BRAINSTORMING: HOW THE BRAIN SCIENCES CAN INFORM
SOCIAL JUSTICE STRATEGIES

by
MARC ANDREW BRILLINGER

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Abstract

Anthropogenic climate disruption (global warming) and income inequality are in the process of spiraling out of control, pushing humanity to the brink of global collapse and mass extinction of species. Underlying this profound issue is an epic struggle taking place between two alternate worldviews. Corporate institutional power has morphed economics, capitalism and the “free market” into a suicide machine that increasingly extracts, exploits and selfishly hordes the bulk of the world’s wealth for the few. The obscene wealth and power of the plutocrats and oligarchs has rigged both economics and politics to benefit the one percent and destroy the environment. Alternately, social justice led by activists have made valiant attempts to slow down this process and regain some sanity with a return to community, sociality and cooperation. A world worth living in hangs precariously in the balance.

This interdisciplinary research focuses on the critical, yet unexplored, intersection of social justice and the burgeoning brain sciences. The “brain sciences” refers to the rapidly increasing interdisciplinary understanding (from neuroscience, biology, social sciences etc.) of the human brain, mind, consciousness and their relationship to institutions, cultures, society and human belief and behaviour. A synthesis of the knowledge arising out of the brain sciences, as it applies to existing social activist strategies and tactics, now seems a necessity in the attempt to restrain corporate institutional power that is currently running amok in North America and globally.

Extensive interviews with fifteen North American activists on the current state of social justice movements and their understandings of the brain sciences comprised the core of the research. Using grounded theory methodology, initial analysis confirmed that corporate institutional power was the roadblock, obfuscating any positive social change on both anthropogenic climate disruption and income inequality. Deeper analysis of the data, along with the integration of the brain sciences, resulted in a specific strategic recommendation: A global mythology for the 21st century, cognizant of the science of our time and powered by moral outrage, has to “culturally evolve” and spread around the world inhabiting many minds in many places enabling a global cultural environment that nurtures connection, cooperation, cognition and childhood. We can be magnificent, together.
Preface

The research study upon which this dissertation was based was approved by the University of British Columbia Okanagan Behavioural Research Ethics Board on January 17, 2013. The UBC BREB number is H12-02634.
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Introduction

I think that it's a great intersection, it's an amazing intersection when you look at social justice and brain sciences. I think it's fascinating. (Susan Magsamen)

I am intrigued to see your work...you have done a bunch of the work that's exactly what we've been looking for in some ways – this synthesis work. We get contacted by academics all the time. It's relatively rare that it is worth it [to us], that we have the capacity to make the time to talk to them. You are actually synthesizing a field of work and doing it with an agenda and a lens that I think will make it useful for social movements. So I'm excited to see some of that work you do synthesizing. (Patrick Reinsborough)

We are in desperate need of heroes and rebels. (Brillinger 2010)

Circa 1965. Click. I press one of four buttons—real, physical, tactile buttons that had to be pushed hard to get the satisfying mechanical sound. Click. The channel changed. I changed. The world changed.

Technology. My love-hate relationship with technology officially began with that crude but wireless television remote control. By comparison, the digital TV remote of today has 58 buttons, has no satisfying click (except the fake sound coming out of the receiving device) and seems to be infinitely more aggravating and annoying than the “clicker” I remember coveting as a child. Actually, I am annoyed with technology right now; my voice software has slowed to a crawl as I dictate this onto a new 50 inch monitor (LED “Smart” TV). I’m using voice software because my body has totally rejected using the mouse, “clickers” and typing/texting; it’s worn out. I hate technology for that. The “Smart” TV is probably affecting the voice software in some way—that will take me an undetermined amount of time to figure out. Why the overly large monitor? I thought it would help me finish what you are now reading and yes, eventually, it did.

Technology. Acquiring the “Smart” TV also reminded me how fortunate I was to have been born in 1958 and not the early 1990s and beyond, a time when children began to be completely bathed in the warm fog of corporately controlled screen technologies. Targeted. The hypnotic lure of the high resolution LED screen, which even I find hard to resist. It seems more real than reality, its soft embrace, with endless choices as it wirelessly hooks up to the Internet. If I had been exposed to this level of technology as a child, I would not be who I am now. I would not think the same, I would have a different brain, a different mind. The thought of it frightens me. That I would be unconnected to much of the natural world, unaware of the effects of media use, the dark side of technology that I would believe consumption leads to happiness.
because of what my own culture did to me as a child. Just thinking about it is enough to make one crazy.

Technology is quietly intertwined in the story that I am going to share with you. It seems that technology has helped alter the balance, always fragile, between social justice and institutional power. Conformity and diversity, capital and labour, individualism and cooperation, oppression and social justice, growth and ecology have all been knocked askew. The “angels of our nature,” altruism, empathy and even our basic sociality, struggle to be heard over the relentless, repetitive wailing of the “free market” fundamentalist memetic virus urging greed and selfishness. Digital technology, communication technology, brain scanning technology, big data, media technologies and the brain sciences themselves are increasingly utilized and controlled by the oligarchs and the plutocrats and the corporations they run. Social justice and activism valiantly resist this onslaught, winning occasional battles but, inexorably, increasingly, “losing the war.”

Greenpeace has often done more...focused targeted things like the brand-damage campaigns, but increasingly, there’s a recognition that we might be winning battles but losing the war. (Alex Speers-Roesch)

This situation continues with an epic battle of narratives, of mythologies, laden with values, ethics and morals (VEMs); an archetypal struggle between competing worldviews and beliefs—a quintessential David and Goliath battle. The corporate (hegemonic) worldview has been extraordinarily successful over the past few decades in fully exploiting both the nature and nurture of human development and human tendencies. “Regulated” capitalism, having bestowed significant benefits to humanity over time, now increasingly unregulated, has ceased to care about people. Unregulated capitalism has, in a nightmare of Ayn Randian lunacy, become a cruel and relentless beast—a global suicide machine. For social justice, activism and social change it is not a question of who or what is driving the death of democracy and the extinction of the social contract. The big question is how can institutionalized corporate power, the corporate state, be brought back under control and some semblance of balance be restored?

I wrote this because in my earlier work (Brillinger 2010), I concluded that rapidly expanding levels of human knowledge were correlated with rising authoritarianism (corporate institutional power/neoliberalism/plutocracy). This type of correlation is not what is commonly

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1Neoliberalism is the global manifestation of “free market” ideology in the form of policies promoting core values of corporate institutional power including; privatization, commodification, free trade, deregulation and
expected or accepted. We generally think that increases in knowledge improve the human condition; obviously that is true, to some extent. However, in terms of the here and now, it seems knowledge has been central to the rise of corporate institutional power (CIP) and some increasingly poor outcomes. The most important increase in knowledge I saw was within the brain sciences. Since the genie is out of the bottle and there is no going back, I decided to have a closer look at the brain sciences to get a better idea of what we know about human brains, minds, and human beliefs and behaviour. So, the first chapter is a primer on the brain sciences reflecting my efforts to understand and interpret what is currently understood. The purpose in doing this (besides it being knowledge that everybody should have) was to understand the brain sciences well enough to re-examine the ongoing struggle between institutional power and social justice with the brain sciences in “mind.” I then began to wonder if the brain sciences could be utilized by social justice as effectively or, even more effectively than institutional power has been up to this point.

This leads me into describing what exactly I did, which was to ask activists about the brain sciences, corporate institutional power and social justice. To do this, I interviewed a talented, eclectic group of activists (Appendix A) currently resisting institutional power structures throughout North America. I then analyzed the interview transcripts (data) and the subsequent results (chapter four) and, again, through the lens of the brain sciences, continued the analysis to build theory (chapter five). The outcome will be to hypothesize and construct alternate theoretical and practical approaches for social change through social justice activists’ experiences and recommendations for social change, while considering current knowledge gleaned from the brain sciences.

This is, in part, the activists’ story. Of heroes and rebels fighting against immense power to change the narrative, to reconnect story to reality. Social justice must influence and persuade civil society that, continuing with the corporate narrative towards increasing income inequality and anthropogenic climate disruption (ACD), means everybody loses, even the wealthiest one percent. This is a story of possibilities. The possibility that we are smart enough to turn science and technology and our deepening understanding of human brains, minds and behaviour, back into a tool for the rest of us, the 99 percent; the possibility that our collective moral outrage at the elimination of concepts like community and the “public good.”(Giroux 2014; Corpwatch 2014) Corporate institutional power and neoliberalism are synonymous terms herein.
the inequality and destructiveness of hypercapitalism will result in a mass movement toward something better.

There is a lot here. I have come to think of this work as a kind of “textbook” for an interdisciplinary course on activism and social justice that would be appropriately placed within a larger curriculum of social change issues. But more importantly, my hope is that there are aspects of this dissertation (most likely in chapters four and five) that can be directly adapted and applied by social justice activists in their ongoing efforts for social change. Just like the brain sciences themselves, this is an interdisciplinary endeavor spanning many different disciplines in an effort to address very difficult questions. I am attempting to look at the big picture; as Mark Rudd noted,

I’ve always been the kind of person who likes the big picture, I don’t know why it is that other people don’t.

Looking at the big picture in an interdisciplinary way in the “Academy” has been a difficult process at times. Academia traditionally focuses narrowly and deeply. Interdisciplinarity is a purposeful, as well as a necessary shift away from that somewhat limiting tendency into a wider view of what we understand and how various aspects relate to each other. This is not to say that the University has not made efforts to recognize interdisciplinarity, as UBC has a significant interdisciplinary program and York University’s tagline for some years was “the interdisciplinary university.” Even so, saying and doing are slightly different things as interdisciplinarity is a different way of understanding. It is to understand that the relationships between divergent areas of knowledge and actual events in the world is where new knowledge and creative solutions are to be found:

The idea that will change the game of knowledge is the realization that it is more important to understand events, objects and processes in their relationship with each other than in their singular structure. (Csikszentmihalyi 2009:np)

Understanding the relationships between the brain sciences, human belief/behaviours/cultures and evolution is my task in chapter one. Our understanding of our own inner worlds expands by the month and, although far from complete, much is now known. I have split chapter one into two separate stories—one containing more functional aspects of the brain and one more evolutionary—that remain intricately connected, just as the corpus callosum connects the left and right hemispheres in our heads. Beware: understanding the human brain, mind and consciousness can be unnerving, if not downright alarming.
Chapter two reviews four concepts, their relationships to each other, the brain sciences and, most importantly, their connections to understanding and constructing activist strategies. First, the “dilemma” reminds us that we live in a time of extreme global risk driven by Anthropogenic Climate Disruption (ACD) and income inequality, both of which are intimately connected to an out of control hypercapitalism. This is followed by an examination of how institutions and cultures blind themselves to such seemingly obvious and dangerous risk. The final two concepts in chapter two reside deep in the human condition and have been with us for millennia: values, ethics and morals (VEMs) and, myth, memes and narratives. Whoever tells the stories and dictates the moralities of cultures and societies, both locally and globally, will probably determine our collective future.

Chapter three summarizes the research process and the use of grounded theory as a qualitative research method because of its ability to generate practical theories from data. In Chapter four, I have tried to clearly express what activist contributors have said, which could stand alone as a fascinating, informative and eloquent document in an expanded form. This chapter ends with a discussion of the results and the beginnings of the theoretical implications (establishing connections and relationships) of the research. It is in chapter five that I attempt to fully integrate and synthesize the research results, and all that has gone before in this thesis, including all my previous experience, into practical theory. The goal of this section is practical, knowledge-backed action in the spirit of Paolo Freire:

Paolo Freire called it ‘praxis,’ using the word in a very special way where he talks about information and study and reflection in combination with action to liberate yourself, to fight your own oppression, that in turn motivates you to want to learn more, and that learning is directly relevant to the action you're taking because it has to be, because your survival depends on it...that's the ‘praxis’ of Paolo Freire. (Rancourt in Brillinger 2010)

Chapter six concludes this work with my last thoughts reflecting on the entirety of the thesis and hope for the future.

