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## Growing with your research

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# Growing with your research

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## Abstract

*Growing with your research* is an exposition of interconnected learning between two stories; that of the researcher learning about research (which has the upper hand in this paper) and the topic being studied; the basis for pro-environmental behaviour. For the neophyte researcher there is a fascinating tug of war between Dena's conceptions of what research *is* at the start of her project (scientifically infused) and what research *can be* from a socio-cultural perspective. Setting out with scientific confidence, but already creeping doubt through the reflections at the start, some factual essays on environmental issues establish a grounding in motive and cause to conduct the social inquiry that lies ahead. Then, at a threshold in learning, the 'stats' are abandoned, and research poetry is embraced to analyse, present and make sensitive inferences from the data. Reflexivity is the consistent element in this paper to follow the evolution of the researcher and her thinking about pro-environmental behaviour. The poetry sings of discovery and learning from all involved.

## Introduction

*As he observed planet Earth from outer space, he saw that clouds did not stop at national borders to check for political ideology; and he saw that ocean currents, rivers, and mountain chains took no heed of nation-states. This red-white-and-blue American came to understand in a profound way that national boundaries are political constructs devoid of biological meaning. The natural world, built on the principle of interdependence, ignores these artificial boundaries.*

Christopher Uhl (2013)

### I. About me

Throughout this Master's degree, I have been lucky enough to rediscover lost dimensions of myself. After a few years' hiatus enjoying travelling, dating my now husband and delighting-in the news of welcoming our son into the world, I was far from the personal and professional trajectory I had planned myself during my undergraduate degree in the USA. In contextualizing *why* I chose to be on this MA course, I found new passions for old pleasures, a fresh perspective and connection to the outdoors and environmentalism. An awakening.



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## II. Research experience

My experience with research has not always been positive. For the longest time, I understood research to be associated with science in a traditional sense. One that saw research as facts, numbers and the scientific method. This has never been my strong suit. In High School, I opted to drop honours biology, advanced placement chemistry, and honours physics; what are commonly referred to as the traditional *hard* sciences. These sciences are commonly found to follow methodologies formed quantitatively, from mathematical modelling, statistical data analysis and data collected from experiments and surveys (Land, 1981). For this reason, doing *research* was a world with no room for me, and has probably stunted my academic growth for the fear instilled in me about what research means.

My interests aligned more with social sciences, the *soft* sciences. Thinking back, even as I was taking classes on the subjects, I thought of the research conducted in these areas as 'other' to the traditional hard sciences. The methodologies are thought of as qualitative, and I therefore regarded them as 'less than' those in the scientific lobby. A qualitative methodology uses tools such as conversation analysis and interpretive strategies to examine social phenomena (Abbott, 2001). The approaches are no longer thought of as rigid measures of something, but indications of social tendencies; behavioural or experiential (Creswell and Creswell, 2018). Throughout my High School and undergraduate education, these sciences were unyieldingly exact with clear boundaries not meant to be crossed. However, these rather simplistic defining lines are quite blurred in actual practice, with methodologies repeatedly crossing the boundaries between the so called *hard* and *soft* sciences. It was not until my graduate research that I realized the possibility and importance of qualitative research or the ability to pursue mixed methods in research. Perhaps it is one of my Americanisms, coming from a school that heavily pushed STEM (science, technology, math, engineering), but qualitative methodologies seemed to hold less weight, seemed less important.

My first experience researching was my senior year of university in the USA. I chose to pursue a degree in Environmental Studies as opposed to Environmental Science, partially due to my fear of the word science, and partially due to my desire to work more closely with people. My undergraduate degree is sometimes hard to explain, especially in the UK, as this degree does not exist here, its closest equivalent being Geography, so here is the description straight from my university:

> Students develop foundational knowledge of ecological principles, earth science concepts, and social and cultural institutions that shape the human-environment relationship and affect its longevity and health. They grapple with the ethical dimensions of this relationship and they engage in applied learning (Illinois Wesleyan University 2011).

As both an academic and a people-person, it suited me to conceptually understand the science in my field, but to have the ability to apply this knowledge to everyday issues facing the public. You can imagine my frustration in my senior year, when our Seminar Professor chose our research project for us in Environmental Science. I was a member of a nine-person team researching population extirpation (process of becoming extinct) in a local chain of lakes for the species *Utterbackia Imbecilis*. A love/hate relationship with research developed over the course of that year. I was responsible for understanding population dynamics for the species. This was an incredibly frustrating task, as all the research on the topic was under a second name, *Anodonta Imbecillis*. This was unknown to the class, as well as our Professor, for the first two months of the project, which left me failing the first assignments as all the required research for the species in question was under its first unknown name. On a very frustrating and enlightening day, I discovered that I had uncovered the truth of the species' renaming and the rest of the research fell into place a bit more smoothly. As frustrating as this process began, I enjoyed piecing together the great mystery of the species, hiding in the stacks of literature in the research. However, the content itself was rather boring and dry. While doing fieldwork collecting data, I also found that having the chance to speak to the residents of the surrounding area was incredibly capturing. Hearing the accounts of the smell of thousands of dead mussels, how no one could stand to go outside for weeks and the excitement of having the USA Environmental Protection Agency come out to do an investigation was much more interesting than being knee deep in a muddy lake collecting slimy mussels. In hindsight, I was doing my own bit of undocumented qualitative data collection in addition to specific mussel data collection. It shocks me now to think that of the various aims of the individuals within the team, no one considered speaking to the residents, which could have been an important aspect of research during the data collection phase. I believe this speaks to the limited depth and understanding of the scope of my research experience in my undergraduate career.

My next run-in with research began with this Masters degree. My current work is primarily qualitative, but structurally began quantitatively due the preconceptions I had about research and research methodologies. How I had previously conceptualized research (very dry, numerically driven, left to the hard sciences) was shattered. The first part of this degree is what allowed me to recognise how narrow my undergraduate research was. The extent of the research I had previously conducted consisted of a single topic, a single hypothesis, a single focus in my literature review, and numbered results which either proved or disproved my hypothesis or was found to be inconclusive. A whole world of qualitative research methodology, theory, tools and techniques unknown to me previously were waiting to be uncovered. The contextualization process was the foundation for this research that allowed exploration of the many avenues of methods and methodological theory,

and I learned the value of applying methodologies appropriately. The projects I have executed on this MA course, and the independent research I have conducted, have stripped the fear I had instilled from my earlier education. My experience in research now, has taught me to let the data speak for itself. I came into this MA degree in a fishbowl but will be exiting in three dimensions.

**III. Contextualization**

In exploring my purpose for being on this course, I took a long journey through my childhood, young adulthood and adulthood, to understand why I am the way I am, why I love what I love, and why I do what I do. Contextualization is the process by which we look back at oneself reflectively (Davies, 2002). My contextualization process allowed for these realisations, which laid the scope for my research as set out in this paper; a series of personal queries formed from my initial mind map. The mind map below was created Day 1 of class.

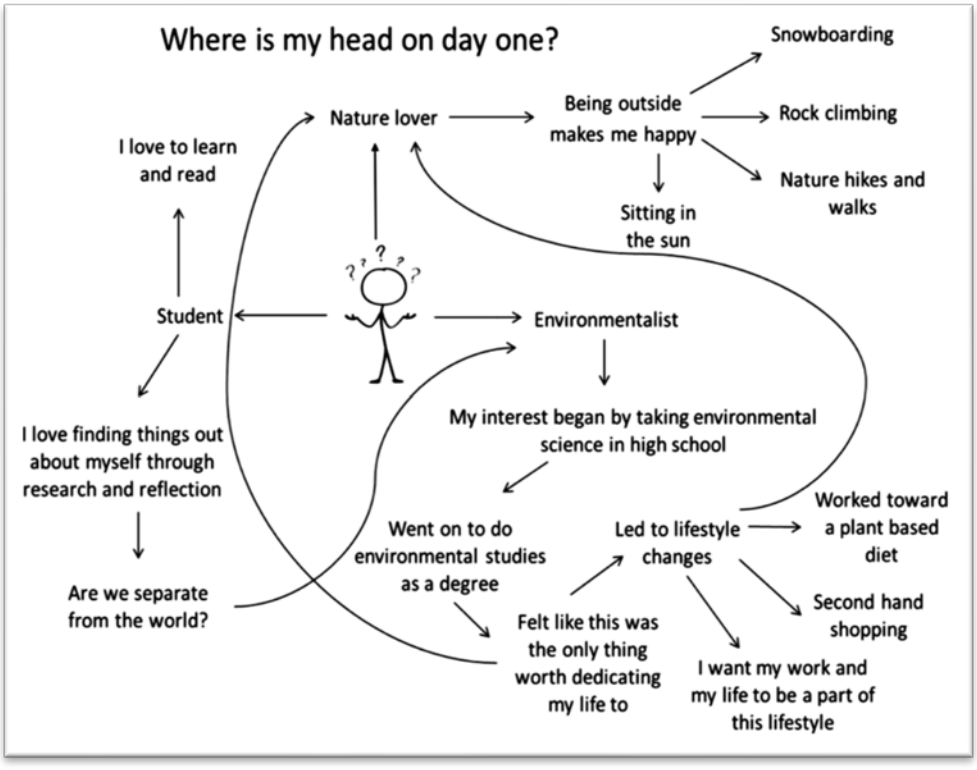



**Figure 1:** First day of class mind map.

This mind map was the beginning of my contextualization process. The aim of this activity was to describe the way I saw myself; it was an image that reflected the areas of my personality. Mind maps are used to represent connections and structure concepts or content in coursework (Eppler, 2016). The first two questions below are hinted at in the figure above. This mind map captures my view of self and my

ideology. As I considered my purpose behind this degree (1), my love for nature and passion for environmental issues were at the forefront of my mind. In my undergraduate degree path, I struggled between loving music and my environmental studies classes. In the end, music was a hobby, but care for the environment was a cause, one I felt passionate for (1), and one I could fight for (2).

