work, with the need to adjust language to ensure comprehension for different audiences (public, stakeholders, policy makers, engineers etc.); one of these five informants mentioned that this concept came

up through design communication, and in making certain items in the landscape evident to those experiencing the landscape. One of the five informants mentioned that this concept came up in their work with accessibility standards, ensuring items like font size and colour in written work complied with accessibility guidelines. Other interesting points on this topic occurred in isolated instances: One of the five informants countered the absoluteness of this concept, mentioning that jargon could be used intentionally to attain certain outcomes in instances where you wanted to affirm your professional expertise. One of the five informants stressed the power of words (for better or worse) to evoke certain responses in audiences and make them more or less engaged.

Appeal to Values (5 Yes)

All five key informants said that the concept of appealing to values played a role in their environmentally-focused design work. All five informants mentioned that this concept came up during the design process, where understanding people's values and preferences help to guide successful designs. All five informants mentioned that understanding these values came from public engagement work. Four of the five informants stated that this concept includes multiple sets of values; the values of the public, the values of their clients, and some mentioned their own values as a firm or as a designer. One of the five informants mentioned that measuring the environmental success of designs through the use of metrics was useful for their firm but not of interest to the public. There is a common theme in each response that describes the role that the professional plays in trying to collect, interpret and respond to the values of various stakeholders. Some informants mentioned that appealing to values helped reach a

consensus on a practical side to move projects forward; other informants mentioned that reaching a consensus was integral to having good responsive design.

Know Your Audience (4 Yes, 1 Maybe)

Four of the five key informants said that the concept of knowing your audience played a role in their environmentally-focused design work. One of the five informants mentioned that this concept was tricky to achieve, and that, although they used a number of methods to get to know their audience's worldviews, this did not guarantee that they would respond to those worldviews. All of the informants mentioned that they sought to know their audience through various forms of public engagement. Four of the five informants mentioned that this concept was challenging to implement for various reasons including shorter attention spans, incongruent preferences, and needing to maintain a level of design control and expertise over the direction of the project.

Storytelling (4 Yes, 1 No)

Four of the five key informants said that the concept of storytelling played a role in their environmentally-focused design work. Three of the five informants mentioned that this concept came up in their design communication: incorporated into their projects are design features that tell stories about environmental elements, and storytelling tools are used, such as sequencing events to take site users on a journey in which they become a part. One of the five informants mentioned this concept came up in their facilitation work, in the form of helping people reveal their own stories about design preferences and landscapes. One of the five informants mentioned that they did not tell

stories about the environment in their work, but that they did tell stories about the history of a site. Two of the five informants used the word *narrative* to describe how they employ the concept of storytelling. Two of the five informants mentioned this concept played a central role in their work on trail design.

Anthropocentric Perspective (3 Yes, 2 No)

Three of the five key informants said that the concept of anthropocentric perspective played a role in their environmentally-focused design work. These three informants consider this concept when developing design concepts; two noted that people want to see themselves in the landscapes and see the benefits to their public life in the landscape; one noted that it is a pragmatic approach to design for people's needs in a landscape as well as trying to affect the greater good. Two of the five informants did not think this concept played a role in their design work; one informant preferred to call their approach a holistic one, where humans are not considered the center of the design; the other informant did not see this concept as a separate consideration in their design work, that their work went beyond traditional ideas of people and nature and responded to what felt organic at the time.

Appeal to Emotions (3 Yes, 2 No)

Three of the five key informants said that the concept of appealing to emotions played a role in their environmentally-focused design work. Two of the three informants mentioned that this concept played a role in the way they designed spaces; one informant mentioned that positive and negative emotions could be elicited in any space

but that they try to design to promote positive emotions and limit negative ones through design choices; the other informant saw this concept relating to identifying the poetics of a landscape and the spirit of a place, and then revealing this to site users through design. One of those three informants saw this concept playing a role in their facilitation work and getting people to open up about their feelings, and in how they designed landscapes that were sensitive to being comfortable for people. Two of the five informants did not think this concept played a role in their design work; one informant mentioned the use of emotions in their commemorative work, not their environmental work; the other informant acknowledged the power of instilling pride in a place but mentioned that emotions played more of a role in their historically-focused design work.