A note on style. The participants were interviewed between January 2013 and August 2013; their quotes are in a different font (Calibri 12) with their first and last name following in brackets. Quotes from other sources are in the standard font, followed by the standard reference format.
1. The Brain Sciences: A Literature Review

The brain is...who we are and so the more we understand, the more we can honour it and use it in all of its best forms. (Susan Magsamen)

What are these developments in brain science that you feel like it's important for social justice movements to know about, because that's stuff that, if we had more capacity, we would probably be doing more research and development around...but, instead we’re practitioners, we are out there, all of our movements are completely under-capacity and we're just sort of moving from one crisis to the next, slowly trying to shift people...(Patrick Reinsborough)

The “Brain sciences” refers to the rapidly increasing interdisciplinary understanding (from neuroscience, developmental science, social sciences etc.) of the human brain, mind and consciousness and their relationship to institutions, cultures, society and human behaviour.

The brain sciences and the brain are important for those involved in social justice to understand and utilize in “all of its best forms” in the current struggle for social change. Therefore, the literature review delves deeply into the burgeoning interdisciplinary brain sciences, focusing on how the internal mechanisms of the brain/mind direct the behaviour of human beings. The literature will be integrated and synthesized into two distinct categories: first, our understandings of how the brain and mind perceive and operate in the world and direct human behaviour; and, second, how evolution of the brain (both biologically and culturally) from the distant past to the immediate present, contributed to and continues to influence developmental and behavioural aspects of the brain and human behaviour.

The “brain sciences” represents the vast interdisciplinary effort currently underway, exploring and unlocking many of the mysteries and intricacies of the human brain, mind and consciousness. Through these efforts, human behaviour, driven by the brain and interposed by the mind, is being exposed as never before. It is becoming clear that we are not nearly as in control of ourselves as previously thought. We are pushed and pulled by the unconscious, by millennia of evolutionary forces on the brain and millions of moments of experience that wired each of our minds (Eagleman 2011; Kandel 2006; Steen 2007). We have also learned how easy it is to manipulate the mind and direct human belief and human behaviour, thus confirming that we are easily led (Zimbardo 2007; Taylor 2009; Pagel 2012; Burton 2008). Brain science is
arguably the most powerful technology\(^2\) ever unleashed by human beings on other human beings:

> It’s terrifying actually, the kind of technologies that could develop out of research in brain sciences and psychology. (Alex Speers-Roesch)

Brain science technology has the capacity to go deep into brains, minds and consciousness altering and rearranging the trillions of synaptic pathways that make each of us unique, for better or worse. This brings me to cautionary note number one: findings from the brain sciences might, in practice, de-motivate and demoralize activists in their battle for social justice and social change. Susan Linn mused on this possibility during our interview:

> It's also possible...I'm just throwing this out, I haven't exactly thought of this before, but it's really possible that activists need not to be thinking about some of the questions that you're asking. (Susan Linn)

I have experienced a certain angst myself as I researched and wrote about the brain/mind, wondering at times—do I really want to know? Do I really want to ask those questions? I’ve experienced this angst before when looking into the darker recesses of the human mind and human behaviours, which can be troubling to say the least. I have always come down on the side of “I would rather know” but I’m quite cognizant of the difficulty that can, at times, result. In this particular case with social justice and the brain sciences, considering what’s at stake, I see no other option.

### The Brain and Its Discontents

Four hundred years ago, Galileo revealed that the earth and its inhabitants were not the centre of the universe. Strike one. This was revolutionary science, an affront to the powerful and what was “believed.” One hundred and fifty years ago, Darwin revealed that Homo sapiens was not central or even particularly special among the multitude of species on earth. Strike two. This was revolutionary science and the “belief” wars raged. In the last twenty years, a vast interdisciplinary effort in the brain sciences is indicating that we are not nearly as much in control of *ourselves* as we thought we were.\(^3\) This too, I would argue, is revolutionary science. We are not the centre of the universe, we are not the centre of the earth and now, “we have experienced a fall from the center of ourselves” (Eagleman 2011:193). Strike three.

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\(^2\) Technology: knowledge practically applied

\(^3\) In fairness, Freud was the first to put forth the premise that the unconscious was a busy and influential place, hidden away from our conscious selves. He also made the Galileo/Darwin argument.
This is a review and synthesis of 21st-century brain science. The underlying question driving this review is: What, if anything, can be learned from what is currently known about the brain and mind that would be helpful to our global future? My response is necessarily split into two parts. This first part “The brain and its discontents” introduces the brain, mind, consciousness, reason/emotion and then focuses on perception, memory and, most significantly, belief. It deals primarily with how brains work and their subsequent effects on human behaviour in the here and now. The second part “The evolutionary brain” is concerned with the evolutionary, genetic and environmental (both cultural and physical) shaping of brains from a few million years ago to today.

Science of the mind is revolutionary science. It is subversive: it changes worldviews. My experience of a unitary, controlled, rational stream of consciousness, recording the external world like a video camera and then basing beliefs and decisions upon that process, is highly misleading with regard to what is actually occurring. It is more likely that my actions, motivations and beliefs are driven by the millions and millions of moments of experience in the environment that accumulate over a lifetime in combination with evolutionary factors and, that much of my behaviour is driven by processes beyond my conscious grasp. Susan Magsamen explains:

I think the unconscious is so at play in so much of what we do, I think we intellectualize it but I think there's just so much that is unconscious. Wonderfully unconscious. And probably frighteningly unconscious, but unconscious nonetheless. (Susan Magsamen)

Understanding the power of the unconscious can be unnerving but has tremendous explanatory power when trying to understand a troubled world. Secondly, my view of others, people, groups, societies and cultures, behaviours and beliefs has shifted towards a more conciliatory position. They, also, are not sitting as comfortably in the driver’s seat of beliefs and behaviours as we imagined. Thirdly, I used to assume that “intelligent” people could not possibly believe the nonsense they espoused and that they were predominantly lying as a way to manipulate people and gather power. While people lie for a multitude of reasons, I now consider the strong possibility that many actually believe their own mendacities more often than not.

Belief, since I have mentioned it, can be assessed on two continua: from somewhat related through completely unrelated, to the material reality in which we live; and, from the very constructive to the harmless and on towards incredibly destructive. Beliefs, other people’s and our own, need to be approached with caution.
To be cautious and suspend belief is not new to me. Some years ago I worked with young children in multiple venues—schools, day care, summer camps etc. In most of these settings, with the majority of children, my default setting was to believe what children told me but, my belief was conditional and dependent on current and changing circumstance. This was a necessity and safety measure for the children and for myself. Children sometimes get things wrong and believe things that did not happen. As we grow toward and then achieve maturity, it is a shock to realize that we do not grow out of this state of getting things wrong and believing things that did not, or could not, happen. Age is no barrier. To believe anything no matter how far-fetched, destructive and unrelated to empirical reality, is part of the human condition. Add a dash of self-interest and believing anything is possible. Take, for example, the seven “dwarves” (the seven top CEOs of big tobacco) who testified on camera that nicotine is not addictive and smoking does not cause cancer. Keep in mind this was 1994 when there was conclusive evidence that nicotine was addictive and smoking did cause cancer. Cameron Gray comments on this infamous event:

I do think they believe what they are saying...truth is effectively irrelevant.
(Cameron Gray)

Let me say a few things about the revolution in brain science that are based on evidence and have truth value. The human brain is complex, likely the most complex object in the universe (Steen 2007:27). The numbers are enormous: ~100 billion neurons, each with ~1,000 possible connections, resulting in trillions upon trillions of synaptic gaps between neurons. There are probably more possible brain states than there are particles in the known universe (Sacks 2010). The 1990s, dubbed the decade of the brain, was a modest overture to the 2000s, the decade of brain therapeutics, and to the rest of the 21st century, the century of the brain (Kandel 2006:362). Already some revolutionary results have occurred. Psychiatry, a large lumbering powerful discipline, if ever there was one, is in disarray, hammered by the findings in neurology related to psychiatric illness and brain therapeutics (Kandel 2006:362). One eminent University of British Columbia (UBC) neuroscientist has gone so far as to say that the DSM V (Diagnostic and Symptoms Manual, fifth edition, the psychiatrist’s bible) will be nonexistent in twenty years (Fibiger 2012).

On a related note, the promise of using brain imaging technologies to evaluate psychotherapeutic results has begun to be fulfilled (Kandel 2006:370). On yet another front, the extreme dynamism and malleability of the human brain in children, have been

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4This prominent UBC neuroscientist also said five years to a Alzheimer’s/Parkinson’s treatment/cure.
shown to be increasingly critical and extremely delicate, presenting both “wonderful benefits and terrifying threats” in the mediated technological soup of the 21st century (Greenfield 2008:10). The adult brain, long thought and taught to generations of medical students to have no plasticity and no ability to regenerate brain cells (neurogenesis), actually has at least a limited capacity to do both (Greenfield 2008). Then there are the great mysteries and wonders of the ages, such as the mystic, paranormal and occult, which are becoming “nothing more than tremendously interesting by-products of the ways our brains produce conscious awareness and control our behaviours” (Ramachandran 2011:314). On and on it goes, to what may be the most difficult aspect of the brain sciences, namely, “that conscious thoughts are the mere tip of the cognitive eyes and the vast majority of ‘thought’ occurs outside of awareness” (Burton 2008:130).

Brain science is rooted in “neuro-physicalism;” that is to say, all mental events are the result of brain events (Flanagan 2011:6). The brain, as a physical organ, creates parameters for the kinds of thoughts we can think. More importantly, changes to the brain can alter what actual thoughts we may or may not have within those parameters, affecting our minds, sometimes shifting our personality or our ‘reality’ (Eagleman 2011:3). Brains drive behaviour interposed by the mind and conscious awareness is “most of the time, not” necessary during that process (Eagleman 2011:7). In other words, much of our behaviour is motivated by non-conscious operations that we mistakenly attribute to the conscious ‘I.’ The non-conscious operations themselves are the result of previously embedded evolutionary and environmental experiences and developmental sequences which may or may not result in behaviour appropriate to current circumstance. Karen K summarizes this idea succinctly:

We are products of everything that brought us to here. (Karen K)

The information presented here has been synthesized from over twenty-five current books encompassing a wide variety of diverse disciplines contributing to the brain sciences including: molecular biology, sociobiology, evolutionary biology, neurobiology, chemistry, neurophysiology, evolutionary/cognitive/neuro psychology, neuroscience, social/cultural neuroscience, neurology, behavioral neurology, computer science, philosophy, history, cognitive psychology, cultural/social/neuro anthropology, paleontology, from scientific textbooks to popular science writers. The brain sciences in the 21st century could be the ultimate interdisciplinary endeavour encompassing, somewhat equally, the physical sciences, biological

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5 Personal experience, although valid, does not necessarily indicate empirical reality.
sciences and social sciences (Shermer 2011:51). In part, this chapter is an argument that, regardless of the academic discipline, a basic understanding of 21st century brain science is essential knowledge. In fact, understanding how brains and minds actually work is essential knowledge for all of us purely as a protective measure in the modern world.

Clearly, science as a method is not without its detractors, given its historical obsession with reductionism and claims of pure objectivity amidst some truly crazy and, ultimately, erroneous findings historically. Brain science supports being cautious as we come to understand that reason, rationality, objectivity and critical thinking are often hijacked (or more accurately, inextricably linked) with emotional, non-conscious, automatic processes. Belief becomes especially dubious as we come to realize its tenuous relationship to empirical reality. However, as we shall see, an increasing understanding of the brain tends to motivate a more refined scientific method that is fully cognizant of the real magician that “hides inside our heads” (Polidoro 2007:42). Scepticism and intelligence alone are no match for the power of unsubstantiated belief and oppressive authority. So, when how we know what we know is heavily influenced by non-conscious processes and addictive hits of dopamine, there seems nowhere else to collectively turn but to a prudent scientific method. Science, so far, is all we have to cooperatively grasp the edges of a global reality where we can and, increasingly, must.