1. Why am I here as a student of outdoor practice?

2. Why do I care about the outdoors and the environment?

However, as I began to analyse myself more deeply and began to look into literature of interest to me, something peculiar happened... I realized this sense of self I had was not aligned with my actions. This moment of tension I worked through in a different mind map around one month later:

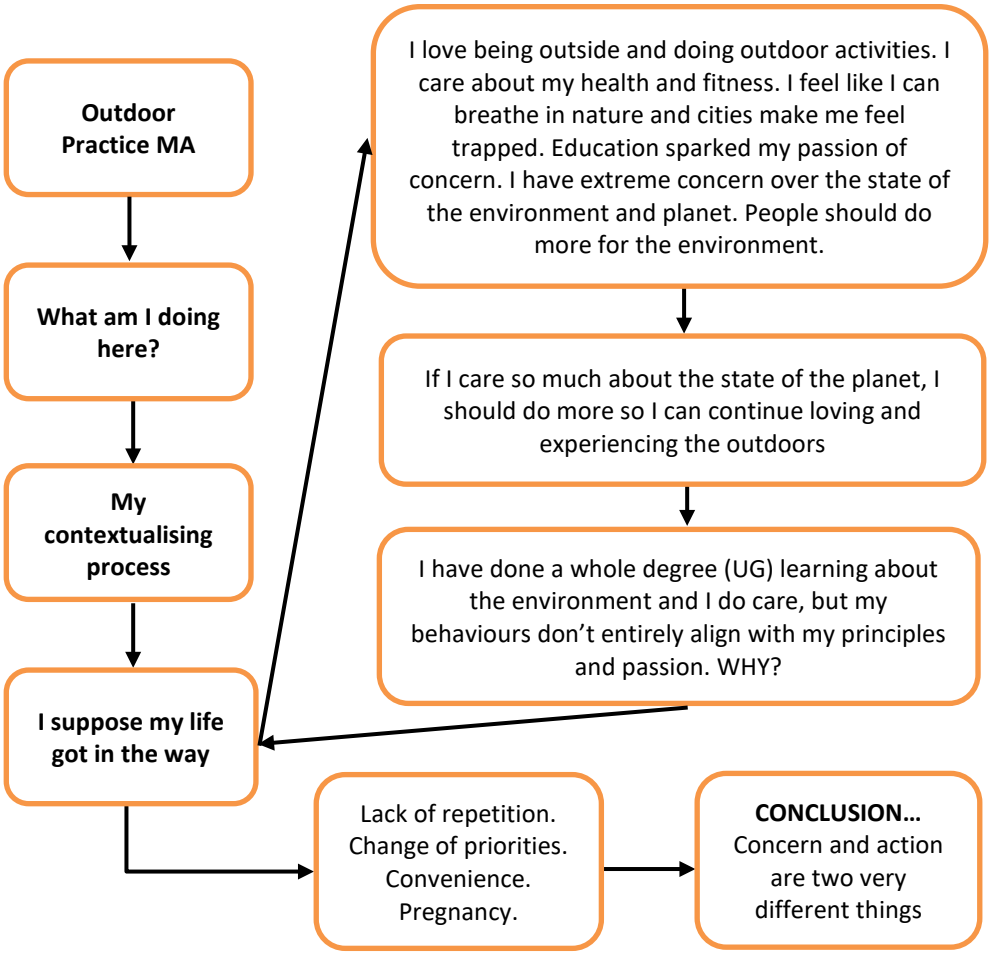



**Figure 2:** Mind map of tension. This mind map outlines a personal tension between action and belief that guided my in the direction of researching human behaviour based in self-reported actions.

As my undergraduate degree wound down, life moved on and brought me to this MA degree, the passion I had discovered for environmentalism and the outdoors must have dwindled as life got in the way (3). I realized my present actions were not paralleled with my ideology and was interested in the gap that occurred between my own ideology and my actions (4).

3. What was going on in my life when I engaged less with the outdoors and environmental action?

4. What personal experiences and influential factors shape my behaviour and actions toward the environment?

When I began looking into explaining motivations for environmental actions, I found a lot of literature about value, concern, and attitudes about environmentalism, but I was a walking, talking real life example demonstrating that values fell short of providing an explanation for action. This was the significant moment that set the scope for this study. Mayer and Frantz (2004) created a Connectedness to Nature Scale, that was meant to be predictive of pro-environmental behaviour and it baffled me that in their series of 5 studies, they failed to see if any individuals actually engaged in any pro-environmental behaviour. This was a common theme in similar studies from Stern and Dietz (1994), Schultz (2001), and Dunlap and Van Liere (1978).

The gap from concern to action captured me. This is where my research idea formed: create research based in action, that steers away from intention, attitude, and values; a study that allows individuals to talk about their environmental actions and talk through where and why those actions formed. As I have inferred a connection between my life experiences and my pro-environmental actions, I am aiming to present where and why this connection to the biosphere might have been established as opposed to measuring the value orientation between people and the biosphere.

The research I conducted allows the participants to explore and reflect on the critical moments, experiences, and influences that have shaped their relationship with the outdoors and their actions toward the environment, in much the same way I had done in my contextualization. By way of narrative and interpretive poetry, I will allow both the voices of the participants to remain active, as well as allow myself through reflexivity to be an active participant in interpreting the experiences that have been shared with me (Alvesson and Sköldberg, 2009). Although I set the scope of the research, my analysis is inductive, in hopes that the data speaks for itself (and it did, eventually!). The title of the project I set out upon was, *Pro-Environmental Thinking and Being; Expression in Poetry,* which is just what it sounds like it's going to be, after a long and hard-fought journey between myself and myself.

**IV. Autoethnographic: learning as a researcher**

My learning to become a researcher centred on conducting research with participants via questionnaire. Each round of data collection was self-administered, so I had the convenience of answering any uncertainties or queries by the participant. I opted to do questionnaires instead of interviews because the topic lent itself to multiple voices and stories and, as an instrument of collection questionnaires can be given without the researcher needing to be present (Cohen, Manion, and Morrison, 2007). Whilst questionnaires can be quite limiting, I felt that the combination of closed and open-ended questions allowed the participants an opportunity to respond in more depth if they wished to, within the parameters of the question.

[On reflection] this sounds like a whole lot of not-learning-as-a-researcher, because it was just that, a whole lot of not-learning-as-a-researcher. I wrote this section on 'learning as a researcher' before I ever did any actual learning-as-a-researcher. Something I will always do in my research writing now, is to ask why… What is your purpose here, friend? Why am I asking about you in data collection? Why have you made it to the final paper? There are many questions that do not serve a purpose, or questions where the language does not ask the question clearly enough throughout my questionnaire, and there has been a lot of revision for this entire paper and thesis. There is a lot more I would like to go back and fix, reflect and reconstruct if time allowed, but at the very least I will walk away knowing to ask why. If I would have done this more closely in the beginning, I would have saved myself the trouble of having to do constant corrections between rounds, revisions, analyses, and re-presentations of data.

A very new insight in the realm of research has been to broaden my horizons. As I have previously expressed, research before a very linear process to me. In changing directions and building on themes, opening my boxes, I uncovered new disciplines, philosophies and techniques. This was very curious to me. With my background in research thus far being primarily quantitative and hypothesis driven, adapting aims, building on themes and changing directions was not something I could fully wrap my head around. I would find myself stuck on an idea, aimlessly searching into the abyss, and voila! I would stumble across new disciplines with books and papers surrounding an idea I had been stuck on. For example, the field of ecopsychology. Until now I was aware of psychology, and aware of ecology, and there had been numerous times in this research where I was trying to single handedly create the field of ecopsychology from my own experience (into the abyss), until I finally stumbled across a book on Ecopsychology (see Roszak, Gomes and Kanner, 1995) that put a name to the experience I was trying to describe. 'The problem with what you don't know is that you don't know you don't know it' (someone said that but I don't know who). This work incorporates environmental studies, education,

psychology, ecopsychology, ecology, philosophy, poetry and history. I found that the further along I have trod as a researcher, the more doors were opened to me. After insightful discussions with my tutors, I would continuously feel both liberated and intimidated, but always continuing in stride, trusting the awesome power of trying to carve my own path.

One truth I have discovered is a need for closeness while gathering qualitative data about human behaviour. As expressed by Butler-Kisber (2002:229),

> 'this form of inquiry mandates that researchers situate themselves in their studies and work intimately with their participants. In so doing they create relationships that help to ensure that participant voices and perspectives are respected and reported'.

In hindsight, I would have worked with a smaller sample pool and allowed those individuals more space to speak freely, possibly through interviews or a group interview. I may have perhaps rejected this out of slight fear of conducting interviews / insecurity of the questions I had developed. I must have known somewhere in my head that some of the questions weren't suited to my aim. As the data collection process ensued, understanding the aim of my research evolved and adapted along with my own learning processes. This was especially evident during analysis, where I began questioning my methodology, which opened me up to new methodologies and paradigms of thought. I see now that research is an evolutionary process. I have evolved as a researcher alongside my research.

I have written an ethnographic poem which captures the deconstruction of, or rather the moment that my initial analysis fell apart. The purpose of this poem is to capture the critical moment I reframed my thoughts through poetry (Faulkner, 2007). It is where I began to question my own methodology, understanding, traditional methodology of qualitative inquiry, and the purpose it was serving for this study.