Current Timeline (2 Yes, 1 Maybe, 2 No)

Two of the five key informants said that the concept of a current timeline played a role in their environmentally-focused design work. These two informants mentioned this concept came up constantly when discussing timelines with clients, and involved communicating the time scale that landscape changes would happen within and prioritizing certain elements of projects (like the public realm) when working within project phases. One of these two informants viewed this concept somewhat negatively, in that this posed a challenge for meeting and managing client's expectations on project timelines. One of the five informants mentioned that they thought about operating on current timelines depending on the project and how they felt about it. Two of the five informants did not feel that they thought about current timelines in their design work; one of these two thought about the large timelines and lifespans that their projects had

and thought that people could understand and connect to these longer timescales for larger projects; the other thought that immediate project timelines were what clients and the public were interested in, and that later timelines did not generate interest. They also mentioned their project timelines relied on the scale of the project and the groups being engaged. All five informants interpreted this concept as the timelines their projects operate on in their practice.

Human Agency (1 Yes, 3 Maybe, 1 No)

One of the five key informants said that the concept of human agency played a role in their environmentally-focused design work. This informant mentioned that they hoped to incorporate this in all projects and that, in cases where the communities are given agency and ownership over their spaces, the most engagement would happen. Three of the five were less certain that this concept played a role, but also gave some examples of how this concept would be implemented in their practice. Two of these three informants mentioned the role of educating and empowering neighbourhoods to stage their own environmental interventions (rain gardens, nurseries to assist in combating soil erosion, homeowner guides); one of these three informants thought the concept was difficult to apply, because in order to achieve agency, there was a fair amount of programming and ongoing management that would need to happen. One of the five informants did not think this concept played a role in their design work, but they wished that it did; this informant acknowledged that they often designed ways to keep people out of certain landscapes on the assumption that people would not use their agency to respect significant areas of the environment.

Local Scale (1 Yes, 3 Maybe, 1 No)

One of the five key informants said that the concept of a local scale played a role in their environmentally-focused design work. This informant mentioned that this concept came up when they thought about their design responses and the trends of climate change; they often communicate to clients on the effects of severe flooding in Southern Ontario. Three of the five were less certain that this concept played a role; one informant did not see a correlation between the scale of the project or interest groups and the level of engagement; one informant interpreted this in the way that distances between objects (like front porches) play a role in shaping experiences in our public realm; the other informant shared that thinking about local vegetation and climate was inherent in the work the field does, and mentioned a time when they were able to convince a client to adopt a locally significant piece of interpretive iconographic signage. One of the five informants did not think this concept played a role in their work; however, they also mentioned that thinking about appropriate plant choices and things like road-salt conditions were inherent in their work, and that sometimes communicating environmental messages can be scary to people. A common theme across the responses was that the word *scale* meant many different things to landscape architects.

Chapter 5: Discussion

This chapter presents a discussion on what this research has revealed by investigating environmental communication strategies in landscape architecture.

Application of Strategies in Landscape Architecture

Certain environmental communication strategies played a role in the key informants' design work more than others. An analysis of interview responses revealed that the concepts of *Accessible Language* and *Appeal to Values* were incorporated into each key informant's environmentally-focused design work. With *Accessible Language*, key informants acknowledged that vocabulary played a powerful part in shaping the understanding of design ideas with different audiences. Adjusting word choice and analogies in public consultation work ensured comprehension for different audiences (public, stakeholders, policy makers, engineers etc.). Language could also be used to entice audiences; in one example, describing a meadow landscape as a "wildflower meadow" evoked inviting associations of beauty and butterflies. With *Appeal to Values*, there was consensus on the role of landscape architects in consolidating and responding to different stakeholders' values. In alignment with environmental communication research, by using these strategies designers were promoting engagement with, and a better understanding of, the natural environment.