This literature review is not particularly concerned with structural aspects of the brain and the enormous amount of information about the intricacies involved in the hard science of the brain. Rather, it is a primer about the results: what the findings say of the brain, mind and behaviour. Having said that, the brain has been conveniently structured over time, building upon each previous part as follows: brainstem, hypothalamus/thalamus, cerebellum and two cerebral hemispheres. The important structures, for the purposes herein, are the cerebral cortex (the outer covering of the cerebral hemispheres) where “perception, thinking, planning, and decision-making” occur (Pinker 2011:499) and the limbic (survival/emotional) system (deep within the cerebral hemispheres including the amygdala and hippocampus). The limbic system is what we have in common with the rat.

So, I begin with a closer look at the brain and the basic driving process at the neural level, processes that result in the emergent complexity that is the mind and consciousness of humans. Then I look at what seems, at first, like two separate systems within the brain—reason and emotion—which are increasingly thought to be interlinked. Perception, our cracked window on the world, and memory, that vast storehouse of experience stitched together throughout the
The human brain is a swollen and warped version of the brains of other mammals. All the major parts may be found in our furry cousins, where they do pretty much the same things, such as process information from the senses, control muscles and glands and store and retrieve memories. (Pinker 2011:485)

A brain is a collection of neurons, each of which behaves in a specific way. (Steen 2007:109)

The brain is organized into subsystems, many of which are dedicated to different functions which are run separately but are integrated with each other. (Eagleman 2011:110)

The basic structure and primary purpose of the brain remains the same in both rats and humans; that is, to maintain the body and survive in the environment (Shermer 2011:117). Redundancy and adaptability (malleability) is a quality built into the circuitry of brains. What makes the human brain unique among mammals is the size and complexity of the cerebral cortex with its densely packed folds allowing for billions of additional neurons and trillions of additional connections. Brain cells/neurons come in a few hundred different varieties, but they all, more or less, work the same. Each neuron is a very small electrochemical processor that can fire (activate) (Herbert 2007; Shermer 2011). Each neuron contains a cell body, an axon cable branching out millimetres to meters in length, and numerous dendrites that provide connection points for other neurons’ axon cables (Shermer 2011). The axon cable of one neuron does not quite touch the dendrites of another neuron, leaving the microscopic, critically important, synaptic gap. An active neuron generates a very small electrical voltage (or series of voltages) lasting for one-thousandth of a second that travels along the axon where it triggers the release of packets of chemical transmitter substances that cross the synaptic gap to another neuron’s dendrites, causing it to fire and so on. The chemical docking process at the molecular level between axon and dendrite causes neurons to activate (Greenfield 2008, 2000; Herbert 2007). This chain of electrical – chemical – electrical events occurring between 100 billion neurons through trillions of synaptic connections creates complex networks of circuitry that form the basis of your uniqueness (Greenfield 2000). There is much more known about the specific

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6 Purely electrical synapses also operate within the brain transmitting only current between two neurons.
chemical molecular operations and neurotransmitters that generate signals (communicate) within and between nerve cells but, what is significant to understand here, are neural circuits and synaptic change.

The number of synapses (connections between neurons) in the brain is not static; it changes with learning and experience (Kandel 2006:198). We are born with the vast majority of neurons that we will have and, during childhood especially, increasing synaptic connections between neurons occur rapidly pushing neurons further apart, creating vast numbers and networks of connections (Greenfield 2000:51). Subsystems and neural circuits connect different areas of the brain. “Each mental function in the brain—from the simplest reflex to the most creative action language, music and art—is carried out by specialized neural circuits in different regions of the brain” (Kandel 2006:xi). Each circuit or neural assembly, in and of it itself, may be relatively simple, but their interactions and organization are complex. The malleability of synaptic connections and neural circuitry during childhood is “exquisitely sensitive to the environment” (Greenfield 2000:57). Much of our worldview (beliefs) and even limits on what thoughts we can have (limits within the limits that the brain itself imposes) are laid down during early and middle childhood, deeply embedded at the neuronal level (Shermer 2011:113). And even though the adult brain retains some malleability and a slight capacity for neurogenesis, overcoming the complex, hardwired connections of childhood is a difficult task (Boivin et al. 2012).

For a cognitive psychology class, I once put together a large and complicated mind map on poster board of the brain’s circuits and connections for implicit and explicit memory. It looked impressively complicated with its hundreds of connection points and lines between circuits and subsystems; and, like all other past and current experimental models attempting to reflect the organization and complexity of the human brain, it was woefully inadequate. Simple and complex circuits in the brain exist for perception and memory, rage and joy, in organized hierarchies or distributed subroutines, within specific organs (amygdala, hippocampus) located in specific areas of the brain (limbic system) or between wildly divergent systems. Size matters in brains when 100 billion (10\(^{12}\) i.e. terabyte) neurons with 1,000 trillion (10\(^{21}\)) possible connections form countless circuits, large and small. It seems reasonable that something complicated could emerge from such a neuronal milieu in the human brain—and something did.

\(^7\) Physical, emotional and psychological
Minds and consciousness arise out of the complexity of the brain. The theory of emergent complexity argues that, from uniquely human minds, consciousness and creativity emerge as something greater than the sum of the neuronal parts. This is theoretical, of course, because we have not quite grasped the emergent complexity of the insect brain (Herbert 2007:39). What we have increasingly grasped, however, is that regardless of how exactly minds arise out of the complexity of the brain, the mind and brain are inseparable\(^8\) (Kandel 2006:xii).

**Minds and Consciousness**

Our minds are all we have. They are all we have ever had. (Harris 2014)

A mind is what arises when a huge number of neurons [brain] are free to perform their functions with a high degree of autonomy. Mind is more than just the sum of neuronal parts; mind is the collection of thoughts, memories, prejudices and predilections that make us who and what we are. Mind interposes between brain and behaviour...(Steen 2007:109)

Mind is the personalization of the brain through our unique neuronal connectivity driven in turn by unique experiences...If we have direct access to the brain and change its physical configuration, we will inevitably transform the mind. (Greenfield 2008:93)

If one believes the mind arises through the neural activity of the brain, one is considered to be a monist—one physical substance results in the brain/mind. Dualists, on the other hand, consider the brain as physical and the mind as something other (Shermer 2011:128). This position of 17\(^{th}\) century Cartesian dualism, whereby mind is something arising out of the spiritual nature of the soul, is becoming a difficult position to maintain in the 21\(^{st}\) century as brain/mind unity is as well a supported theory as any in science (Della Sala 2007:xvii; Kandel 2006:378; Shermer 2011:128).

Suddenly your spouse is addicted to pornography, completely out of character. His or her personality seems to have been hijacked by someone else as you struggle with the sudden shift in “mind.” A brain scan shows a growth in the brain apparently putting pressure on and disrupting some previous burned-in circuit. The growth is removed and the newly developed obsession disappears, instantly. A man falls off a ladder and sustains a severe blow to the head with significant swelling in the brain; his personality, his mind, is altered. Altered brains change minds.

**The mind is a brain with experience.** Each experience has, to a lesser or greater extent, an effect on the brain, generally by strengthening/creating (or weakening, removing, destroying)

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\(^8\) It might be more accurate to say mind, brain and body are inseparable
connections between neurons. Our minds are a reflection of millions upon millions of moments of experience and trillions of synaptic connections created, shifted and refined over time through our interactions with our environment. Emerging out of the complexity of environmental experiences upon the brain is the mind and its attributes—thoughts, memories, prejudices, predilections, feelings, opinions, beliefs, intentions and desires—that, in their totality, make us unique. Mind is simply the result of the ongoing exchange between brains and environment (Greenfield 2008; Reestak 2006; Shermer 2011; Steen 2007). Thus, childhood and childhood environments are critically important in the formation of the mind. Psychopaths and serial killers have minds consistent with their childhoods—a direct result of severe early environmental disruption—created, not born.

Our personalities, deeply embedded within the complexity of the brain, coalesce into the mind and seek expression in our behaviour. Some of those behaviours are consciously driven and many are not. Consciousness is a very complicated element of mind.

Consciousness

Conscious organisms know about their past and can make guesses about their future. They can implement this knowledge and manipulate it through planning. (Laureys and Tononi 2009:12)

Consciousness refers to the fact that we think and feel and the world shows up for us. (Noë 2009:186)

Consciousness is...more complicated than any property of the brain that we understand. (Kandel 2006:379)

If our minds make each of us unique, the element of mind referred to as “consciousness” is our common birthright. Consciousness is an extremely difficult problem, far from resolved. It is unresolved whether consciousness is a distinct operation of the brain (hard sciences) or arises from the emergent complexity of the brain (e.g. Daniel Dennett and some brain sciences) or is only achieved by virtue of brain being active in the external world (e.g. Noë; social theorists). Regardless of these and the many other confusions and arguments about consciousness, I will provide some definitional parameters that will allow us to move forward.

Consciousness is defined in the Stedman’s medical dictionary as “the state of being aware or perceiving physical facts or mental concepts; a state of general wakefulness and responsiveness to the environment” (Steen 2007:190). To be conscious is to have awareness not only of the present but also the past and the ability to integrate these autobiographical aspects when thinking about the future (Lane 2009:234). To be conscious is to be aware and attentive,
utilizing both perception and memory; it is to be fully present in the world (Steen 2007). Being conscious is “extraordinarily informative” (Laureys and Tononi 2009:402) by virtue of shutting out alternative possibilities/experiences and allowing us to completely attend to what is critical in the environment (Kandel 2006:376).

Buried in the definitions just described are two types of consciousness. The first, core consciousness, includes emotions, motivations, pain and some rudimentary sense of self and exists primarily as an awareness focused in, and of, the present. Core consciousness we might consider commonly available in the animal kingdom, especially apes, chimpanzees, dolphins, elephants, dogs and cats. The second, extended consciousness, includes core consciousness with the significant addition of an:

…awareness of self embedded in the world—a rich autobiographical awareness that defines an individual in the context of society and culture and history, with hopes and fears for the future. (Lane 2009:234)

Humans have the core consciousness of our mammal ancestors and some form of enriched awareness that is more or less unique to us.⁹ Both demand awareness of the environment in the present tense. Humans, by these definitions, have acquired the ability to consider the past and the future in a deeper sense while experiencing the present. As I write this, my eyes are flicking back and forth between the computer screen and the outdoor scene through the window. I attend to the numerous objects (yes, they have a past, it occurs to me), an endless stream of thought flows through my mind (some of which is connected to what I'm doing, some completely unrelated) and I actually feel somewhat securely “embedded in the world.” But I'm missing something. I have no idea where these thoughts are coming from and the limited ability to hold just a single thought at a time, so limited is this conscious experience, it cannot be the whole story. The single thought, *trillions of synaptic connections* ‘pops’ into my conscious mind.

**The Nature of Consciousness**

The nature of consciousness is unitary. This makes our conscious experience seem smoothly connected moment to moment, unfractured, delivering a seamless integration of sensory experience and perception into a unified whole (Kandel 2006; Lane 2009). We experience our own movie. As we shall see, processes within the brain not available to our conscious mind, are binding numerous discrete bits of information behind the scenes to achieve this unitary effect.

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⁹The debate whether some animals have extended consciousness continues...
The nature of consciousness is limited. What is going on in the conscious mind is only a glimmer of the totality of the brain’s operation: “the conscious you—the “I” that flickers to life when you wake up in the morning—is the smallest bit of what’s transpiring in your brain” (Eagleman 2011:4). Human consciousness, extended or otherwise, has some serious limitations. While not a design flaw per se, consciousness needs to be limited and those limitations need to be understood. So let’s turn to the two central interrelated themes that permeate and predominate throughout the human brain.

**Cognitive and Emotional – Controlled and Automatic**

Two separate systems: one is fast, automatic and below the surface of conscious awareness, while the other is slow, cognitive, and conscious. The first system can be labeled automatic, implicit, heuristic, intuitive, holistic, reactive and impulsive while the second system is cognitive, systematic, explicit, analytic, rule-based and reflective. (Eagleman 2011:171)

Indeed, there are two seemingly separate systems—automatic response (system 1) and controlled cognition (system 2)—within which lie two useful distinctions that together form the basis of understanding how our brains think. Distinction one: both controlled (conscious) and automatic (non-conscious) processes occur, generally in some sort of ‘negotiated’ balance, as we move through the day. Distinction two: cognitive deliberation, i.e., reason, is traditionally seen in opposition to our more affective processes, summarily described as emotional.