**Learning as a Researcher**

Do you fit inside my lines?
Inside my box?
Let me squeeze you in
Let me bend you until you break.
Let me transform your words
Your ideas
Your experiences
Into my small box
Inside my lines.
Vacant, unoccupied
Nothing to read here
Until your words, ideas, and experiences

Are a number
A wordcount
My "A"
Twenty-four thousand (indicative)
Twenty-four thousand one-hundred and one
Nothing to read here
Let me deconstruct you
And rebuild you again
Into your words
Your ideas
Your experiences
And I'll tag along
Out of my box, your box
I'll step beyond my lines
Grow with you
Into what you are
Not what I made you out to be

**Reflexive note:** *In my third round of reflections, I found that I had been asking the wrong questions about age and experience or had been trying to go some non-obvious way of gathering information. Here is a quote from my reflection explaining: 'I realized my age grouping was completely arbitrary. I added the "age groups" as a change from asking how long each participant has participated in each outdoor activity. That was also meant to gauge the age of the participants, but I decided it was as an ineffective means of doing so. If I want to know the ages of the participants I ought to just outright ask the age of the participants'. I have learned to be direct in what I am asking. I believe I had some misconception that research ought to be sneaky, or that the participants don't need to know the aim of the research. Perhaps this has come from my year of studying psychology as an undergrad, and I modelled some of the things I learned on that degree into this one. I think for future data, I will go through each question I have on any survey or questionnaire and ask myself what the intention of the question is.*

## V. Two short essays

### Essay 1: Global issues

The following piece on global issues began as my literature review in my traditional thesis, but quickly became an untameable beast heading in every direction. Since the study initially centred around environmentally friendly behaviour, I thought I would explain the significance of human impact. To contextualize the environmentally friendly behaviours included in the study, I found myself in the Industrial Revolution, and accidentally made my way hundreds of

thousands of years into the past. However, I still would argue the relevance of the topics shared below, as the gravity of the personal choice, global issues and climate crisis ought to be understood.

**Global environmental change**

The term 'global environmental change', first emerging in the 1980s, sought to encompass the understanding of the interactive biological processes responsible for the regulation of Earth's natural processes, and how these processes have been influenced by human impact (Goudie 2018). Very recently has the idea of human impact and global environmental change caught like wildfire across the world (please excuse the pun). However, geographers, natural historians, economists and scientists have noted and observed the transformation of the natural world alongside the evolution of humankind for centuries. This environmental change is seen at the local, regional, continental and planetary levels (Goudie and Viles, 1997). Our backyards, local forests, the wild, and the far-off outdoor places we visit are all affected by human impact. It is the responsibility of the individual to band together in a collective action on halting and reversing the effects of human activity. The composition of the earth and atmosphere has maintained a natural equilibrium for millennia, but recently human activity has become responsible for shifting that age-old equilibrium off balance (Graves and Reavey, 1996). Dating back to the industrial revolution, humans have increasingly utilized carbon-based resources, putting larger demands on the planet than ever before, resulting in global environmental change and landscape modification (Goudie and Viles, 1997). From transportation to consumption to waste to dietary choices, the combined demand on our planet has resulted in some catastrophic results. It is vital to understand the interconnectedness of the effects of each human action and its consequence, so I will try to highlight this by giving a variety of examples to demonstrate this in the coming pages.

**A brief history of the planet's warming and cooling**

There are natural variations in temperature, ocean temperature, and sea ice. This is one of the reasons why my new friend, let's call her Jane, argues against climate change. How Jane attributed climate change to being a money-making hoax and something to do with Brexit I do not know, but her conclusion that the changes we are seeing today could potentially be a natural variation are important factors in understanding human impact. Looking back to the beginning of the last ice age, the earth has gone through numerous cycles of warming and cooling. One proposed theory arguing that the regulation of the earth's temperature is incoming solar radiation; the earth's irregular movement in space distributes this solar radiation unevenly (Graves and Reavey, 1996). There are three cycles by which the earth distributes radiation which are referred to as the Milankovic cycles. Graves and Reavey (1996) describe the three cycles:

1. Currently the earth is nearest the sun on its orbit during the northern winter, and furthest away from the sun in the summer. But in 11 000 years it will be reversed; this 22 000-year cycle is called the precession of the equinoxes.

2. The tilt of the earth's axis varies by 3° over a period of 41 000 years, and so summers and winters become more and less intense.

3. The shape of the earth's orbit around the sun also changes on a 100 000-year cycle.

These cycles result in uneven radiation which produces variable, but predictable changes in climate, mother nature doing what it wants to. However, the Milankovic cycles are not sufficient to account fully for the earth's full range of climatic change, but they are certainly a primary force shaping the glacial and interglacial periods. Within the Milankovic cycles, there are additional elements that result in climatic fluctuation. One such factor are the ocean currents. Ocean currents contribute to climatic conditions by aiding the interchange of heat between latitudes (Goudie, 2001). Oceans themselves are also affected by climatic change because of their ability to store heat, i.e. if the temperature of the oceans change, this will change the relationship between ocean and atmosphere and come to influence weather patterns on land (Goudie, 2001).

Another factor resulting in climatic change are gas emissions. There is resounding evidence that the concentration of carbon dioxide, methane, nitrous oxide, sulphur dioxide, chlorofluorcarbons, and water vapour in the atmosphere explains the fluctuation in climate by trapping solar radiation (Goudie, 2001). Figure 2 was constructed from the Vostok ice core in Antarctica; this graph shows a strong correlation between temperature and CO2 in the atmosphere (Barnola *et al.* 1987).

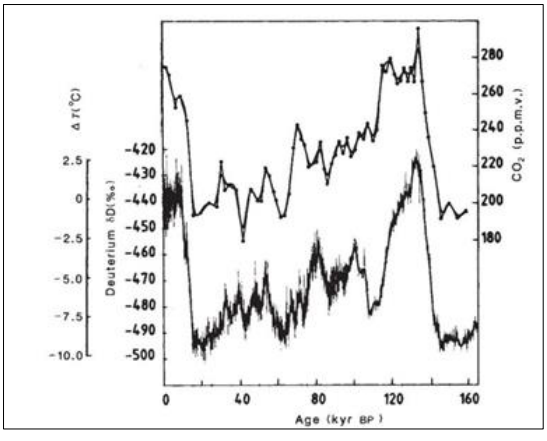



**Figure 3:** Changes in temperature and CO2 over the past 160,000 years. From the 'Vostok ice core' – providing a 160,000-year record of atmospheric CO2 (Barnola, *et al.*, 1987).

The temperatures from this graph were gathered from radiometric dating of deuterium. Deuterium is a stable isotope found in hydrogen and can be used to measure temperature because it precipitates from water rapidly and is highly sensitive to temperature; the concentration of deuterium found in snow is thusly related to temperature (Graves and Reavey, 1996). CO2 in the atmosphere is thought to amplify warming and cooling of the planet in a process called the Greenhouse Effect (Graves and Reavey, 1996). Greenhouse gases like CO2 affect the Earth's climate by trapping heat in the atmosphere, much like a greenhouse (Montzka *et al.*, 2011). So, when we talk about human emissions, it is crucial to understand the widespread effect these emissions have on the planet. Greenhouse gases raise the earth's temperature, raising the concentration of deuterium in the ice record. Climate and geology are the two elements which come together to shape our knowledge of the physical and natural environment (Goudie, 2001). When we hear scientists talking about climate, and the consequences of climate change, their inferences extend way beyond simply being hot or cold; we are changing the physical and natural environment, creating extreme weather and modifying landscape.

**Reflexive note:** *I find climate change to be an extremely difficult topic to make sense of as related to human impact. For example, maybe 'land degradation causes' is a cattle farming area from the population to clearing a forest. Clearing the forest modifies landscape, stops counteracting emissions, and contributes to emissions in the agricultural sector. These emissions contribute to climate change, the landscape modification and deforestation might result in flooding, and the flooding might have also been affected from climatic weather as a result of climate change.*

**Modern human impact**

The natural variations in climate and temperature have, in recent years, come to an abrupt change which is directly correlated to an increase in CO2 in the atmosphere during the 19$^{th}$ and 20$^{th}$ centuries (Graves and Reavey, 1996). This increase in CO2 and other greenhouse gases are anthropogenically produced, largely from societal needs from both energy and food (Montzka *et al.*, 2011). In recent years, human activity resulting in greenhouse gases have rocked the gentle, predictable balance Earth has kept for millions of years. Scientists have extended the list of influencers to include: (see Goudie, 2001:82)

- Aerosol generation: dust, smoke, sulphates
- Thermal Pollution: urban heat generation
- Albedo change [earth warming]: dust addition to ice caps, deforestation and afforestation, overgrazing, extension of irrigation
- Alteration of water flow in rivers and oceans
- Water vapour change: deforestation, irrigation

Each of these contributing factors are related to climate change and landscape modification, and many can be reduced or halted with collective individual choice. The complexity of the Earth's processes makes it difficult to distinguish a single action from a single effect, so the interconnectedness of the Earth's processes means an interconnectedness of damage to the natural environment. For example, industrialization may lead to both deforestation and pollution, this pollution might lead to acid rain, and acid rain is responsible for the direct damage of plants, and is also linked to climate change and global warming, which is responsible for species loss and landscape change, which could reasonably lead to more deforestation (Agarwal and Mishra, 2001). The type of scenario mentioned is occurring in both developed and developing nations, which brings us to our next topic…

**Essay 2: The implications of landscape change**

On all corners of the planet, we are seeing landscape modification that is leading to habitat loss, destruction and degradation. Forests have been cleared, soils have eroded, lakes desiccated, natural vegetation on the decline, and pollution of water, land and air is running rampant (Goudie and Viles, 1997). Public policy has resulted in deterioration of beautiful places across the world (Lowry, 2012). A tool powered by Time Magazine and Google, called Timelapse via Google Earth Engine (2017), has provided the ability to track back in history over thirty years via satellite images. The example we will investigate is Alberta, Canada.

Alberta is home to a vast amount of oil sands, a fossil fuel recently contributing to the oil market (Walsh, 2016). To meet the growing demand of oil, bitumen has been mined on the surface or extracted by in-situ recovery, and the demand has grown from 0.7 million barrels to 1.6 million barrels daily from the year 2000 (Jordaan, 2012). The video (screen-grab Figure 4 below) shows the physical landscape change over this area, by way of example, from 1984 to 2018, but the damage extends beyond the physical appearance of the planet. Both surface mining and in-situ recovery have burdensome impacts. As Alberta is home to a Boreal forest, the fragmentation caused by surface mining can ruin migration lands, species diversity, and a variety of species populations (Jordaan, 2012). Less productive ecosystems found at higher latitude have fallen victim to mining, and these peatlands will take tens of thousands of years to recover or to reform naturally (Jordaan, 2012). This location is also home to the remains of the Aboriginal peoples of Canada from over 3,000 years ago, and now smog lingers over this sacred ground (Walsh, 2016).