The least applied concepts were *Human Agency* and *Local Scale*. There was only one definitive acknowledgment of the incorporation of these two concepts in

environmentally-focused design work. Interestingly, while some key informants were unsure if *Human Agency* played a role in their design work, each key informant followed up their response with an example of how they have considered or incorporated this concept. I also anticipated that key informants would identify the concept *Local Scale* as playing a larger role in landscape architecture design work, as knowledge and communication of hyper-localized landscape elements seem inherent in this practice. A few key informants seemed to suggest that this was so embedded in landscape architecture design work that they did not consider it to be a separate concept in their design work, or something that they communicated about purposely. Contradictions between initial responses (yes, no, unsure) and their elaborated responses may indicate that my concept titles or definitions were unclear, or that some elements of design work are so ingrained that it is challenging for senior practitioners to separate them out in the context of a brief interview.

Further Refining Concepts for Future Research

Each concept in my questionnaire had a brief associated explanation embedded in the question. Despite this, in some instances, key informants interpreted the concepts to mean different things than what is defined in the environmental communication literature. I tried not to guide the key informants' responses to align with how environmental communication understood these concepts; instead, I let the key informants interpret the question as it made sense to them and let the data reveal itself. The lesser-applied concepts from my key informant interviews (*Anthropocentric*

Perspective, Appeal to Emotions, Current Timeline, Human Agency and Local Scale) were concepts that required more clarification than the more applied concepts (*Accessible Language, Appeal to Values, Know Your Audience and Storytelling*).

The differences in interpretation reveal that these concepts in their current wording and explanation may not directly translate or have the same meaning in landscape architecture. Words such as *Scale* and *Timeline* mean different things to landscape architects than they do to environmental communicators. Refining these nine key environmental communication strategies into more comparable titles and explanations might yield richer insights into whether the concepts play a role in design work, and how exactly they translate into techniques and processes that are used within design work.

Ethical Implications of Communication Strategies

An overarching theme woven throughout all the key informant interview responses was the use of discretion in adopting the key communication strategies in design work. Key informants were not motivated to respond to every value, opinion or worldview of the audiences they were communicating with and designing for. Where environmental communication often seeks to promote widespread dissemination, and tailors messages to speak to an audience's specific perspectives and worldviews, key informants filtered their audience's perspectives against either their personal or their workplaces' set of values.

Landscape architects may also choose to include elements in a project, or attempt to persuade clients to adopt certain design decisions, based on their professional expertise and what they feel to be environmentally significant. In one example, a key informant felt that it was important to create artistic signage for an environmentally-significant landscape in order to identify the specialness of the place. Advocating on behalf of the environment may mean that certain projects are not undertaken, or that certain design decisions require pitching to stakeholders or the public. In instances where an environmental design decision feels fundamental to the professional's vision of the site, landscape architects can utilize the knowledge of environmental communication strategies to try and gain consensus with stakeholders and the public.

Professional landscape architecture associations, such as the American Society of Landscape Architects (ASLA), are bound by a *Code of Environment Ethics*, which outlines standards for promoting and advocating for environmentally-sensitive design practices (ASLA, 2017). Professionally licensed landscape architects also voluntarily adhere to a *Code of Professional Ethics*, which, in its opening canon, references the need for “honesty”, “dignity” and “integrity” in both action and communication (ASLA, 2015). In a way, the ethical responsibility of landscape architects as environmental communicators is outlined in these two codes and can serve to guide the use of communication strategies (see Figure 3).



Figure 3: The ethical responsibility of landscape architects as environmental communicators is outlined in these two professional codes.

Research Limitations

As with most research, there were inherent limitations in my research process.

Sample Size and Representation

I recognize the sample of landscape architects I interviewed was limited by geographic area and by the time I could allocate to this work; the key informants whom I interviewed are not meant to be representative of the opinions of all landscape architects. Landscape architects in different parts of the world exist within societies that may view nature differently. To that point, the societal narrative of nature being separate from humans is a recent Western perspective that is a product of its time and culture, but is certainly not the only societal narrative on nature.

Interpreting Interview Questions

When conducting semi-structured interviews, the wording of the interview questions can have a significant effect on the interpretation of the question being asked, as certain words will produce different meanings and associations to different people. Although a researcher may strive for clarity in interview questions and explanations, this is an unavoidable factor of communication. Every person understands things from their personal point of reference, and this will inevitably influence what kind of responses you receive.