Systemically, the cognitive process is considered more controlled and involved in the external world and the emotional process as more automatic and more involved with internal systems. Emotional systems/processes have a strong element of *pushiness* to them that tends to push aside reason. This is the basic operational positioning of the brain, interacting and negotiating (arguing) between each other to produce appropriate responses to environmental input.

By way of analogy, consider a two-party political system: *reason* = *DL Party*, and *emotional (feelings)* = *RC Party*. These two political parties interact continuously, one political party sometimes dominates and controls; sometimes the two parties negotiate to a common end. And, there are times when they fight and achieve nothing. Any of these scenarios can be productive or destructive depending on how well the parties interact or govern when in control. The DL Party would tend to more control in their response patterns, considering alternatives, looking for evidence and using conscious deliberation. The more emotional RC Party would tend to respond automatically, intuitively, unthinkingly. The major two-party system in the brain, assisted by its many contributing and competing subsystems and neural committees,
strives for some kind of optimum mix that produces responses and behaviours consistent with the requirements of ongoing environmental change. I might also conjecture here that democracy is, by nature, a messy, difficult, procedural system for organizing society. Similarly, the brain is, by nature, a messy, difficult, procedural system for organizing minds—but, in both cases, it seems to be the best we have.

In politics, certain geographic regions seem to be the base of operations for each party. In the case of the brain, cognition is based in the cerebral cortex, especially the prefrontal, and emotion in the limbic system (amygdala, hippocampus etc.). Loosely speaking, the limbic system represents the emotional and the automatic (especially automatic survival system responses). The limbic system even uses slightly different complex chemical codes at the neuronal level (Herbert 2007; Shermer 2011). The idea of the two-party system interaction is reflected in how the limbic system and the cerebral cortex interact and depend on each other to solve the problem of survival through changing environmental conditions over time, thus developing distinctly human approaches.

It is worth remembering here that we are dealing with an unimaginably complex system using various terms and distinctions in an attempt to explain the brain’s operation and our own behaviours. For instance, I utilize the word emotions and emotional as though we know exactly what they refer to. Social neuroscientist Antonio Damasio states otherwise.

Deciding what constitutes an emotion is not an easy task and once you survey the whole range of possible phenomena, one does wonder if any sensible definition of emotion can be formulated and a single term remain useful just to describe all the [brain] states. Others have struggled with the same problem and concluded that it is hopeless. (Damasio 2000:340)

Reasoning and cognition in general, seem slightly more solid, but are still just processes that allow us to construct the world through “thinking, remembering, daydreaming and mentally calculating” (Restak 2006:14). Regardless, emotional and cognitive are useful terms to differentiate certain types of thinking that seem useful and familiar to us, whether or not they hold up in the future remains to be seen (Herbert 2007).

**Automatic Processes and Zombie Programs**

I think the unconscious is incredibly powerful...I'm scared of how powerful the unconscious is...and that, indeed, a great deal of the entire political strategies of my generation are largely inadequate to deal with [the] unscrupulous forces that are much more sophisticated about manipulating the unconscious than I'd like them to be. (Patrick Reinsborough)
Automatic processes, such as the instantaneous dislike taken to a person you have met for the first time, seem just to happen (Restak 2006:13-14). Conscious control – cognition – on the other hand does not just happen; it occurs slowly, painfully so, one activity at a time (Restak 2006:32). So, it is not surprising that the majority of what is going on in the brain happens beyond our conscious awareness. It has to be this way, as a survival strategy; otherwise we would be constantly bumping our heads into objects, tripping and falling while not putting our hands out to break the fall and, of course, being more liable to be eaten by tigers. Our conscious mind, limited, slow and deliberate, allows humans to build civilizations but it is the automatic, non-conscious aspects of mind that have kept us and our ancestors alive for the past 3 million years. However, instantaneous automatic dislike, in the modern world, may or may not be of significant survival value; you're more than likely going to have to consciously recognize the dislike and then evaluate its veracity.

There are two types of automatic, non-conscious, “zombie” programs running in the brain. Really important automatic processes (i.e. survival mechanisms, such as pulling your hand away from a hot flame; feelings of disgust from putrid food) are burned all the way down to the DNA, reactions we did not learn during our lifetime (Eagleman 2011:87). Then there are those automatic unconscious processes we did learn during our lifetime, like riding a bike, playing piano and swinging a bat at a baseball. We have little to no conscious access to either of these “instinctual” or learned automatic processes.

Automatic non-conscious reactions indicate that our behaviour could be and often is, driven by unconsciously perceived information. Consider the instant dislike scenario again. The dislike itself is activated by unconsciously perceived signals from our perception of the person, activating an automatic unconscious response. This would make the instantaneous dislike itself uncontrollable. On the other hand, when we slow down and consciously perceive information, we are more likely to guide our own behaviours more consciously, hence, in a more controlled way and we may even “change our mind.” The differentiation between automatic and controlled processes is relatively simple compared to the increasingly murky separation between emotional and cognitive thinking. Our ability to separate conscious rational thinking and make it completely independent of both emotional and non-conscious processes is probably significantly less successful than we “think.”
We know the nature and quality of our thoughts via feelings, not reason. Feelings such as certainty, conviction, rightness and wrongness, clarity and faith arise out of involuntary mental sensory systems that are integral and inseparable component of the thoughts that they qualified. (Burton 2008:139)

Emotions are more powerful than intellect, or better, are the foundation of intellect. (Lane 2009:239)

The brain sciences, particularly social neuroscience led by Antonio Damasio (1994; 2000), suggest that the apparent separation or struggle for separation, between reason/rationality and emotions is not wholly reflective of what’s actually happening in the brain or in the body (Damasio 2000). Damasio's somatic marker hypothesis indicates that “emotional factors influence our decisions whether or not we are aware of it” (Sternberg 2010:69). The mental orchestra of the decision-making process is not conducted by reason alone, but is heavily influenced by an automatic emotional process, a process hidden from the conscious mind.

According to Damasio the many moments of experience, which constitute human life and create individual minds, are connected to a feeling, an emotional state that is actually anchored within the nervous system of the body and then “wired” into the brain (Damasio 2000). In this view, emotion/feeling begins as body states; emotion, therefore, is initially situated in the physical body. However, the body state feeds back directly to the brain through the nervous system using hormones, creating intricate “emotional” maps throughout the brain and “these mind maps constitute feeling, the neural mapping of bodily emotion” (Lane 2009:245). These individual feelings remain connected to events by somatic markers, “biological remnants of emotional states,” that accumulate in the body (Sternberg 2010:20). Feelings and emotion are reconstituted through neural firing that is initiated from somatic markers throughout the body.

For example, a child may be made to eat boiled brussel sprouts (which disgusts the child) or become extremely frightened in a specific situation (high places). Each of these experiences leaves a somatic marker in the body that associates brussel sprouts with disgust and high places with fear. Such emotional states (now mapped into the brain as neural constructs) are activated by the somatic marker, especially, and this is the important point, “when thinking of the potential outcomes of one’s choices” (Restak 2006:21). So, later on, even as an adult, when considering choices or making decisions, the somatic markers are activated, not only influencing choices unconsciously, but narrowing the choices that can be considered. Thus, Damasio:
[The somatic marker] forces attention on the negative outcome to which a given action may lead and functions as an automated alarm signal which says: beware of danger ahead if you choose the option which leads to this outcome. The signal may lead you to reject, immediately, the negative course of action and thus make you choose among other alternatives. The automated signal protects you against future losses, without further ado, and then allows you to choose from among fewer alternatives. There is still room for using a cost-benefit analysis and proper deductive competence, but only after the automated step drastically reduces the number of options. (Damasio 1994:173)

The key words in the statement above are forced and automated. The choices that are actually available for conscious deliberation and a rational decision-making process have already been influenced (reduced) by factors beyond our conscious control—factors embedded in the body and mind from previous experience.

The Star Trek television series from the 1970s illustrates this idea of pure rationality versus emotion laden decision-making. Mr. Spock (a non-human alien) used pure logic, rationality and reason in decision-making, while Captain Kirk (human) has most of his decision-making process influenced (with mixed results) by emotion. Mr. Spock, being half-Vulcan, would not have the unconscious limitation on rational choice driven by previously experienced embodied emotional states and then mapped into neural patterns swirling throughout the brain. But humans do, to the extent that a child disgusted by brussel sprouts might avoid anything green and a vegetable, for life—not thinking, but feeling it “safer” that way. Homo sapiens might well be incapable of making decisions, good or bad, without emotional input. Indeed, our unique ability to put ourselves into another’s shoes, to consider what another is thinking and to make inferences from their actions about what’s going on in their mind (which is also burned down to the DNA) disappears without emotional states (Restak 2006:21).

It should not seem so strange that, in practice, thinking/cognition and emotionality are “inextricably intertwined” (Restak 2006:52). Feelings are, ultimately, a neural construct, appearing to us to “feel real because they have real meaning, meaning that has been a choir in the crucible of selection, meaning that comes from real life, real data. Feelings are in reality the neural code that is vibrant, rich in meaning acquired over millions or billions of generations” (Lane 2009:259). These automatic non-conscious systems in the brain have been operating for millions of years. On the other hand, our faculty of reason, collective rationality and our ability to develop complex cultures are relatively recent; for argument sake, maybe 60,000 years old, and still developing. So the current argument from the brain sciences that, “reason depends on emotion” (Sternberg 2010:69), although not intuitively satisfying, may help explain some of the
more outlandish reasonable conclusions/decisions people come to in the 21st century. Further to this point about problematic reasoning, Damasio also points out that, “when either brain or culture is defective, at the outset, somatic markers are unlikely to be adaptive” (Damasio 1994:177). This means that early environments can either enhance or impair the effects of somatic markers on reasoning. The later section on belief will utilize and expand the idea of emotionally-influenced-cognition.

**Reason and the Doctrine of Concordance**

The reality is that we are just not born to reason in balanced ways. (Marcus 2008:57)

We generally believe we are perfectly aware of why we think, act and feel in certain ways as we maneuver through our conscious day, assuming “close agreement amongst our knowledge and intentions or conscious deliberations in the decisions we make” (Beyerstein 2007:314). We consider this ‘doctrine of concordance’ between decision-making behaviours and conscious reasoning our *default position* as we navigate the world. Clearly we do not use critical thinking all the time or as our default position, considering the somatic marker hypothesis and the fact that, reason, rationality and critical thinking takes effort, time and training. However, conscious control and input can and does work. Thinking through problems, decisions and beliefs consciously works best when we slow down, focus on one item or area and deliberate carefully, using all the reasoning and critical thinking skills we can muster. These very attributes of conscious control indicate it can be accessed only in limited supply. Maybe the most important aspect of our attempts at reasoning and objectivity is the capacity “to reflect on the connections made by lower-level algorithmic processes” (Sternberg 2010:179). Consider the instant dislike scenario again. In any given instant, is it valid? Reason and critical thinking then could be extremely useful in bringing to conscious awareness that which normally operates unconsciously, below the level of awareness. One could argue as, Steven Pinker does, that it is our increasing ability over time to think cognitively, specifically the faculty of reason, that has enabled not only civilization itself, but also the slow, yet apparently measurable, movement away from cruelty and violence (Pinker 2011:642).

The brain is a collection of neurons forming themselves into a vast network of circuits connected by trillions of synaptic gaps using electrical – chemical – electrical processes. Out of this soggy 1.5 pound mass (1350 cc) rises the mind: consciousness, automatic and controlled processes marked by emotion and cognition. All this activity is directed by the environmental
context within which brains exist, from distant past to immediate present. Much goes on in our
own brains and minds that we are unaware of; sometimes this is for the best and sometimes not.
In the modern world, being unaware of how our own brains work has become increasingly
dangerous, individually and collectively. How we perceive, remember and believe tells us why.