The very controversial Keystone XL Pipeline is meant to originate from these lands. It has the potential to carry one million barrels of crude oil to the USA daily to the Atlantic coast (Walsh, 2016). One proposed area for the Pipeline to run was through the St. Lawrence River. Traversed by French explorers in the 1500s, building the pipeline here would, according to Bloomberg, (2015:18):

'… pass through a wildlife preserve of mud flats along the migration route of 200 species of birds, [and] a spot where 17 unique species of flowers grow. It would then tunnel below the river near a drinking water intake for Quebec City'.

**Figure 4:** Time-lapse of Alberta, Canada from 1984 to 2018 showing mountain top removal mining. Adapted from Gorelick *et al.* (2017). [Google Earth free image].

**Visit YouTube Link: https://youtu.be/SzYMtjOn0U0**

In an environmental impact statement issued by the United States Department of State, the habitats of over 450 species would be affected by the pipeline, some of which are threatened or endangered across Montana, Nebraska and South Dakota, (Walker, 2013). Each action has a knock-on effect that leads to other impacts, such is the interrelatedness of life on this planet, and the choices we make as humans. The effects of oil-sands mining in Alberta extends well beyond the boundaries of the mining lands, with influences rippling in every direction.

Another widely known and controversial example of landscape modification is deforestation in the Amazon Rainforest. In the State of Paraiba, Brazil, heavy deforestation has resulted in a variety of unintended consequences. Deforestation in tropical regions has grown immensely in recent years, as seen via satellite sequence time-lapse video in Figure 5. The expansion of agriculture and mineral extraction driving economic growth in Brazil are responsible for the vast deforestation (Stan *et al.,* 2015) where over one million square kilometres of rainforest has been cleared (Nobre *et al.*, 2016). The practices employed are largely slash and burn, the cleared land is responsible for carbon stock exchanges and soil erosion (Stan *et al.,* 2015). The Amazon Rainforest ecosystems hold over ten percent of the world's biodiversity, so deforestation in this region can result in major biodiversity loss. The anthropogenic change across the area can also affect climate across the region (Nobre *et al.,* 2016).

**Figure 5:** Time-lapse of State of Paraiba in Brazil from 1984 to 2018 showing vast deforestation. Adapted from Gorelick *et al.* (2017). [Google Earth free image].

**Visit YouTube Link: https://youtu.be/v45b8Ec5IJ4**

In 2015, Brazil experienced a drought worse than any other since 1930 (Nazareno and Laurance, 2015). Attributed to the mass deforestation in the region, research suggested the disturbed ecosystem was responsible for the impaired natural system, which recycles the same water between the atmosphere and the forest. These droughts have produced a water crisis across Brazil disrupting millions of people, impeding crop production, and hindering industry (Nazareno and Laurance, 2015).

**Reflexive note:** Let's take a moment. *You know what, I am beginning to wonder if science is getting the better of me? I have enjoyed writing these essays, but in researching them and crafting the text, I feel I am somehow missing the point. There are people in my project, including me, with voices and emotions that are being muffled. Am I really going to reduce my participants comments into a pie chart! No. There has to be another way, but what will 'others' think of me if I depart from what I know… about 'Research'. More to the point, what do I know about research. Oops. There are stories to be told and energy behind the comments from my participants. I need a new mode of exploring beliefs and doing them justice on the page somehow. I need a new title… a new way of thinking about research, and comprehending what research can be, for myself, being truthful to myself and others.*

# Pro-environmental thinking and being; expressions in poetry


## Abstract

The purpose of this study was to allow participants to explore the origins of their environmental actions and connections to the outdoors. Data has demonstrated that pro-environmental actions are related to critical moments involving sensory experience, a relationship with the outdoors, friends, family, freedom, and learning. This study expresses the experiences that have come to shape participants' pro-environmental actions through use of primary research and interpretive poetry. A group of outdoor and early outdoor practitioners were questioned on their relationship with the outdoors as an account of their perceptions of the natural environment during present or future professions. By allowing these individuals to explore their past and connect it to their present actions, a gap which fails to establish the foundation for environmental actions has been identified.


## Introduction

*What is the foundation of our society?*
*What makes the world go around?*
*What keeps you alive?*
*Is it money? Technology? Business? Government? God?*
*Really, what is it that supports the whole show we call 'society?'*
*In pondering this question, it is common to overlook our most fundamental support systems: the Sun - that great radiance that lights up the world; water - that miracle liquid that enables life; soil - that rich substrate that is the growth medium, directly or indirectly, for all that we eat; the atmosphere - that all-permeating elixir that we draw our breath from.*
*This forgetting is really not so surprising.*
*As we humans have become more specialized and dependent on technology, our separation from planet Earth has increased.*
*This separation is literal.*
*Here in the United States, we spend more and more time indoors, living inside boxes.*
*Indeed, every day, almost all of us get up in the morning inside a box (house or apartment). Then, we hustle off to work or school in a small horizontally moving box (cars, buses, trains); then, we proceed to spend our days in other sorts of boxes (office buildings, schools, businesses, factories, stores).*
*In the evening, we play it backward, moving from box to box, on our way home. Amazingly, we may pass an entire day without any direct contact with the living Earth: Never feeling unfiltered sunlight on our skin or a cool breeze.*

Christopher Uhl (2013)

In the stories reported by 12 outdoor practitioners, we journey through the experiences that have led them to their pro-environmental thinking and being. In a perilous time for the planet, it is necessary to understand what experiences are shaping the lives of individuals acting in an environmentally conscientious manner; it is the only way to negate the behaviours that have led to a declining biodiversity, climate emergency, and depletion of resources. Interpretive poetry is utilized as a tool for analysing the data to capture the essence of their experiences, and to fill in the blank space of critical decision moments of the respondents. All participants in this study demonstrated environmental thinking to some degree, and actively engaged in pro-environmental actions. We will be looking at motives; how, when and why this way or that way of thinking was formed by the participants, expressed through a reflexive lens of narrative poetry to comment upon the data and reconcile my own own position to collect and report upon it as a researcher. For example, if a respondent mentioned a decision to go on a walk for health benefits, I would previously have focused on 'going for a walk for health' as a means of promoting pro-environmental behaviour, but I now focus on why that individual enjoys that walk, or question what is it about that experience that makes them opt for the outdoors and not the treadmill. As a researcher, I was able to connect the meanings of the various experiences across the responses of the participants instead of taking phrases at face-value, fitting them into my own thematic frame. It is understanding why we enjoy going for a walk, that is how we begin to understand the active care and stewardship that comes in the form of participation in pro-environmental behaviours; it shows us why we went *outdoors*.

**Reflexive note:** *on a Name: I have struggled with the title of this work. The first title I worked with was <u>What Makes People Environmentally Friendly</u>? This title came from the idea emerging from my contextualization project: For participants to explore and reflect on the critical moments, experiences, and influences that have shaped their relationship with the outdoors, and their actions toward the environment. This title, unknowingly, was promoting my own biases through my own initial analysis. As I went through the responses, I was looking for obvious answers to fit in as response to the title (I will look more deeply into this bias, acknowledged in my methodology section). As you can imagine, my strategy fell apart. I could not make the responses conform to my bias… and claim that it has some meaning.*

I went back to my aim and considered where my bias might have come into play. I combed through the questionnaires and focused on the insight into the worlds of outdoor practitioners. Briefly, my title changed to *What Drives Ecological Consciousness* but was quick to avoid the trap of 'what drives', again analysing-in my bias. Then I settled into the title of this work as *Becoming Ecologically Conscious*

but changed it again. Then, one day before it (MA thesis) was due, because I was pushing for something that wasn't really there… it changed gain.

**Reflexive note:** *There have been necessary language changes in the research to avoid confusion – principally by me. I have made the mistake of using words such as outdoors, environment, natural environment as they seem to mean so many different things to people. During my questionnaire administration, I was able to clarify confusion by setting out these terms but have chosen to correct the language for the reader to avoid unnecessary confusion. When I refer to the outdoors, I am speaking generally of the relationship between outdoor practitioners and their recreation, relaxation and work environment. However, when I refer to the relationship with the environment, or, actions toward the natural environment, I am referring to the relationship involving ecological consciousness, pro-environmental actions and environmentalism. Clear!*