The Issue with Focusing on the Environment

I sought out projects and associated firms that have a strong ecological or environmental narrative or design intent in their work in an attempt to narrow my focus. Landscape architects can also focus their design narratives on cultural history, the identity of the communities they are designing for, or even imagined fictional landscape narratives. While landscape architects inherently design in the realm of outdoor spaces, not all of their work is considered to be environmentally-focused.

Through my conversations with landscape architects, it was challenging to get responses that were specific to environmentally-focused design work only. Often the responses I received would be examples from various types of design work or from the design process in general. A few key informants commented on the challenge of thinking in this narrower way, as considering factors like soil conditions, plant selection and climate were considered inherent parts of all of their work. The subsequent

challenge of focusing strictly on environmental design decisions could have influenced the key informants' responses to my questions. In hindsight, I could have provided key informants with a definition of what I considered to be environmentally-focused design work in the context of my thesis, or shared examples of their environmentally-focused design projects that I had isolated during my selection criteria.

Technology

The use of technology, such as my phone application *Otter.ai*, also comes with its challenges. I got a phone call while recording one of my interviews, and in an attempt to silence the ringer, I also unknowingly pressed a button that mutes the microphone in the application. I would recommend using a designated recording device and taking detailed notes so as to avoid mishaps like this. The application is also quite new, and the quality of transcription was not perfect; therefore, I still had to listen back to my audio recording and take my own notes.

Chapter 6: Conclusion

Future Research

There is evidence that landscape architects engage in environmental communication verbally throughout the design process, and visually through design execution. Investigating the application of environmental communication strategies in this thesis was exploratory research that has presented opportunities for future areas of study. Translating environmental communication strategies into compatible design terminology before speaking to landscape architecture professionals could yield a better understanding of how these strategies are operationalized in design. A toolkit of approaches to promote environmental engagement and stewardship within design projects could be synthesized from examples of how strategies are embedded in design practice. Another area for exploration is the role that intuition and repeated practice play in design decision-making, as it appears that elements of design practice become deeply ingrained with experience. Other areas of compatible research could be investigating the role of effective communication in design, the role of narratives and storytelling in design, and the role that environmental ethics plays in landscape architecture practice.

Final Remarks

Landscape architects equipped with an awareness of environmental communication strategies can use this information to communicate the value of nature

to different audiences, and consciously strengthen relationships between humans and the natural environment through design. These strategies can be undertaken to adhere to the profession's *Code of Environmental Ethics* and to advance the environmental advocacy work set out in the *New Landscape Declaration* and the *Canadian Landscape Charter*. Addressing current environmental crises will require a balanced approach that respects the values of humans and considers the values of the environment; a discipline like landscape architecture is well-placed and well-versed to mediate and enhance these relationships.

REFERENCES

- American Society of Landscape Architects. (2015 Amended; 1995 Adopted). *Code of Professional Ethics*.
- American Society of Landscape Architects. (2017 Amended; 2000 Adopted). *Code of Environmental Ethics*.
- Birnbaum, C. A. (September 5, 2018). "Landscape architects can't rely on architecture-centric media". *Dezeen*.
- Centre for Research on Environment Design. (2009). *The Psychology of Climate Change Communication: A Guide for Scientists, Journalists, Educators, Political Aides, and the Interested Public*. New York, NY.
- Center for Research on Environmental Decisions and ecoAmerica. (2014). *Connecting on Climate: A Guide to Effective Climate Change Communication*. New York and Washington, D.C.
- Climate Tracker. (2017). *Fear Doesn't Work: And Other Lessons on Climate Change Communication*.
- Climate Outreach. (2018). *A guide to the science of climate change communication*.
- Comfort, S. E., & Park, Y. E. (2018). On the Field of Environmental Communication: A Systematic Review of the Peer-Reviewed Literature. *Environmental Communication, 12:7*, 862-875.
- Corner, A., Shaw, C. & Clarke, J. (2018). *Principles for effective communication and public engagement on climate change: A Handbook for IPCC authors*. Oxford: Climate Outreach.
- Cox, R. (2007). Nature's Crisis Disciplines: Does Environmental Communication Have an Ethical Duty? *Environmental Communication, 1(1)*, 5-20.
- Cox, R. and Phaedra, C. P. (2016). *Environmental Communication and the Public Sphere* (4th ed.). Los Angeles: Sage Publications.
- Canadian Society of Landscape Architects. (2015). *Canadian Landscape Charter*.
- Deming, E. M. & Swafield, S. (2011). *Landscape Architecture Research: Inquiry, Strategy, Design*. Hoboken, New Jersey: John Wiley & Sons Inc.