Perception, Memory and Belief

[The] human brain evolved to be a belief generating machine that takes
sensory input, filters and organizes it in relation to our existing memories and
emotional feelings, and produces beliefs that tend to be consistent with those
we already hold...Critical thinking abilities, on the other hand, are acquired
through training and practice. (Beyerstein et al. 2007:456)

Our beliefs are contaminated by the tricks of memory, by emotion, and by the
vagaries of the perceptual system. (Marcus 2008:67)

Human perception is seriously flawed. It completes a patchwork of systems built upon
systems throughout evolutionary time. We perceive bits and pieces of reality and the brain,
faithfully and automatically, stitches together a fully formed picture utilizing the senses at its
disposal. Unfortunately, this is a selective representation of what's actually out there.10 Human
memory is a complex process with past memories altering haphazardly over time and being
altered selectively by the present, the present getting generally mangled and the future being
overly influenced by both. Belief, alas, is in a class all its own; cruelty is driven by beliefs such
as “greed is good,” “my religious text is the literal truth,” “ACD is a myth,” “advertising to
children does no harm”—all beliefs, all held with absolute certainty and backed by supposed
rationality and evidence. Belief is what leads us to vote in our own worst interest over and over
again. Our deepening understanding of human belief is problematic in the 21st century as
corporate institutional power utilizes the knowledge to create and reinforce beliefs that narrowly
serve their own interests.

Perception

So the first lesson about trusting your senses is: don't. (Eagleman 2011:51)

Perception is reality. (Susan Magsamen)

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10 Reality here refers to the physical/natural world, some of which we, individually, sometimes perceive
accurately and sometimes not. The scientific method, to this point, is our only semi-reliable guide to reality.
Personal or group constructed 'realities' devoid of, or manipulating, the scientific method, are problematic and
error-prone.
Did anyone see the gorilla? Having been asked to count the number of basketball players in a short video clip participants squabble about whether it's ten or was it eleven, maybe twelve? No one notices the gorilla that sauntered across the court. Simple direction (actually misdirection) “primed” the unconscious to recognize (count) basketball players and ignore gorillas (Burton 2008:155). What is interesting here is how the participants in these studies are genuinely surprised that they were able to miss something so obvious, illustrating both that “we can be blind to the obvious and we are also blind to our blindness.” (Kahneman 2013:24).

Hence, our attention is a limited resource. We can attend to one thing only extremely well, at one time. (“Multitasking,” therefore, is a great way to do many things poorly and in an error-prone fashion, all with a limited depth of understanding and limited integration into existing cognitive schema – meaning that, if you want to really learn something, singular focus is best).

If a professional baseball player had to rely on the conscious mind while standing at the plate and endeavouring to hit the ball, baseball would be extremely boring. Batters would stand idly by as the ball went into the catcher’s mitt again and again. It takes the conscious mind .5 seconds to react, but it takes the ball .4 seconds to travel the distance between pitcher and catcher. Batters hit because they train the unconscious mind to react, without thinking.

And therein lies the recurring theme: non-conscious, automatic processes reign by default. And the majority of what goes on in our heads takes place below the level of conscious awareness. In perception, there is a huge amount of neural “jiggery-pokery” going on in the brain that escapes our attention. It must be this way, because conscious attention is a limited resource. What we actually see, feel, taste, hear and smell and, ultimately, react to is the end result of incoming sensory data manipulated and reconstituted by the brain. The brain constructs an “internal representation of the environment” from the various bits and pieces perceived by the senses so that we may experience the aforementioned “embeddedness” in the world (Beyerstein 2007:326). This works reasonably well in stitching together a cohesive experience of the environment, but it has inherent problems. Yes, it is a complete picture of the world but constructed from inadequate data and processed through a predictive filter. Thus, “perception reflects the active comparison of sensory input with internal prediction” (Eagleman 2011:49).

So we do not get an entirely or consistently accurate recording of reality through our senses. We take incomplete sense data and then, in large part, unconsciously reconstruct it in ways that feel right about what we predicted we should see (prediction is based primarily upon what has come
before, especially in childhood). Magicians and movies manipulate the human perceptual system in this way.

Vision takes up a large amount of the brain's resources, approximately one-third. The billions of photons hitting our eyes become nerve impulses and flood into the brain, not recreating their original image but symbolically encoding “aspects of the image in totally new terms” (Ramachandran 2011:47). In other words, “we see not with our eyes but rather with our brains” (Eagleman 2011:41). All this is to say that our personal reality has an extremely large component of subjectivity as the brain really has a limited capacity to accurately record what is out there, but a real talent for actively constructing “reality” (82). Synesthesia is a good example of what the brain can do. Synesthesia is a well-documented brain disorder (born from a seemingly tiny genetic error), whereby a person's perceptual system gets mixed up: they hear colors and taste sounds. These people often have no idea that anything is amiss, and consider their experience of the world to be like everybody else’s (Sacks 2010). Regardless, many things are “real” because we actually perceive them reasonably well, a sentiment reflected in the old adage “seeing is believing;” however, the opposite, “believing is seeing,” where our perception becomes overly influenced by the internal machinations of the brain, can also occur (Beyerstein 2007:326).

Out of body experiences (OBE) are an example of a culturally invariant phenomenon that is just another brain state, now reproducible on command (e.g. God helmet). Don't trust your senses. Tweak the brain with an electrical current or a bit of neurotransmitter-inducing-chemical and you can look down at yourself from the ceiling and experience extreme fear or happiness. Ouija boards (as well as dowsing rods) work using ideomotor action; unconscious muscle activation caused by prior expectations (Hyman 2007). The entire realm of the paranormal exists as a fantasy in the brain alone with no corroborating evidence despite decades of effort (Blackmore 1999). While mysteries remain about the human brain, there is no longer a need to make mysterious what is now easily explained.

Memory

[Memory is] an extraordinarily complex natural process that is, at every instant, exquisitely tuned to the unique environment in which each of us lives and the unique pattern of experiences that each of us goes through...Governed by highly variable biological signals, chemical, electrical and genetic, every

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11 Michael Persinger experimentally activated certain brain states by sending weak magnetic pulses through the skull (Beyerstein 2007).
aspect of human memory—the way it’s formed, maintained, connected, recalled—has almost infinite gradations. (Carr 2010:190)

[We] often add or entirely rewrite our previous experiences—unknowingly and unconsciously—in light of what we now know or believe. (Ramachandran 2011:61)

Memories are us, we are our memories. Memory is wrapped into our sense of a “self,” our identity, our personality. Memory consists of the basic building blocks of the brain—neurons, synapses and circuits. Memories exist, not within neurons or cells, but among existing or newly developed synaptic terminals distributed throughout the brain. Synaptic pathways develop within neuron clusters and become “hardened” as these clusters connect with others in various parts of the brain, forming long-term memories.

Short-term and long-term memory are different. Working memory (important short-term memory) is momentary where immediate sensations, impressions and thoughts appear and then quickly disappear, to be replaced by whatever happens to come next. Working memory is fleeting. It holds information for a matter of seconds and can only hold on to two or three elements at a time, unless we begin to actively refresh it (repeat it) moment to moment (Carr 2010:124). But working memory is important in that it provides a brief informational holding space with the capacity to drip bits of that information into the deeper pool of long-term memory (and the reverse). This process of short-term to long-term memory is a delicate consolidation process involving repetition. The more we can focus without distraction with undivided attention (low cognitive load) on some topic or visual or book with our working memory, the more efficiently (and accurately) cognition can be moved into long-term memory.

Our intelligence, by and large, relies on the transfer of data from the working memory into long-term memory, where it is not just facts that become embedded but also schemas and conceptual understandings. What is actually occurring in the brain for long-term memory is a complex interplay of chemicals, genes and environment whereby “the growth and maintenance of new synaptic terminals makes memory persist” (Kandel in Carr 2010:187). Long-term memories are thought to be cemented in by the hippocampus but memories marked by extreme fear or other strong emotions seem to produce a secondary track (to the amygdala), which influences recall and behaviour. Long-term memory makes available an ocean of information, aspects of which can be recalled to the surface (working memory) in either of two ways: consciously/explicitly or unconsciously/implicitly.
Explicit memory for people, objects, places and events (episodic) is consciously recalled, has a distinct firmness or concreteness to it and is generally expressible in pictures or words (Kandel 2006:26; Steen 2007:128). Implicit memory (procedural memory) is more difficult to define. Along with being responsible for perceptual and motor skills, implicit memory is involved in the swing of the bat or the tennis racket, riding a bike and playing the piano smoothly, quickly and unconsciously (Kandel 2006:261). Implicit memories are implicated in what we call bias, including some types of habitual or automatic thinking. Learning is a combination of explicit and implicit memories working themselves into distinct patterns of thought (Steen 2007:128). This brief description of memory is reminiscent of the basic operational distinctions within the brain wherein explicit memory seems more cognitive/controlled and implicit memory more emotional/automatic.

**Malleability**

We had Murray Dobbin (rabble.ca) give us a workshop on framing, framing so that we use the right keywords to reach the heart, whether it's just the title of the thing or the messaging. It's kind of awkward. There is this resistance inside that says we are right, we just need to get the right information without having to frame it and it's like...yeah, but it doesn't reach people as well, so it feels contrived and it feels disingenuous to some degree. I think the people who are trying to be activists are sincere and don't really think of doing it in a way that feels contrived. I think that's the contradiction here. (Karen K)

In this citation, Karen K (pseudonym) reflects upon the inherent “contradiction” some activists feel when utilizing information from the brain sciences (e.g. framing) to improve the efficacy of the message. The feeling that just being authentic and having the evidence and facts is enough to inform and move people to action persists amidst the real possibility that it is far from enough in the current environment—an environment blanketed with the incessant counter messages that utilize techniques exploiting the malleability and power of memory.

Human memory, like the brain it is part of, is more fallible, adjustable, changeable and just plain inaccurate much more of the time than is generally understood. This inherent possibility of malleable memories (that influence current behaviour) reflects the malleability of the brain's trillions of synaptic connections. A few examples from social neuroscience: Memory morphing is a process now commonly utilized by marketing and corporate entities to embed specific memories into targeted markets (people’s brains); memories of experiences that never happened. Backward framing is similar, but takes an already established memory (“I hated that
movie‖) and changes it (―well, it wasn't so bad, actually, I liked it‖). Environment conditioned marketing controls the context within which a consumer is introduced to a product (e.g. giving products away to vacationers). Advertisers are manipulating memory, in this instance, by connecting and activating different neuron clusters, like sunny beach/name your beer, or cute polar bear/your soft drink. These are simple, yet extremely powerful methods to imprint something in the brain below the level of consciousness, especially with repetition (Restak 2006:163). Branding, therefore, is the process of linking positive emotional memories to a specific logo or brand. But branding is much more powerful than that seemingly innocuous description, as the brain begins to reward us with a hit of dopamine for our brand loyalty during each purchase. Dopamine is a very active neurotransmitter implicated in addictions of all types. When someone talks of being addicted to a brand, they probably are. Finally, forward framing is just a set up, through a variety of simple means, that directs our experience of something in a specific way. For instance, loss aversion plays a large part in forward framing effects when presenting someone with numerical data. You’re much more likely to buy meat labeled 85% lean than 15% fat and twice as likely to have the surgery if you’re told you have an 80% chance of living instead of a 20% chance of dying (Lehrer 2010:106).

We also need to educate about the ways that propaganda is designed to trick people and delude people so that they’re better able to defend themselves against it. (Alex Speers-Roesch)

The techniques just discussed and the “propaganda” that Alex refers to above, are just the tip of the corporate iceberg of utilizing the brain sciences to advance corporate agendas. Martin Lindström, a “marketing guru,” wrote Buy-ology (2008), which is basically a Neuromarketing handbook (and a sales pitch for his services) for the corporate world. There are two things of interest in this book. First, Lindström warns civil society firmly and directly to wake up in order to “escape all the tricks and traps that companies use to seduce us to their products and get us to buy and take back our rational minds” (Lindström 2008:205). Now, remember the person giving this warning is the one producing these increasingly powerful manipulative techniques, utilizing his expertise in the brain sciences and marketing and selling them to the highest bidder. The second thing of interest is to remember is that, Lindström’s customers—including McDonald’s, Nestlé, Microsoft, Walt Disney and GlaxoSmithKline, to name a few—have vast resources to invest in such marketing technologies.