## Methodology and methods

### Sampling strategy

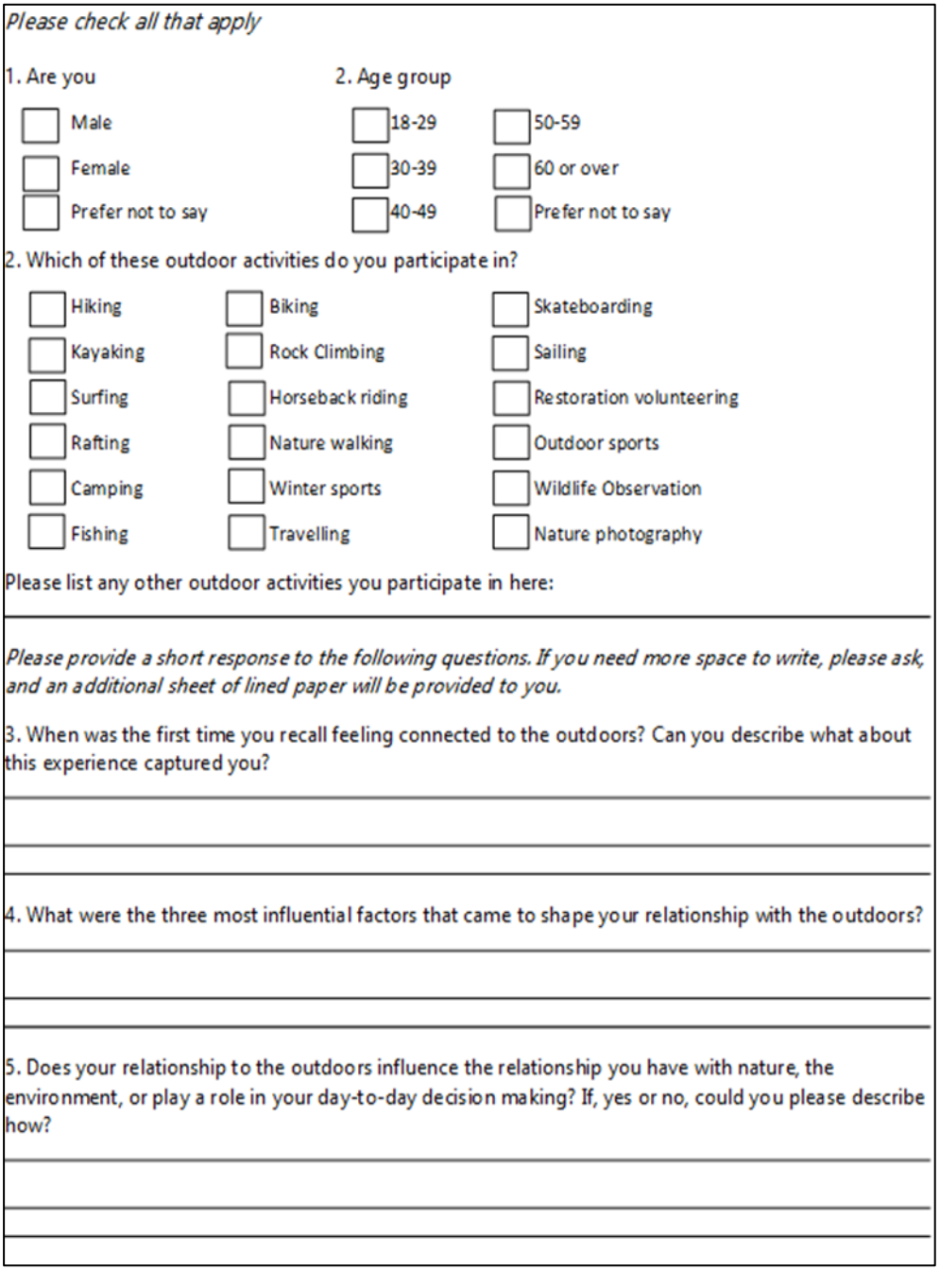
This qualitative study uses questionnaire as a means for data collection. Early outdoor practitioners were the target group of the study, based on their established relationship with the outdoors. Participants were asked to self-classify as living independently; i.e. providing over half of their financial support, living outside of their parent's homes, and be responsible for individual food and transportation decisions. This classification was necessary to understand how individual responsibility for actions, inside and outside of the home, lie with the individual.

The questionnaire administered to the participants was divided into 4 segments. The four segments are: 1. Demographics; 2. Exploring the experiences responsible for the connection and relationship with the outdoors; 3. Self-reported engagement in pro-environmental action; and 4. Exploring the experiences responsible for participation in environmentally friendly behaviours. Each segment corresponds numerically to the order of questions on the physical questionnaire. Segment 1 consists of questions 1 through 3, Segment 2 is comprised of questions 4 through 6, Segment 3 is question 7, and Segment 4 is comprised of questions 8 and 9. Participants were asked a variety of open-ended questions, in hopes that they were specific but encouraging for reflection and description of their experiences.

### Procedure and ethics

Questionnaires (see Figure 6 below) were issued with an information sheet and consent form outlining criteria for participation, confidentiality and anonymity. Each respondent was given a number corresponding to their questionnaire to preserve anonymity. Respondents were allowed extra space to expand on open-ended questions in Segments 2 and 4, or to expand their reasoning in Segment 3.

Respondents were encouraged to ask for clarifications of terminology to ensure understanding and they were able to withdraw consent up until the point of data-integration (2 weeks after collection) as data could not be deleted once synthesized.



*Please check all that apply*

1. Are you

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

2. Age group

- ☐ 18-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60 or over
- ☐ Prefer not to say

2. Which of these outdoor activities do you participate in?

- ☐ Hiking
- ☐ Biking
- ☐ Skateboarding
- ☐ Kayaking
- ☐ Rock Climbing
- ☐ Sailing
- ☐ Surfing
- ☐ Horseback riding
- ☐ Restoration volunteering
- ☐ Rafting
- ☐ Nature walking
- ☐ Outdoor sports
- ☐ Camping
- ☐ Winter sports
- ☐ Wildlife Observation
- ☐ Fishing
- ☐ Travelling
- ☐ Nature photography

Please list any other outdoor activities you participate in here:

*Please provide a short response to the following questions. If you need more space to write, please ask, and an additional sheet of lined paper will be provided to you.*

3. When was the first time you recall feeling connected to the outdoors? Can you describe what about this experience captured you?

4. What were the three most influential factors that came to shape your relationship with the outdoors?

5. Does your relationship to the outdoors influence the relationship you have with nature, the environment, or play a role in your day-to-day decision making? If, yes or no, could you please describe how?

**Figure 6:** Environmental behaviour and actions questionnaire p.1 (Dena Buttacavoli)

6. The following are considered to be pro-environmental or environmentally friendly behaviors. Please indicate whether you choose to participate in them by circling yes or no. Please reason your answer explaining why in the space provided.

a. **Y / N** Reduce, Reuse, Recycle:

b. **Y / N** Vegetarianism or veganism:

c. **Y / N** Green consumerism or sustainable consumption:

d. **Y / N** Alternative transportation to private car use:

e. **Y / N** Composting:

f. **Y / N** Participating in environmental groups:

g. **Y / N** Practicing conservation in the home:

7. What experiences in childhood do you feel may have contributed to your behavior or actions toward the environment?

8. What experiences in young-adulthood do you feel may have contributed to your behavior or actions toward the environment?

9. What experiences in adulthood do you feel may have contributed to your behavior or actions toward the environment?

**Figure 6:** Environmental behaviour and actions questionnaire p.2 (Dena Buttacavoli)

**Analysis and rationale**

The aim of this research was: to understand the relationship between outdoor practitioners and the outdoors, as well as understand the decisions behind their behaviours toward the environment. The aim of the research has remained the same, but my lens on how to view and interpret what has come from it has adjusted over time. Initially, I thought I was trying to answer the question, 'what makes people environmentally friendly?' But in doing so, I took away the voice of the respondents fitting their responses into pre-determined boxes which I set up to answer my question. This process of analysis was drenched with my unknown bias. I was hypothesizing that critical moments and influences shaping their relationships were what made them environmentally friendly. I already had certain critical moments and certain influences in mind, and I sought these out, although my analysis was guised as inductive. I thought I was doing 'good research'. Percer (2002:1) captures the trap I found myself in while sticking to traditional mindset of research, 'traditional research is limiting in its narrow scope of articulation and its formal demands for demonstration'. I felt a pressure to demonstrate how the responses were solving my research problem, for example, '12 respondents reported that their first feeling of connection to nature occurred in childhood'. Trapped in doing traditional research, I was interpreting their responses straight into the boxes I wanted to make recommendations about for pro-environmental behaviour; 'the study shows that connecting to nature in childhood is predictive of pro-environmental behaviour'. In truth, I struggled to bend participants' words to my will, deducing what I thought would support my hypothesis. When I was fixing the responses into pre-determined categories, I was ignoring my role as the researcher to listen carefully and interpret the findings based on the backgrounds and experiences of the respondents (Creswell, 2013). I was taking away the power of the interpretation from my respondents and constructing my own meaning unbefitting of their experience. Then I turned to poetry. *A Walk Near Home* is poem inspired by a participant's response to the question, 'when was the first time you recall feeling connected to the outdoors? Can you describe what about this experience captured you?'

**A Walk Near Home**

A stillness blankets the hills
I am frozen in time for a sweet fleeting moment.
Songs of daybreak through the silence
Smith's Longspur
Singing their morning tune
In the centre of where life is,
My boots are soft against the earth.
The cool breeze of the wind brushes lightly past my rosy cheeks
Inviting the trees to gently billow, their morning dance.

This poem marks the end to traditional coding and categorizing and raises a glass to the essence of experience. The two types of poems adopted in this research are narrative and interpretive. Narrative poetry is concerned with storytelling and generally uses a participant's exact words; the research poems will serve as a tool to present data (Faulkner, 2007). With concern for preserving the voice of the participants, narrative poetry was the most effective medium for presenting data. This was very important to me, as loss of voice was what really drove me to reimagine presenting and analysing this research in a new way. There are arguments against research poetry, with critics of the medium in qualitative study coming from those concerned with the craft of writing poetry (Percer, 2002). That being, does good poetry equate to good research and vice-versa? Trying to maintain the integrity of the art, the narrative poems produced here will attempt, although novice, to respect my role as poet; after toying between full expressions and condensing data, I did feel more freedom as a researcher and get a feel for the craft of poetry. This included, 'listen[ing] for repetitions, rhythms, pauses, breath points, and emphasis…' as well as utilising punctuation and space (Lahman, Richard and Teman, 2014:345). I opted to use interpretive poetry to capture the essence of experience portrayed throughout the questionnaires, as I consider myself an active participant/interpreter of this research. Thus, each narrative poem has a corresponding interpretive poem. These poems will blend my perspective as well as the participants' experiences (Faulkner, 2007).

**Limitations**

The demographics section of the questionnaire related to outdoor activities does not serve a clear purpose. I thought because I was working with outdoor students, I would gauge what outdoor activities they participated in, so they felt the research was more relevant. Perhaps this came from my own insecurity of having a very different undergraduate background. Perhaps this fault at my end caused them to answer in a different way than they would have done if this part of demographics was left out. Another issue was the age groups section. I believe I had preconceptions that research should be secretive from my year of studying psychology, but I should have just asked what I intended to find out - which was, how old are you?

The open-ended modes of data collection allowed the responses to remain largely unrestrained (Creswell and Creswell, 2018). Although the open-ended questions allow respondents to speak freely on their experiences, there are physical limitations to the amount of space people were given to write. Additional paper was offered while completing the questionnaire, but no one opted for this additional space. It is plausible to assume respondents felt limited to the amount of space provided between the lines. On reflection, it may have been more useful to hold interviews. Another issue, which I have resolved in the language of this research, is

the confusion in the meaning of terminology. At the beginning of each round of administering the questionnaires, respondents were instructed to ask questions about terminology or to ask for clarification, but it is also plausible to assume that not everyone asked for clarification, which may have resulted in misinterpretations.