- DiCaglio, J., Barlow, K. M., & Joseph S. J. (2018). Rhetorical Recommendations Built on Ecological Experience: A Reassessment of the Challenge of Environmental Communication. *Environmental Communication*, 12:4, 438-450.
- Scheufele, D. A. (2018). Beyond the Choir? The Need to Understand Multiple Publics for Science. *Environmental Communication*, 12:8, 1123-1126.
- Donn, J. (June 2, 1999). Frustration sapping environmental concern, researcher says. *Associated Press state and local wire*. [From Kaplan (2000)].
- Druschke, C. G. & McGreavy, B. (2016). Why rhetoric matters for ecology. *Frontiers in Ecology and the Environment*, 14(1), 46-52.
- ecoAmerica. (2016). *15 Steps to Create Effective Climate Communications*. ecoAmerica. Washington, D.C.
- Futerra Sustainability Communications. (2006). *New Rules: New Game*. London, UK.
- Futerra Sustainability Communications. (2005). *The Rules of the Game*. London, UK.
- Futerra. (2010a). *Sizzle: The new climate message*.
- Hansen, A. & Cox, R. (2015). *The Routledge Handbook of Environment and Communication*. New York, NY: Routledge.
- Holmes, D. (August 22, 2018). How can we better promote landscape architecture? *World Landscape Architect*.
- International Environmental Communication Association. (2013). *Code of Ethics*. [Webpage: <https://theieca.org/code-ethics>].
- International Environmental Communication Association. (2018). *Environmental Communication: What is said and why it matters*. [Webpage: <https://theieca.org>].
- Jarreau, P. G., Altinay, Z. & Reynolds, A. (2017). Best Practices in Environmental Communication: A Case Study of Louisiana's Coastal Crisis. *Environmental Communication*, 11(2), 143-165.
- Jurin, R. R., Roush, D. & Danter, J. K. (2010). *Environmental Communication. Second Edition: Skills and Principles for Natural Resource Managers, Scientists, and Engineers*. New York, NY: Springer Science + Business Media.
- Kaplan, S. (2000). Human Nature and Environmentally Responsible Behaviour. *Journal of Social Issues*, 56(3), 491-508

- Klöckner, C. A. (2015). *The Psychology of Pro-Environmental Communication: Beyond Standard Information Strategies*. London, UK: Palgrave Macmillan.
- Lakoff, G. (2010). Why it Matters How We Frame the Environment. *Environmental Communication*, 4(1), 70-81.
- Landscape Architecture Foundation. (2016). *New Landscape Declaration*.
- McEwen, G. (2014). The Right and the Good: Communicating Environmental Issues. *Earth Common Journal*, 4(1), 1-5.
- Ontario Biodiversity Council. (2017). *Communicating biodiversity & climate change: A guide for crafting effective messaging*.
- Peck, S. K. (June 7, 2012). The need for communication: Finding landscape architecture's voice. *Scenario Journal*.
- Potteiger, M. & Purinton, J. (1998). *Landscape Narratives*. New York, NY: John Wiley & Sons Inc.
- Public Interest Research Centre. (2018). *Framing Nature Toolkit*.
- Public Interest Research Centre. (2013). *Common Cause for Nature*.
- Saunders, C. D. (2003). The Emerging Field of Conservation Psychology. *Human Ecology Review*, 10(2), 137-149.
- Schultz, W. P. & Zelezny, L. (2003). Reframing Environmental Messages to be Congruent with American Values. *Human Ecology Review*, 10(2), 126-136.
- The National Audubon Society. (2011). *Tools of engagement: A toolkit for engaging people in conservation*.
- United Nations Environment Programme. (2005). *Communicating Sustainability: How to produce effective public campaigns*. Nairobi, Kenya.
- Valenti, J. M. (1998). Ethical Decision Making in Environmental Communication. *Journal of Mass Media Ethics*, 13(4), 219-231.
- Webster, J. & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, 26(2), xii-xxiii.