Memory is vulnerable with respect to how it is acquired, maintained and recalled. Memory is malleable.
Belief

[Put] the contamination of belief, confirmation bias and motivated reasoning together and you wind up with a species prepared to believe, well, just about anything. (Marcus 2008:57)

What determines our behaviour is not the state of the world, but our beliefs about the state of the world. (Frist in Restak 2006:75)

Nothing can stop a true believer. (Gould et al. 2007:52)

It seems unfortunate that a wonderfully complex organ such as the human brain and its endlessly fascinating attributes of mind should be so fallible when it comes to what seems important. Belief arises out of the patchwork of memory, an often deficient perceptive system, emotionality and some ability for logic, reason and inferring/organizing something new from something old (Marcus 2008:65). Unfortunately, the newest, least developed and most time-consuming of the mind's extensive circuitry is the conscious rational faculty of reason. Thus, our tendency to believe what is easy, what we are told, what was believed in the past, and what feels right, is often overwhelming. “Common sense” is no doubt common, and commonly wrong:

Common sense appears to be only another name for the thoughtlessness of the unthinking. It is made of the prejudices of childhood, the idiosyncrasies of individual character and the opinion of the newspapers. (W. Somerset Maugham 1949)

No matter how new, slow and limited the faculty of reason might be, our increasing rates of literacy and education, especially over the past fifty years, should have an effect on some of the more easily disproven beliefs. Not so. Increasing education and IQ scores over time, have had frighteningly little effect on dispelling completely unsubstantiated and often destructive beliefs (Beyerstein et al. 2007). Belief in hell (61%), creationism (40%) and ghosts (42%) in the United States; mind reading (43%) and, specifically, knowing who's calling before the phone rings (62%) in Britain are all extraordinarily high and resistant to change. The most disturbing fact is that more than half of Americans today do not believe in the validity of the theory of evolution (Shermer 2011). One could argue that at least some of these erroneous beliefs are harmless, or even possibly helpful at times in certain situations; however, it is not difficult to find many that are pathogenic. Pathogenic belief “is a belief that directly or indirectly leads to emotional, psychological or physical pathology, in other words, holding a pathogenic belief is self sabotaging and leads one away from human well-being” (Boghossian 2013:53). Pathogenic belief is generally attributed individually; however, it can expand to larger groups, societies and cultures where the negative effects on human well-being become widespread.
Belief is very irrational, yet, is central to our experiences as humans. (Kat Dodds)

Inculcating belief into individuals, groups, societies, cultures is not a particularly difficult task. Given a rudimentary understanding of manipulation and the human brain any dominant group or individual with a moderate amount of power and influence has the capacity to influence widespread, often pathogenic, belief. This, in and of itself, is not shocking, as many demagogues, dictators and cult leaders (and, of course, corporate plutocrats and oligarchs) have demonstrated over time. Yet, we must be aware, as power is becoming more concentrated in the modern world, access to individual brains made easier and the problems faced more global in impact and serious in nature that belief is vitally important.

Stephen Harper for example has a belief, he has a religious belief that the resources of the world are here for humans to use. There is no consequence to the environment. Whatever is here is for us to use. That's his belief. Now how do you override that? (Bob Purdy)

Practically any thought that inhabits the mind over time, especially if it gets repeated and reinforced as a group norm, the more likely many of us will believe that thought to have some element of “truth” to it (Greenfield 2008; Marcus 2008; Restak 2006). Again, this has nothing to do with whether or not what has been expressed has any relationship to reality or evidence, or even makes a shred of sense. And we need not even pay that much attention to it. What does influence how easily and deeply we come to believe repetitious nonsense, is our previous perceptions, memories and beliefs. The message in all of this is to be careful what you subject your senses to, actively and passively; beware of your environment, especially if you are a child.

The brain is not a truth-seeking machine. The mind is quite happy to hold completely false beliefs or even worldviews, despite overwhelming evidence to the contrary (which is regarded with disbelief). This phenomenon is especially powerful if that belief has in some way (according to the individual, society or culture that holds it) enhanced survival in the distant past, present or future (Beyerstein et al. 2007).

We survived as a species in part because of this “quick and dirty” belief system that enabled us to react and survive, rather than stop and think about it and die (Lamont 2007:33). What is salient is not what is true, it is what works in the moment. Unfortunately, that “moment,” when belief seemed so useful and adaptive, might have been 20 years ago or 100,000 years ago and is completely irrelevant and maladaptive vis-a-vis the present.
This brings us to a rather controversial hypothesis: that “the feelings of knowing, correctness, conviction, and certainty aren't deliberate conclusions and conscious choices. They are mental sensations that happen to us” (Burton 2008:218). This feeling of conviction arrives in the mind not from a causal chain of reason and deduction, carefully and consciously thought-out but from somewhere else within the unconscious unbidden, unknown (Shermer 2011:137).

There are two intimately connected ideas here. First, belief, certainty and knowing arise from the neural soup of mind and body and are predominantly feeling sensations. Secondly, these sensations are largely prebuilt from previous experiences and arise unconsciously. Logically, we can conclude that, if the senses cannot be trusted and belief is a sense, then beliefs cannot be trusted.

Consider gut feelings and hunches that prod us to believe in a certain way, to act a certain way. Damasio (2000) would argue that these are representative of the somatic marker hypothesis, whereby choices have already been limited even already selected, based upon activated somatic markers (body states/feelings previously linked to other outcomes mapped onto the brain and body) (Eagleman 2011). Gut feelings and hunches can sometimes be correct, and sometimes not; absolute trust is not warranted.

Secondly, once we have that belief, that feeling of knowing, the solidness of it, the reassurance and the pleasure all make it very difficult to abandon, regardless of the destructiveness of the belief or in the face of overwhelming evidence to the contrary. We become so addicted to our beliefs that we mold the world to fit them. We live in a different world, a world of our own “belief dependent realism” (Shermer 2011). We utilize the built-in dysfunctions of perception and memory to filter reality and continue to believe whatever it is our mind-brain-body says is true. In this way, our most cherished beliefs often are minimally constrained by reason and rationality.

Interestingly, humans have evolved to be increasingly good lie detectors, which you would think would bolster our ability to dismiss the nonsense promulgated by modern political and economic messaging. This advantage has been superseded by the evolutionary tendency that induces us to really, truly, deeply believe our own exaggerations, our own self-deceptions, even though these exaggerated beliefs become our downfall (Pinker 2011:513). This answers a question that I have been considering for years. Does person X really believe what they are saying or is it just manipulative lies? Previously, I had great difficulty convincing myself that people, especially in the case of outrageous claims, believed more than they lied. Now it seems
that, part of spreading belief successfully, in order that others believe, is much more effective if you truly and deeply believe yourself (Of course, lying is ubiquitous as a human trait).

There are other benefits to exaggerated and absolute belief. It seems we get a reward for our beliefs. This is dopamine at work again. Dopamine is one of the many chemical neurotransmitters in the brain, and this one is implicated in the reward system, as well as addiction. Like any other behaviour reinforced with a reward, our beliefs become entrenched. No only does belief seem to come mainly from the non-conscious, bending the reality of the world to coincide, but we get a reward for living in the fantasy. It feels good to believe. (Shermer 2011). Danielle comments on the belief problem:

> That really makes me sad that statement [that we are belief-generating beings, not truth-seeking ones]. But I have to say there is some truth to it because it takes a lot of courage to be a truth seeker...I'm obsessed with finding truth. (Danielle Prins)

I agree “it takes a lot of courage to be a truth seeker” in difficult and dangerous times, when conformity to unsubstantiated beliefs is reinforced and even feels safer, although it is, ultimately, destructive. Belief becomes a serious problem in a modern mediated world where our access to real experience, where we can at least try to perceive what is real and form beliefs related to reality, gives way to manipulative sound-bites and relentless brain altering imagery. Beliefs, born or boosted with unconsciously rising “feelings” of knowing, correctness, conviction and certainty, are reinforced by hits of dopamine, making the ephemeral and the absurd seem unshakable and absolute. Put simply, we are belief addicts.

**Time to Think**

[People] have little capacity to choose or explain their actions, motivation and beliefs and...the captain's wheel is steered by the unconscious brain, shaped by innumerable generations of evolutionary selection and a lifetime of experiences. (Eagleman 2011:190)

To what extent are we the authors, the creators of our own experiences? How much are these predetermined by the brain and the senses we are born with, and to what extent do we shape our brains... (Sacks 2010:203)

Our ability to reason deliberately, to reflect consciously and to think critically while considering our past, present and future makes us unique among animals. This ability has shaped human civilizations and allowed Homo sapiens to populate the planet in the billions. Unfortunately, this evolutionary “gift” of consciousness and reason (probably an evolutionary by-product of increasing neuronal numbers) has become increasingly dangerous in the 21st
century as we continue to misuse it. Making reason and reality subservient to powerful beliefs and ignoring existing environmental conditions is a dangerous game (Marcus 2008). Our vaunted intelligence is being subsumed by our increasingly maladaptive brains. Corporate institutional power has been planting specific ideas over the past 30 years, insistently and repetitively, deep into the unconscious minds of many. Intelligence per se does not seem to be much of a protection from believing weird and, ultimately, destructive “truths” like corporations should not be taxed and the “free market” actually works. Intelligence just makes one more skilled at rationalizing ideas (previously embedded in the neural soup from experience) that were pushed forward by unconscious mechanisms in the brain (Shermer 2011).

It occurs to me that belief, besides its ability to sometimes keep us alive, was used in the past in large part to explain things that we did not understand. We did not understand the movement of the stars or where we came from, so we created beliefs to fulfill that need to understand. Today, we understand a great deal about the material and physical universe, including much of our own brain, but belief is used increasingly to hide and obfuscate what is, at the very least, provisionally true. If unsubstantiated beliefs could be categorized as generally constructive or harmless, all of this would take on a bit of a different light, but that is currently not the case.

None of this is meant to encourage a retreat from more cognitive control, empathy, and compassion in the world—quite the opposite. With a conscious effort, “the prefrontal cortex can deliberately choose to ignore the emotional brain” (Lehrer 2010:107), probably not entirely “ignore” it, but certainly enough to make more rational decisions by regulating emotion better. The critical element to this is not being a Mr. Spock, not having emotions (something impossible for most human beings) but simply thinking about our emotions and feelings, also known as metacognition. This is also the cure for many of the framing effects discussed earlier. They are all attributes of deep thinking which require an environment rich in “inherent slowness,” nature and freedom from fear (Carr 2010:220). This does not seem like the direction we are headed in any local, regional, or global sense. “Be afraid,” “go faster,” “get connected,” “multitask,” “change more quickly” (to adapt to the increasing instability)—these are just some of the directives in North American culture and represent the derailing of conscious deliberation and conscious action. The pervasive negativity we see in political battles and media debates is no random event. The brain, unconsciously, attends more quickly and deeply towards negative events, so politicians get noticed and the corporate media increases its profits. But, the resultant
and persistent stress is particularly bad medicine for the human brain. And there it is again, we act and behave, automatically and unconsciously, by attending to the negative more often than is necessary and to our own detriment. Automatic and unconscious actions sometimes help us and make sense; sometimes they do not.

There is some work that is being done on fear conditioning right now, where you can actually recall your full memory, create an unstable chemical space, wash it with a protein and lose the emotional content to that memory. So you don’t forget the memory—you know you might have been raped, and you could talk about it—but you aren’t paralyzed. Well, is that something that should be used for rape victims or is that a drug that goes too far in altering someone's brain? (Susan Magsamen)

Belief and the memories that inform it, become critically important considering that there is no stopping the neuro-genetic-industrial complex now rapidly expanding throughout the world (Rees and Rose 2004). Imagine, if the drug that Susan Magsamen describes above can remove emotion from a memory, what else will soon be possible? The Society for Neuroscience has ballooned to 40,000 members; 25,000 to 30,000 people might attend a single brain science conference (Fibiger 2012) and there are 300 journals just for neurobiological discoveries alone (Sternberg 2010:27). What cultural values, beliefs and behaviours will be predominant as the brain’s mysteries become more transparent, more easily tweaked, adjusted in particular ways?