**Reflexive note:** *The shift that defines my philosophical stance, and what informs my methodology in analysis, really came from acknowledgement of my own biases. There were hints of my bias that were revealed in surprises. For example, I was surprised when more individuals didn't talk about their childhood, or when participants were recalling feeling connected to nature in young-adulthood and adulthood. This surprise should have been a red flag, but I brushed over it. I thought I was interpreting meaning, but what I was doing was deductively categorising and coding into pre-existing categories. One day, I just stopped. I picked up the questionnaire and read it. The response I reduced to 'connecting to nature' was originally 'a walk in nature, early morning at sunrise. Hearing of the birds and animals, feeling the cool breeze of the wind'. I was blanketing an experience to make an empty recommendation to answer the question What Makes People Environmentally Friendly? I went from the focus of 'if you connect with nature you will be environmentally friendly' to the focus of 'this is how I felt, what I experienced, when I connected to nature'. I found the best way to express the experiences of the participants was to use the voice of the participants. This really reconciled a lot of the trouble I had fitting responses into boxes because the boxes disappeared.*

**Reflexive note:** *These decisions of pro-environmental behaviours must lie in the hands of the participant. This rationale was based on the personal experience of moving out of my own house and out of dorms mid-way through university of my undergraduate degree. I realised that until moving into my own accommodation, the slew of decisions I faced regarding my diet, waste disposal, shopping, transportation and consumption, I was until this point, merely a ward of my parents.*

In my questionnaires, I refer to participants as adults, and more than once I watched university students stare blankly at the question and turn to a friend and say 'adulthood? Are we adults?' I suppose in my definition of the word, yes uni-student, you are more than you have ever been. You are responsible for most of the decisions in your life. What you eat, what you buy, how to get from point A to point B, how you take care of yourself, and how you take care of your planet. (At least until you move back home after university and ponder your existence in with the post-uni blues, but I digress).

## Literature review

### Pro-environmental behaviours and actions

There are a variety of individual actions that may be taken to promote environmental change. By positive, I mean those behaviours taken toward either helping the environment, or by decreasing one's consumption patterns or negative impact. 6 out of the 7 behaviours addressed in this study have scientific data supporting the notion that participating in them will reduce carbon footprints and reduce impact. The environmentally friendly actions and behaviours addressed in this study are as follows:

- reduce, reuse, recycle;
- vegetarianism or veganism;
- green consumerism or sustainable consumption;
- alternative transportation to private car use;
- composting;
- participating in environmental groups; and
- practicing conservation in the home.

Green consumerism and sustainable consumption are a response to environmental consciousness of the public (Dietz and Stern, 2002). In the case of green consumerism, the benefits involve both the planet and the self. When, for example, consumers purchase organic produce, they consume more nutritious food with less herbicide and pesticide, as well as support sustainable farming models positively affecting ecosystems (Chander and Muthukrishnan, 2015). If these individual actions are commuted through collective action, the implications are even greater. Collectively, these organic produce purchasers can affect economic models by choosing higher environmental quality products and in turn affect large scale pollution levels (Chander and Muthukrishnan, 2015).

Backyard composting is a pro-environmental action that can reduce the amount of organic waste sent to landfills. In a study conducted on 16 volunteer households outside of Vancouver, Canada, each household kept 1 tonne of waste out of curbside garbage pickup in one year (Leboe, 2011). Landfilling has a detrimental impact on environment. Within a landfill, the degradation of waste results in the release of greenhouse gases as well as leachate (Dasgupta, Bhattacharjee and Kumari, 2013). Greenhouse gases trap outgoing radiation from the sun resulting in the greenhouse effect, and thus planetary climate change (Goudie, 1997). Leachate is the liquid which has percolated through the waste in a landfill site. This leachate has the potential to threaten groundwater sources as it is containing 'a wide variety of hazardous, toxic or carcinogenic chemical contaminants' (Dasgupta, Bhattacharjee and Kumari, 2013:42). If more households chose to participate in backyard

composting, the cumulative effect would reduce the negative consequences of landfilling. Plant-based diets offer lower environmental impacts than those of meat-based diets and growing livestock produces greenhouse gases including methane, nitrous oxide, and carbon dioxide (Lacour *et al.*, 2015). Greenhouse gases affect the Earth and its climate because they trap heat in the atmosphere causing climate change (Montzka *et al.*, 2011).Transportation and practicing conservation in the home are two of the largest greenhouse gas contributors in the USA (Emissions Sources, 2020) as indicated by Figure 7.

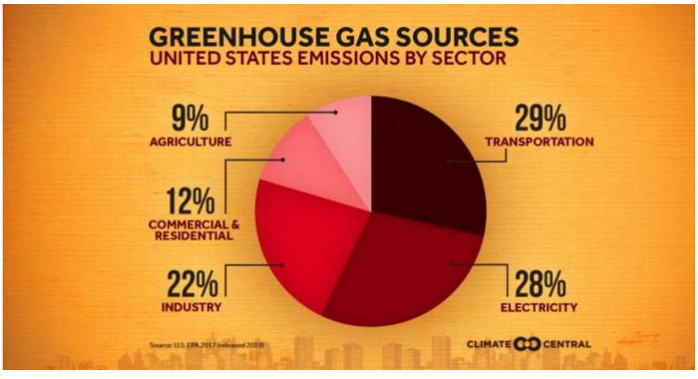



**Figure 7:** Emissions by Sector in the Unites States (Climatecentral.org, 2020).

The percentages in Figure 7 indicate the impact a collective of individuals can have by choosing alternative transportation use, or by practicing conservation in the home. A huge amount of GHGs dispensed into the atmosphere could be saved each year. With the current climate crisis, it is pertinent to bring down greenhouse gases, as climate directly affects both the natural and physical environment (Goudie, 2001).

**Reflexive note:** *Being environmentally friendly is a lifestyle or personal choice issue. My carbon footprint is incredibly high from the air travel I take going back and forth between America and England. Some environmentalists might look at this behaviour and count me out of their club for this single issue. Knowing that air travel is an unavoidable truth in my life, as my husband is from England and my studying in England, I make concessions where pragmatically possible like walking instead of driving and eating down on the food chain. Despite my air travel, I view myself as an environmentalist.*

**Ecology and human ecology**

Ecology is the study of organisms in relation to one another in their environment (Marten, 2008). The discovery of the interconnectedness of environment and life is defining the current climate crisis and has been shaping ways of thinking since the 19th century, when Ernst Haeckel developed the discipline of interrelatedness (Orr, 2008). The tiny occurrences that may seem insignificant in one environment, can

have a lasting and pervading effect somewhere else on the planet. This is the best way to explain interrelatedness (Orr, 2008). As humans, we are a part of the biological community that makes up the ecosystem to which we are a part, and we are making significant changes to the environment around us. Unfortunately, humans view themselves as separate to this natural world much of the time. Our interactions are limited, we spend much of our time indoors and we are detached from the other living organisms in our biological community - even down to the food we eat.

Human ecology studies the relationships between people and their environment. Most human ecologists view this relationship as an interaction between human social systems and the rest of the ecosystem (Marten, 2008). If you were to open a human ecology book, you would come across information that propagates the notion that humans operate separately to the rest of the interworking of the ecosystems. For example (after Marten, 2008:14),

> The ecosystem provides services to the social system by moving materials, energy, and information to the social systems to meet people's needs. These ecosystem services include water, food, fuel, material for clothing, construction materials, and recreation.

This defining relationship takes the planet from existing, to existing for us, and I feel this view of Man's interactions with the planet needs serious reconsideration. There is a clear sense of ownership portrayed by humans and the ecosystem they live in, which does little to invoke any sense of belonging or connection to other living organisms within it. If we only ever measure the planet in terms of dollar values, we will never understand the intrinsic value of nature. Aldo Leopold's, *Land Ethic* philosophy, captures the implications of this relationship (Leopold, 1949),

> We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.

In order to negate this abuse and ownership over the land to which we are a part, we must begin to see ourselves as a part of the environment and understand the existence of it, and us.

**The role of experience**

The reflective and regulatory nature of active participation in pro-environmental behaviours share similar foundations with relationships with the outdoors. In an excerpt from Fritjov Capra's book, *The hidden connections: a science for sustainable living*, Capra (2002:61) captures why this might be:

> Recent studies in the new field of cognitive linguistics indicate strongly that human reason does not transcend the body, as much as Western philosophy held, but is shaped crucially by our physical nature and our bodily experience. It is in that sense that the human mind is fundamentally embodied.

Capra expresses the consciousness of humankind in relation to our embodied experiences. In practicing environmental thinking and actions, it seems only logical to see ourselves as part of a living system, part of an ecology. Ecopsychologists argue that in order to increase environmental protection, we must broaden our sense of self to the natural world (Mayer and Frantz, 2004). Capra argues that if our limitations are conceived in our bodily experiences, broadening our sense of self must include new, physical experience (Capra, 2002). Broadening this sense of self is referred to in Wesley Schultz's (2001) article *The structure of the environmental concern for self, other people and the biosphere*, where Schultz argues peoples' environmental attitudes orientate around valuing the biosphere, other people, and the self. Although not founded in actions, Schultz argues attitudes of value are predictive of action.

**Using learning to inform decisions**

The role of knowledge and learning takes our outdoor experiences and allows us to inform the relationship between the self and the environment. By understanding that if an experience has nothing to attach to and nothing to inform, it is isolated from other experiences and learning and left with little meaning (Dewey, 1938). Researchers and policy makers acknowledge education as a tool for managing the current environmental crisis (Levy *et al.*, 2018). Knowledge and education have the strongest predictors of pro-environmental behaviour, and Roth (1992) describes environmental learning and knowledge as 'environmental literacy'.