Currently, in North America, it looks like our maladaptive brains have done an excellent job of spreading chaos around the world. Economic meltdowns, ecological destruction and deteriorating cooperation among nation-states indicate a disastrous inability to remember and incorporate the hard lessons of the 20th century in the 21st (Judt 2008). The common belief that this is a different time and “we” are substantially different, i.e. wiser, is inherently misguided.

We are not the centre of the universe, we are not the chosen species, nor are we even in control of our own intentions, beliefs and behaviour much of the time. Unfortunately, many of the more powerful and destructive unsubstantiated beliefs that arise from the state of our brains, are no longer sustainable.

Given this flood of evidence [in the brain sciences], it is difficult to see how the human race could make its way out of a paper bag, let alone resolve the ultimate riddles of existence. Could it be that we are missing something when we apply the scientific method to understanding ourselves? (Csikszentmihalyi 2006:10)

Living well, finding meaning in the material world for finite beings is a really hard problem, the hardest problem of all. (Flanagan 2011:ix)
Indeed, as Csikszentmihalyi points out, having all this knowledge might not be the best way to understand ourselves, especially in order to solve the very difficult problem of “living well.” I sympathize with that viewpoint and there is no doubt we are missing something, as the practical technologies coming out of the brain sciences are far too focused on manipulating and coercing people into modes of beliefs and behaviours that are actually disconnected from “living well.” It seems to me that corporate power and control has tainted the promise of the brain sciences and will continue to do so until circumstances force it to do otherwise. Overcoming the limitations of the brain, through utilization of the brain sciences, in order to successfully alter the imbalance between social justice and corporate institutional power would be a far better use of the knowledge base.

There are encouraging examples of overcoming the limitations of the brain in crisis situations. For example, at the tragedy of Mann Gulch, one lone survivor overcame powerful perceptual narrowing in a stroke of brilliant cognitive problem-solving. As the wind abruptly changed direction and the wildfire raged up the hill, the firefighters ran for the top of the ridge focused on nothing but getting there. Perception narrowed. Don Gage realized no one was going to reach the ridge and he did something never attempted before. He lit the brush where he was standing, let it burn and then laid down in the ashes. He was the lone survivor and established a standard practice under incredibly stressful circumstances: he thought his way out (Lehrer 2010). Our current global circumstance is similar and, as Don Gage did at Mann Gulch, we will have to stop and think as the fires rage around us. As Anne Druyan puts it.

There was no greater spiritual awakening then the Enlightenment itself. And I'm convinced that our failure to accept it as a primarily spiritual awakening is a major source of our dysfunction. (Druyan in Beyerstein 2007:332, italics added)

The “major source of our dysfunction” refers to our inability to utilize our faculty of reason in greater measure. This inability is increasingly apparent in an ever widening “culture gap”—the difference between what we collectively understand about the world compared to what we individually believe (Ehrlich and Ornstein 2010). As I have mentioned, 50 percent of Americans do not accept evolutionary theory as sound science or understand the causes of the two most destructive global trends: rising income inequality and ACD. This culture/knowledge/belief gap poses a real danger. Understanding our own brain and mind is part of the solution.
This is only half the story of human brains, minds and behaviours. The second half of the story considers the brain and the evolutionary, genetic, memetic and environmental conditions from which it evolved, from the distant past into the near future.

**The Evolutionary Brain**

We are the meteor (Roston 2008).

Bacteria have two billion years of evolutionary history here on earth and are still going strong. Dinosaurs lasted 100 million years and would still be here if not for the random event of one large meteor strike 65 million years ago. This meteor caused vast climatic (environmental) changes, eliminating the dinosaurs and creating a divergent evolutionary future. Evolutionary processes over the following 60 million years resulted in the appearance of Hominins around 6 million years ago. And finally, Homo sapiens emerged less than 200,000 years ago. Humans spread around the world 60,000 years ago by further developing and refining their most precious ability—imitation. Cultural evolution, superseding biological evolution, ramped up the speed of change and, within mere seconds of deep evolutionary time, we find ourselves at the present day. In 2014, over seven billion Homo sapiens have brought the 12,000 years of stable climate, the Holocene age that enabled civilization itself to flourish, to a quick and dirty end (Hansen 2009; McKibben 2010). The current and continuing human-caused alterations in the climate, among other human blundering in economics, politics and religion, make it uncertain whether we can survive as a civilization to the end of the 21st century (Rees 2003). Despite being highly adaptable to almost any environment, our future as a species is in doubt. Bacteria lasted billions of years, dinosaurs 100 million; yet, humanity has begun to flounder, trying to make it to 200,000. It seems we may be clever, but not that smart. We are the meteor.

**Evolution As a Guide**

My primary purpose for undertaking the topic of evolution is to deepen our understanding of the relationship between the evolution of the human brain and our current circumstance. How and why, from an evolutionary (biologicl and cultural) standpoint, did we come to this point in human history and what might the future hold? Second, I want to better understand evolution and the tendency toward generalized misinterpretations, not to mention outright fallacies that persist. I realized, rather belatedly, that these goals might become rather complicated. I have attempted to persevere in a reasonably concise and explanatory way, weaving together various threads of evolutionary theory as they intersect and interact with
human brains, culture and history. Interdisciplinarity, of course, is a good excuse to go wide (interdisciplinary, holistic, ultimate) instead of narrow (reductionist, materialist, proximate) because of the growing necessity of interdisciplinary solutions for local and global problems. Reductionist science is miraculous, splitting atoms, creating vaccines and silicon chips; however, it has long ceased to be effective as a problem solver or solution provider in the modern world.

The path I have taken to better understand evolutionary process is similar to many other academics, professionals and other interested persons. They, like I, did not take any specialized courses at university and undertook a self-directed investigative program of study generally driven by other interests (Wilson 2007). This tells us two things about evolution. First, it is not string theory, meaning, it is understandable, relatively simple, even elegant in its basic properties and can be learned reasonably well by accessing the relevant literature, of which there is a good supply. Second, it is a far-reaching theory with considerable explanatory power across a wide range of disciplines and, situations and throughout the natural world, including current human behaviour and resultant predicaments.

This section explores the evolutionary path of the brain from the distant past, to the present and future. A better understanding is necessary of the evolutionary aspects of the brain that have influenced humans to exhibit increasingly destructive “lemming-like” behaviour in the 21st century. Evolutionary processes are separated into three categories, roughly correlated with certain time periods and their associated environments. Biologic evolution, dating back 3.8 billion years and taking the brain roughly up to 50,000 years ago is the long “beginning” (although quite brief herein). This evolutionary beginning eventually leads to a “new” evolutionary process beginning around 150,000 years ago—Cultural Evolution 1 (Imitate Innovate)—that gathers momentum (and complexity) around 50,000 years ago, and receives a subtle push with stable climate and the beginnings of agriculture during the Holocene age (10,000 years ago), as well as a rocket boost from the Industrial Revolution around 1800 (Rees 2004; Marcus 2008). Then, in 1958, the digital environment is unleashed with the invention and exponential growth (Moore’s Law) of transistorized circuit boards bringing us rapidly to the digital age of today. The computer age, in conjunction with the rising behemoth of corporate institutional power (CIP), brings about the third category of evolutionary process, a slightly reconfigured/re-theorized Cultural Evolution 2 (Copy Follow) that seems to be strongly encouraged by the corporate global digital environment (Carr 2010; Pagel 2012). Environmental
factors—broadly defined as any and all influences not explicitly genetic—are critically important to evolutionary processes, as we shall see.

Two other concepts that necessarily permeate this discussion of evolution and brains are time and randomness. “Our very brains revolt at the idea of randomness...[but] without an understanding...we are stuck in a perfectly predictable universe that doesn’t exist outside of our heads” (Siefe 2012: 103). Random genetic mutations get thrown into the world, like splattering paint against a wall to see what sticks. As well, reconsider the extreme randomness of that meteor strike 65 million years ago in a universe containing 100 billion galaxies, unimaginable black holes and near infinite distances over billions of light years. Our existence is the result of these and countless other random events.

This is the third time I can recall having to deal with randomness as an important concept. First, I used to teach randomness and chance in public school math classes but did not fully appreciate its importance. The second time was in the context of ice hockey, and this is where I became genuinely alarmed. I watched the entire 1972, eight game hockey Summit series between Russia and Canada in its entirety at least five times over a year or two. It seemed obvious the outcome of that series was random. Fluky puck bounces, broken sticks, mysterious falls, referee calls and 1,000 other random variables affected the final outcome. Even the outcome was determined by a fluky puck bounce in the last seconds of the final game. That's alarming because my previous perception designated Canada as the superior team and “destined” to win. Similarly, random changes in the millions of random evolutionary and other events have led to our taking over the planet. Hence, it is mere randomness that humans are here. They were not chosen by a god, not superior, not the inevitable culmination of evolutionary process (although increasing complexity is inevitable)—just the product of random chance multiplied by random chance throughout the immensity of time.

Randomness can be a lifeline. When thinking of the future, when thinking of ACD and income inequality in the seeming inevitability of their continuing, random occurrence can and does occur in both positive and negative ways. We may be “doomed” then again, we may not be. Randomness is a reasonable justification to continue the battle for social justice.

Appreciating randomness means understanding that Bill Gates amassed his fame and fortune due in large part to randomness (clearly, he also had a strong intellect and capabilities but so did

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12Brains overwhelmingly prefer patterns and predictability.
thousands of others). Randomness can de-mythologize the power of the “all-powerful” corporation and find alternatives to the determinism of the “free market.” (Mlodinow 2009).

Deep time and human time are like glaciers and ice cubes. One lasts eons and the other is gone in an instant. Geologists and evolutionists generally work with deep time scenarios of millions or billions of years; whereas, the rest of us work with human time, decades or centuries, maybe a millennium or two. If you consider the length from your elbow to the tip of your index finger as the timeline representing all of earth history and then brush a file across that index finger, the resulting microscopic layer represents all of human history (.01% of the whole).

Secondly, but related, is that time, as it relates to evolutionary change, seems to be speeding up. Around 3.8 billion years ago, 700 million years after the earth formed, the simple replicator appeared with the “magical” capacity to copy itself. These simple replicators existed alone for over 2 billion years and are still with us today in a form we call bacteria. Around 1.5 billion years ago a new single-celled life form evolved called eukaryotic cells, from which more complex organisms slowly evolved starting 500 million years ago, leading to the rise of plants, lizards, dinosaurs and, eventually, mammals. Six or seven million years ago a line of hominins (mammal species) emerged and evolved 200,000 years ago into Homo sapiens (Pagel 2012).

But this slowly, seemingly increasing pace of change seems insignificant compared to the quick and massive change driven by cultural evolution. Cultural evolutionary processes operate on human time. It took 3 million years from a chipped stone tool to smelting iron, but only 3,000 from smelting iron to the hydrogen bomb (Wright 2006). Cultural evolution can also have a rapid and significant impact on the environment. It took billions of cyanobacteria deep time, ~500 million (500,000,000) years, to flood the atmosphere with oxygen, altering the carbon cycle and planetary climate (Roston 2008). Humans on the other hand, have completely saturated the atmosphere with carbon dioxide, again altering the carbon cycle and planetary climate in just 50 years. Rapid change and changing environments significantly affect evolutionary direction, often making adaptation difficult and leading to increases in both speciation and extinction.

All of this is brought about by evolution.

**Evolution – 3.8 billion to 50,000 years ago**

It is not that evolution is a belief system: evolution is an incredibly elegant, simple, powerful, direct, testable and compelling set of ideas. Evolution is a theory like gravity is a theory not fully understood but not controversial (Steen 2007:386).
Natural selection is like an artist molding the living clay of heritable variation (Wilson 2007:63).

Evolution, strictly speaking, is the change in frequencies of specific genes in a population from generation to generation. Evolution is the result of two complementary processes: random genetic mutations passing down untested, genetic alterations from parent to offspring and, the non-random process of natural selection. Natural selection “sorts” through genetic alternatives, selecting for the “best” (survival-value) ones and retaining them through genetic inheritance. Evolution also refers to the gradual movement of a population’s phenotype (actual physical, physiological and behavioural traits resulting from the interaction of genes and environments) toward being better suited to the environment in which the population exists (adaptation).