**Reflexive note:** *Under the previous analysis through the lens What Makes People Environmentally Friendly? the experience was removed from the experience. When thematically coded, Education and Learning were mentioned more often than any other topic. Without understanding the limit of cognition to experience, the researcher could argue, based on the data, that teaching about the environment was adequate to raise awareness of pro-environmental behaviours, but not sufficient to convert to actions. This fails to understand the context in which we are cognitively able to create values and connections. There is a reason why we struggle to feel ties and connections to places we have never been, and people we have never met. It is outside of our ontology, our understanding. Nature, the environment, and the outdoors are not immune. How can you expect people to care about the environment, or consider themselves apart when they have never immersed themselves in nature? These experiences are essential in broadening the sense of self and acting environmentally is partly created by a positive and active relationship with nature.*

**Connection to nature**

'I sincerely believe that for the child, and for the parent seeking to guide him, it is not half so important to know as to feel. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow' (Rachel Carson, *The Sense of Wonder*, 2011).

Fostering a connection to nature is vital in establishing a belongingness to and care for, the natural environment. Research has shown that having a connection with nature is a predictor for pro-environmental engagement (Whitburn, Linklater and Abrahamse, 2019). A connectedness to nature scale (CNS) was created by Mayer and Frantz that measures trait levels of the emotional connection an individual has to the natural world. This assessment proved reliable and supported the claim that 'if people feel connected to nature, then they will be less likely to harm it" (Mayer and Frantz, 2004:512). One theory that sets out to explain this connection is biophilia. Biophilia is the theory that humans feel an inherent connection to the nonhuman environment (Kellert, 2008). A study conducted by Schultz (2000:394) argued that concern for the environment is linked to the degree that individuals associate themselves with the environment. He states how, 'we can be interconnected with other people, or more generally, we can be interconnected with all living things'.

**Using poetry as a tool for presentation and analysis**

'A poem is a verbal construction employing an array of rhetorical and prosodic devices of embodiment in order to achieve an ontological state, a mode of being, radically different from that of other forms of discourse'

B.H Fairchild (2003:1)

Qualitative research proposes a peculiar challenge when presenting the findings regarding human emotion or stories. Educational research has shown that when studying human behaviour that traditional, textual descriptions can be inadequate as Furman, Lietz and Langer (2006:1) explain, 'researchers have struggled with the desire to explore and communicate human truths via this imperfect tool and have grappled with alternative and creative means of representing of experience. One such alternative is use of poetry. Using poetry is a way to present experiences in an effective, organized and expressive manner (Bruner, 1987). Lack of poetic craft is a contingent topic in research poetry, with some arguing that in order to present research in poetic form, there must be an awareness of various poetic techniques and traditions (Percer, 2002). It is my ambition, although novice to the craft, to utilize basic tradition in both the research and the interpretive poems to highlight the aesthetic dimensions you would expect to find in poetry. Faulker (2007:230) offers a basic criterion of art of poetry in research,

> Artistic concentration, embodied experience, discovery and/or surprise, conditionality, narrative truth and transformation. These poetic criteria blend artistic and scientific concerns to create guidelines for evaluating research poetry.

**Value, concern, intention, and attitudes for the environment**

Values, concerns, intentions and attitudes towards the environment were the key components propelling this research forward. Conservation psychologists argue that the attitudes of individuals result in intentions which lead to actions (van den Berg and de Groot, 2012). The pitfall in my project was a lack of discernible actions, but

one could argue an ecological consciousness is an attitude underpinned by some definite actions. Schultz (2001:328) argues that peoples' environmental attitudes orient around valuing the biosphere, other people, and the self. However, these scales used to measure concern were found to have, 'low correlations with pro-environmental behaviour, low reliabilities, inconsistencies across measures, and lack of an integrating theoretical perspective'.

**Reflexive note:** *Having more tools in my arsenal for analysis, and I suppose the general knowledge I have about conducting qualitative research, I would have certainly opted for a more intimate research method, and a smaller sampling pool. Since I have been learning along the way, I wasn't aware of what methods more easily aligned with methodologies. As my study is focused on human behaviour (and in my own bias, I would not have classified my research this way initially), the various processes along the way have been slightly disjointed. For example, as I mentioned above, if I had more experience using qualitative research in practice, I would have used a smaller sampling pool, and more importantly I would have spent much less time struggling to analyse the findings with inappropriate tools. I found a quote from Ratner (2002) that captures this discovery: 'In subjectivism, all viewpoints are simply another way of approaching a thing. But none of them delivers any information about the thing itself. My view that Santa Claus is a myth and your view that he is a real person have equal truth value, namely, none at all. Whether one favours one or the other is simply a matter of how interesting they appear as cultural expressions'. I figured two things: 1. I cannot study or make sense of my Santa Clause (pro-environmental behaviour), but I can study the interpretations and stories around this phenomena, and 2. It is in the stories and interpretations where there is value.*

**Reflexive note**: *The jump from experience to knowledge was made sense of while day-dreaming about a future and potential move to Missoula, Montana with my husband and our son Dylan. Feeling deeply about the importance experience can play in our lives in shaping our values and actions, I began reading about experiential learning - alternative schools in the area for when Dylan goes to school. I found one, whose mission is to connect education, nature and community. Browsing the school, I feel in love with the principles it upheld: Academic Excellence, Place-Based Education, Nature, Community. This alternative school really captures the importance of cognitive development through bodily placement. Upon further investigation, I found this school had been scoring considerably lower than the national average. I'm not massive on test-taking, but as far as the ACT/SAT reading and comprehension test goes, I think it's a pretty good indication of your reading and comprehension (the ACT/SAT are supposed to be indicators of how well you will do at university which I fundamentally disagree with). At this alternative Montana*

*school, 42% scored at or above reading proficiency (stats found on http://www.niche.com), which tells me 'academic excellence' was not being met. The Aha! moment was finding the bridge between experience and knowledge. I suspect that this school may have disregarded the traditional way of teaching but replaced it with something less useful. Robbie Nicol and John Dewey touch on an idea of experiences going nowhere (Nicol, 2014).*

**Reflexive note**: *I think I'm definitely buying what Dewey is selling, and I wish I had more time to deconstruct what he was saying and put it in this thesis. Without knowledge and learning, experience is limited to oneself. So, although experience is entirely essential on forming a relationship with the outdoors, active stewardship, or a way of being, is not actualized. For example, let's consider you were to go for a woodland walk in fall, and you felt the calming nature of your sensory environment, a oneness and serenity, perhaps explained through the theory of biophilia. If you came across a polluted stream, perhaps this would jolt you, or interrupt your experience. Unless you held the knowledge surrounding pollution, what this meant for the surrounding wetlands, wouldn't mean anything to you.*

## Findings

### I. Environmental actions and behaviours

Firstly, addressed will be the environmental behaviours and actions engaged in, or not engaged in, by the 12 participants in the study. Overall, the results demonstrate active moderation of behaviour towards the environment. Actions and behaviours people were asked about included:

a. Reduce, reuse, recycle: reported participation by 100%
b. Vegetarianism or veganism: reported participation by 83%
c. Green consumerism or sustainable consumption: reported participation by 83%
d. Alternative transportation: reported participation by 66%
e. Composting: reported participation by 50%
f. Participating in environmental groups: reported participation by 75%
g. Practicing conservation in the home: reported participation by 66%

It is interesting to note that some of the behaviours refrained from still come from a place of pro-environmental thinking. For example, one participant reasoned not to participate in veganism because 'veganism has become fashion and is not sustainable or environmentally friendly'. Although studies indicate that plant-based diets have a considerably lower impact than those of meat-based diets (Lacour *et al.*, 2015; Rosi *et al.*, 2017), this quote speaks to the subjectivity of what it means to be environmental or to think ecologically. In another action, Composting, four respondents answered no to active participation, but reasoned their choice of behaviour was due to lack of access to garden space or building restrictions.

The fewest number of behaviours any one individual participated in was three. It is evident that we have actively engaged people in our sample. Our next order of business is to try to capture why. The probing of this regulatory and moderative behaviour leads us to interpretive poetry.

*When I was Young* is a collective research poem of the responses found in the data. This poem uses the exact words of the respondents in condensed form. *When I was Young,* utilizes punctuation, breath, and condensing. The process to create this research poem was to first search for keywords, sentences and phrases, and to then rearrange those words into stanzas (Humble and Radina, 2019). There have been multiple versions of this poem, as I have arranged and rearranged numerous occasions, reordering stanzas, switching placement of lines, expanding and then condensing to alter the rhythm and flow (Humble and Radina, 2019).

**When I Was Young**

My memories...
[Feeling] outdoorsy on the top of a mountain
Outdoors in primary school Kingswood trip..
A walk in nature
early morning
Hearing the birds
Animals
The cool breeze of the wind...
Fishing with my dad.
Helping my dad put up the tent…
Embracing the natural environment
At a very young age
Walking at Clent Hills
Freedom!
The feel of nature.
Exploring the fields, woods, brook
Learning
Experience[ing]
Engaging
Peaceful and at one with Nature
nature.

The expressions in the poem above are largely characteristic of exploration, family, and sensory experiences. The stanzas have been crafted so that the last line reads into the next, intentionally, to create a stream of connected experiences and consciousnesses. Connecting to the outdoors feels like a fishing trip with Dad, the

freedom of exploration and absorbing every sound, and every gust of wind on a walk through the woods, perhaps. The following poems, *When I was Young; Blank Spaces* and *Precious Time*, both contextualize the experiences of the participants against their standard daily experience, as well as capture the essence of the experiences and emotion I gathered as a researcher.

**When I Was Young: Blank Spaces**

The world was big when I was young
Traversing the winding bends of the local creek
The cool breeze of the wind
Where the air wasn't stale
Where the teacher didn't drone on
Shackled to the next written assignment.
Days pass more slowly
With nowhere to be, free
On an expedition in the local wood
Land Ho!
I was an explorer.

**Precious Time**

When I was young,
I had my dad.
I used to help pitch the tent
Not knowing today would be gone so soon.
"Hold that corner down tight"
His voice husky from the cold air
He used to let me put the worm on the hook
Slimy in my hands
I wanted him to think me tough.

While staying true to the contextual themes related to family, sensory experience and freedom, these poems extrapolate on the experiences of the respondents and call on the emotions and visualisation of the spaces that contrasted the respondents' first connections with the outdoors. For the participant that spoke of his primary school Outdoors trip, my aim in the first and second stanza was to create the space and feeling for a regular day, around his field trip. I could imagine the contrast, the awe of this new world finally shown to him, against the bland backdrop of everyday school, day after day. I also tied this experience of being 'shackled to the next written assignment' to contrast the freedom to come in the days ahead, as imagined by the next participant, who calls on the experience of freedom and exploration he felt through being outdoors.

*Precious Time* was contextualized by the demographic information offered by the participant. This individual was in the age 40-49 bracket, and throughout his questionnaire mentions his father and his own children. I was left with the subtlest taste of sorrow, reading his responses of family and of his role model, his dad, whom he learned the experience of the outdoors, and how he now passes this experience to his children (as mentioned in later responses). The poem focuses on the idea surrounding precious, fleeting time spent with loved ones in the outdoors (Lahman *et. al.*, 2019). I combined the experience of this individual with the participant that camped and helped pitch a tent with their Dad. These memories spoke of outdoor experiences shaped by the relationships they had with family.

**Connecting to the outdoors in young adulthood**

This section inquired about Experiences in Young Adulthood, asking participants When was the first time you recall feeling connected with the outdoors? and, What about this experience captured you? The strategy followed a similar path in capturing the emergent themes without loss of voice, or loss of personhood. *Freedom Without Confinement* is an interpretive free verse poem using condensed phrases from the responses:

**Freedom Without Confinement**

An adventure sports camp,
Camouflage infiltration inside the forest.
What does it feel like?
It feels like... like …. finally catching your breath
Like walls coming down and
you know there's blood in your veins
Pulsating
You're here.
You've always been here, but not quite like this
The world is brighter
You're not dragging yourself along
A sense of achievement
Summiting a mountain
Earning my views
What does it look like?
Like your baby taking his first steps
And you know they're not your steps
But it still feels like a part of you
What does it taste like?
Crossing the finish line, a salty bead of sweat on your lips
Like gin and tonic after your graduation ceremony

Independence
An expedition.
What did you do?
I went outdoors again.

While the experiences of connecting to the outdoors in childhood were heavily centred around family and sensory experiences, the responses to these questions were more concerned with freedom achievement, adventure and independence. *Freedom Without Confinement* blends my perspective and experience as a lover of the outdoors. I played on a personal experience to write the poem; my first time rock climbing, when I woke up the next morning in the tent and stepped outside, and the world was brighter. I was so full of joy, my life was changed. I can see the view now, the sun streaming in through the trees, burned in my memory.

**II. Reflection on relationship with the outdoors - informing decision making**

Question 3 in Segment 1 of the questionnaire, Does your relationship to the outdoors influence the relationship you have with the natural environment? and How does it play a role in your day-to-day decision making? elicited words and phrases which were placed into a word cloud to identify the top topics in the responses. I chose to vary from research poetry as this question (in the questionnaire design), was the intermediate between the two open-ended response segments.


**Figure 8:** Word cloud generated on relationship to the outdoors day-to-day decision making

The word cloud guides attention to the themes using text emphasis (Felix *et al.*, 2018). The repetitions of concepts within the word cloud demonstrate the connection the individuals have made between the outdoors and their actions toward the environment (in the form of day-to-day decision making). Impact was the most used word in the responses of the participants, which indicates that active thinking and reflection grounded in outdoor experiences, have resulted in an understanding of the impact the individuals have in the outdoors and natural environment. Included also were key words to indicate knowledge on how to negate environmental impact or act sustainably. Using this graphic organiser, the knowledge of the respondents on this given issue was portrayed with clarity (DePaolo and Wilkinson, 2014).

**III. Experiences in childhood related to actions towards the environment**

This section is connected to Segment 3, Question 4: What experiences in your childhood do you feel may have contributed to your behaviour or actions toward the environment? For this set of responses, I subverted collective inference making, instead I sought to find the key words and meanings within the text (Lahman *et. al.*, 2019). This process helped to critically focus and condense the words of the participants in a meaningful way.

The resulting poem, *The Things that Change You*, was titled with the intention of emphasis. It was <u>not</u> reported by respondents that the 'The Structure of the Environmental Concern for Self, Other People, and the Biosphere', was prominent in their minds. It was Dad, and holidays, and playing in trees. Although these factors might have come to shape an individual's responses in Schultz' (2001) study, or the responses in the Connectedness to Nature Scale (Mayer and Frantz, 2004). However, it is imperative to flesh out the roots, the foundation for which this connection and attitudes have been shaped.

**The Things that Change You**

My Parents.
My Dad, my Father
Being outdoors with family and friends.
Holidays in the Lake District.
The mountain environment very different to home...
My curiosity with nature.
Playing in trees.
My ADHD.
Living in the sticks.
My Backyard.
[Growing] up in a vegetarian household that reduced, reused, and recycled
Reduce, Reuse, Recycle! Often recited to us in primary school
[Standing] in human waste on a mountain
Rubbish in the park.
Nature should be kept as it is.

After finding the key words from the respondents, the research poem made clear, and critical points (Ziehl and Jerz, 2013). The stanzas of this poem were grouped thematically to flow from point to point; first recalling the impact family has played then linked to experiences in the outdoors, to different environments the respondents engaged in. These environments seemingly impacted them sufficiently to recall as being significant and feature in conscious decisions about the environment, and finally, to learning passed on from family and teachers.

**IV. Experiences in young-adulthood related to actions toward the environment**

As we follow the respondents into young-adulthood, we see further the role that a connection to nature, education and learning, and sensory experience continue to play in forming the participants' pro-environmental thinking and actions. An interpretive poem is utilized here with condensed phrases and keywords. The short responses to the questions, What experiences in young adulthood do you feel may have contributed to your behaviour or actions toward the environment? and What experiences in adulthood do you feel may have contributed to your behaviour or actions toward the environment? were the data to formulate this poem.

**When I Got Older**

When I got older,
I went outside instead of using tech
I spent time in the outdoors with scouts
And I was inspired by my hippie teacher at school
When I got older
I began to realize
The amount of people and wildlife
That lived in the outdoors
I lived in new countries
I Learned.
Learned about norms
Learned about pollution
I educated myself
Studied sustainability
When I got older
Peer pressure forced me to adhere to society's norms
Seeing natural landscapes covered in litter angered me
The hazards it posed to the animals bothered me
And I realized the impact we can have
When I got older
I realized I was still young.
If I had known then, what I know now.

This poem interprets the significant maturity of self among the participants. There is a clear expansion of self and expansion of knowledge noted, indicated by the phrases 'studying sustainability', 'educating myself", and 'the impact we have', in reference to learning about wildlife in the outdoors. Many of the responses show a growing environmental literacy (Roth, 1992) there being more in this segment than in the childhood experiences segment of the questionnaire. This could indicate that a connection to nature is maintained into young adulthood, which supports Whitburn

*et al.* (2019) and Mayer and Frantz's (2004) claims that a connection to nature is predictive of greater pro-environmental action.

**V. Experiences in adulthood related to actions toward the environment**

Our final piece of this narrative journey is on reflections in adulthood. This poem is a continuation of the previous poem. When these responses were initially analysed, they were written in continuous form due to the similarities of phrasing. The decision to separate was made to allow clarity of age progression from childhood to adulthood. The data are responses to the question, What experiences in adulthood do you feel may have contributed to your behaviour or actions toward the environment? The following poem follows the same format as *When I Got Older* and should be read as a continuation.

**…When I grew up**

I travelled to other countries
And I saw the way the people there treated the outdoors
I lived independently, making my own decisions
The more involved I became in nature
When I grew up,
My degree gave me a broader understanding
knowledge
Seeing spoiled environments
Made me realize I can do more
When I grew up,
I had my own kids and I decided
To encourage them, to expose them
To explore
The same way I was encouraged when I was young

One major difference in these responses compared to those for young adulthood is the cycling of experience, capturing the importance of family and role models. An overall impression given by this last set of reflections is how even in adulthood, the experiences influencing their behaviour toward the environment are still grounded in their connection and involvement with the outdoors, as argued by Schultz (2001), and Mayer and Frantz (2004). This is the strongest evidence that becoming a pro-environmental actor and thinker is intertwined with a relationship with the outdoors. This outdoor-based connection demonstrates further how learning and experience inform one another (Dewey, 1938).

## Conclusion

Utilizing poetry in this study has allowed me to present experiences shared by the participants in an expressive manner, and allowed participants' voices to remain

heard (Bruner, 1987). This method of qualitative presentation brought to life the open-ended questions of the questionnaire, more than traditional textual descriptions might have done (Butler-Kisber, 2002). The following points are tentative recommendations from my initial analysis of the data:

- The data shows feeling connected to the outdoors is a determining factor for pro-environmental behaviour.
- Recommendations can be made that adventure camps and team expeditions were a leading factor in harbouring a connection between young-adults and the outdoors.
- Connecting to nature is indicative of acting pro-environmentally.
- Time spent outside for young adults produces a higher degree of environmental concern.
- Learning about the environment and environmental issues can be an effective tool to combat the global climate crisis.

These recommendations offer little in the way of capturing essence or voice and are a fairly empty interpretation without the stories behind them. Using narrative and interpretive poetry, created space for a more adequate representation of the human experiences shared by the respondents (Barone and Eisner 1997). Use of narrative poetry was incredibly useful in identifying the themes in connecting to the outdoors, as well as the themes within the reflections of moments thought to shape participants' behaviour and actions toward the environment.

As a novice student of poetry, the essence I attempted to portray, and blend into the experiences shared by the participants may not be exceptional, or reflective of the meanings of their experiences. However, I hope to have achieved the goal of offering a deeper insight into what pro-environmental care and stewardship can come about in society and look like through people's actions.

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## JQRSS Author Profiles

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## Reviewer Comments

This paper details a rich journey of methodological awakening, as the author steps bravely into the qualitative field with great effect. The tension-balance between beliefs and behaviour is echoed in her initial methodological decisions. As the author remarks, “without knowledge and learning, experience is limited to oneself”. However, the author has shown that without experience, such as her a qualitatvie leap of faith, knowledge and learning can be limited to scientific dogma.