Evolution, although slow and “mindless,” develops organisms and structures of enormous complexity. This complexity occurs because the organism experiences an endless array of random genetic mutations and, through the immensity of time, solutions for adapting to environments are retained in the genome as a result of natural selection, spreading through the population. However extraordinary evolutionary process and the complexity that can result, evolution does not result in “perfection.” Not the perfect eye, ear or brain; instead, evolution stitches together old with new to create something that works only very slightly better for the survival of the organism in a specific or changing environment. Evolutionary process does not invent or reinvent, does not plan, does not proceed inevitably towards “intelligence.” Evolution layers “improvements” that enhance stability, survival and reproductive success in a cumulative process, lasting millions of years (Steen 2007). The brain is a good example of this layering effect. It consists of the brainstem/cerebellum (‘reptilian brain’), the limbic system (‘mammalian brain’) and the cerebral hemispheres stacked one on top of the other. However, this evolutionary stacking results in a kludge-like brain that works more or less, but completely lacks a “brain commander,” such that all three systems can stumble and bumble over each other, often at inopportune times (Flannery 2010:246). The randomness and layering involved in evolutionary processes results in complexity, sometimes emergent, sometimes miraculous, but generally imperfect—a reflection of its inherent non-intelligence.

As far as we know, all life evolved in this way. This commonality of process has tremendous explanatory power when trying to understand why rat and human brains, ants and brain neurons, display similar attributes in day-to-day operations. Rats, cats and humans have
basically the same brain structures and functions—the main biological difference is found in the large hemispheres and the prefrontal cortex of the human brain. For instance, the rage circuit in a rat is the same rage circuitry found in a human brain (i.e., the two species share a similar limbic system) although activation varies. Evolutionary process explains the commonality (and differences) between and among species. The most important of these processes with regard to the human brain is an emergent complexity where the sum of the neuronal part or individual ants become something much more than any individual is capable of by joining together into a cohesive organized whole. The same process is seen in insect colonies (termites, wasps, bees, bacterial colonies). This extraordinary ability of evolutionary theory to explain unrelated phenomena such as anthills and brains, bacterial colonies and human colonies, lizards and birds, brains and consciousness, all seemingly unrelated phenomena, is why scientists and academics consider evolution the most important discovery of all time (Ramachandran 2011).

**Evolution, Brains, Minds and Consciousness**

Evolution does explain the seemingly miraculous existence of mind (Lane 2009:234).

The human brain most assuredly evolved under the same evolutionary processes that produced bacteria, ears, eyes and anthills (Sternberg 2010). There seems to have been a very stringent selection pressure, with more neurons providing a selective advantage to Hominins. Neurons and neuronal circuits, were also under evolutionary pressure to become “faster, more efficient, autonomous, flexible and robust” (Steen 2007:109). Social psychologist Jerome Bruner maintains this selective pressure was increasingly driven by the stabilizing effects and survival values of a more sophisticated brain during the early beginnings of culture and increasing sociality (Shore 2007). The brain evolved circuitry to better monitor the social aspects of group affiliation because group affiliation improved survival and reduced stress (Steen 2007:241). This ongoing evolutionary pressure for more and “better” neurons and circuits probably made the emergence of the human mind/consciousness inevitable because of the increasingly selective advantage it offered amidst increasingly complex culture and social life (Marcus 2008). This human need for sociality is powerful, according to Howard Bloom (2012), and binds us together in a deep-rooted need to be acknowledged by, and matter to other people.

Evolutionary process is always keen to save space, time, materials and energy, while selecting for faster neurons and improved stability. This probably resulted in the absence of
intention from unconscious thoughts. This organization allowed for the retention of automatic
responses (those requiring no conscious thought) to threats necessitating fast reaction times
(Burton 2008). Further, the brain seems to have evolved faster than the rest of our organs
resulting in less-than-perfect engineering. A faster evolutionary path led to a proneness to
malfunction through the accumulation of hidden errors, those not removed through natural
selection. And although human brain size has not changed in 150,000 years, several key genes,
having arisen by mutations in the last 40,000 to 50,000 years, are evidence of more rapid
change. Rapid evolution in a particular organ, with little time for debugging, explains the
sensitivity and lack of resiliency displayed by human brains, including why, although possessing
consciousness and complex minds, humans have a relatively higher degree of mental illness
than other species (Restack 2006). The most noticeable and globally impactful mental illnesses
in the 21st century are narcissism, psychopathy and depression (Twenge and Campbell 2009).

**Evolution, Environment and Adaptation**

Adaptation is a result of natural selection. Adaptation is the process by which a
population’s phenotype becomes better suited to its environment. Adaptation also refers to
specific adaptive character traits (physical, physiological and behavioural) that evolve through
natural selection. Since natural selection sorts and selects through genetic mutations that
enhance fitness, adaptation generally occurs slowly. The “good and useful” traits develop over
time improving stability/survival value for the population. However, “good and useful” may or
may not actually be “good” (i.e. eating your young or your mate) or “useful,” benefiting a few
while “enslaving” the many. To summarize: phenotypic traits developed within a population are
not necessarily good/advantageous for each individual equally and, oftentimes, not particularly
good/advantageous for the majority (Wilson 2007).

Changing environments can be a powerful driving force for diversity and change in
evolutionary processes. For example, dinosaurs were perfectly adapted to the environments in
which they flourished for 100 million years, yet, they quickly became extinct because of rapid
environmental change to which they could not adapt. This is an extreme case of something that
occurs frequently in nature, environments change, causing previously selected traits to become
maladaptive. Even though the emergent complexity of the human brain (which led to cultural
evolutionary advantage) made humans more adaptive to differing environments than any other
animal, old adaptive traits still haunt us (Herbert 2007). This “dancing with the ghosts” of past
adaptations is easily seen today in the North American obesity epidemic (Wilson 2007). Obesity
is driven by an ancient evolutionary imperative to consume as much fat, sugar and salt as possible, especially when under stress. The stress-laden American culture, with its abundance of relentlessly advertised junk food, is an environment in which the ‘ghosts’ run rampant (Rees and Rose 2004).

Evolution “works” because, while natural selection sorts random mutations over evolutionary time, the pre-sorted bulk of hereditary information is faithfully and relatively accurately copied down the generations through the gene.

Genes

Watson and Crick’s discovery of the twisted double-strand helix structure of DNA (deoxyribonucleic acid) in the early 1950s, closely followed by the realization that this particular structure was the heredity-copying mechanism, made the last half of the 20\textsuperscript{th} century intensely gene-centric (Restack 2006). Copied genes pass down instructions from past generations to present generations. The copying process is slightly error-prone causing random genetic mutations. This random miscopying of genetic instruction, although usually destructive, can occasionally increase the stability and survival of an organism. The “good” errors are retained through natural selection and spread more widely throughout the gene pool of a species over evolutionary time, deep time. Randomness is the critical component here because no other “non-thinking or blind” strategy is capable of presenting enough possibilities for evolution to work upon and for complexity or stability to arise.

A gene is a small section of a DNA strand with just enough coded instruction to synthesize the production of a specific protein, from which the body and brain are eventually built. A gene can additionally be defined as those small sections of DNA capable of being acted upon by natural selection. Regardless, practically every cell in the human body contains a copy (through cell division or meiosis) of the whole of your genetic complement of DNA structured into 46 chromosomes. This 46-chromosome-gene-team consists of two sets of 23 chromosomes wound together, one complete set of 23 from each parent. Each parent’s contribution of 23 chromosomes is created by mixing and matching bits and pieces from their own 46 chromosomes. It is this process (mitosis) that creates a unique, yet complete, 23 chromosomes package for each sperm or egg. When these are combined, the result is our 46 chromosomes.

\footnote{Cultural evolution, as we shall see later, is a powerful source of environmental change.}

\footnote{Richard Dawkins prefers this definitional parameter.}
Our entire gene team then is unique (except for identical twins); however, genes themselves are not, having been replicated, sorted and passed down the generations. Since we have 23 pairs of chromosomes, containing ~20,000 genes, not all of which are expressed (synthesized into proteins and influencing our phenotype), there is an extensive negotiation or even “rivalry” among the genes. The environment operating from embryonic development until death, is a determinant factor in the ongoing process of gene expression (Rees 2008; Restack 2006; Steen 2007).

Of course we can splice genes, but can we not splice genes? (McKibben 1989)

Genetics is a powerful science. Genetically altered transgenic mice have genes that have been manufactured (non-random) for specific traits that are then reproductively passed (inherited) down through the generations. We have the capability to do the same tinkering with human genes, although, so far, moral and legal obstructions have kept this from occurring. Genetic studies have also revealed much about our evolutionary past. Collectively, through mitochondrial DNA transferred through the mother, humanity can be traced back ~150,000 years to a single woman in Africa dubbed mitochondrial “Eve.” Similarly, 50,000 years ago in Africa and through the male Y chromosome, everyone alive today is descended from a male referred to as “Adam.” That same genetic science indicates that the human exodus from Africa began 50,000 years ago and humans have since spread around the world (Flannery 2010). Clearly, the trail of human DNA leads to the conclusion that “We are all African” (DiCarlo 2005).

A couple of points before we continue. First, genes rarely “work alone.” Invariably a number of genes (polygenic) forming small gene complexes are involved in most traits such as height, aggression, cooperation, musical ability and eye color. There are a few cases, Huntington’s disease being one, where a single gene results in a specific trait. But, even here, the severity and onset of the disease is affected by other genes and environmental factors. Multiple genes are needed to influence the development of traits and each of these individual and collective groups is influenced by fluctuating environments (Bateson 2004). Next, genes are naturally selected on the basis of their net positive effect or average effect on populations, not individuals. Again, “good and useful” comes into play, meaning that any given gene might be neither good nor useful, at an individual level, although the possibility exists that it could be (Wilson 2007). The human brain is the result of genes and the environment.
Genes and Brains

To understand the brain, we must acknowledge that it can evolve, that what it is and what it does is controlled by the genes in the human genome (Steen 2007:c8).

The brain is able to wire itself as a function of the relevant genes. As it learns, the brain is able to rewire itself as a function of the relevant environment (Steen 2007:c14).

Natural selection has been sorting through genetic mutations and shaping brains for millennia, resulting in more gene expression in the brain than any other organ (Dawkins 2006; Kandel 2006). The genes specify the general architecture/circuitry, size and development of the brain and have done so for all of evolutionary history. Within the general architecture, neuronal survivability, synaptic connectivity/sensitivity, neurotransmitter balances are all structured and will have some influence on personality. The products of genes, the activities of neurons, are all embedded in elaborate networks. The actual synaptic relationships between neurons are formed through experience, not by genes directly. Experience in environments, physical, cultural, within families (birth order, sex) and between families, specifies the actual wiring within the neural architecture/circuitry from which meaning emerges for the individual. Learning and behavioural flexibility are a reflection of the evolutionarily acquired plasticity of the brain itself—whereby modifying our own behaviours and thinking (in response to the environment) is indicative of the brain’s ability to modify its own structure and neural circuitry (Steen 2007).

Genotypes, Phenotypes and Heritability

Each of our genotypes consists of ~20,000 genes, available for potential expression, stitched together intermittently throughout 46 chromosomes (amongst millions of other pieces of ‘junk’ DNA15). The behavioural, physiological and physical manifestation of those genes into measurable traits is the phenotype. Phenotypes are the result of the extensive interactions between environment and genes. Environmental influences (nurture) can be broadly defined as any and all influences not explicitly genetic (nature). The “heritability” (genetic inheritance factor) of a trait (temperament, height, metabolism, immunity, intelligence, altruism, cooperation, aggression, agreeability, extroversion etc.) has been represented numerically from zero (not resulting from genes at all, environmental only – e.g. spoken language) to one (completely dependent on genes, e.g. Huntington's disease).

15Junk DNA is likely a misnomer, as effects of this DNA are currently being discovered.
Heritability is a necessary condition for evolutionary change, but it measures a hodgepodge of diverse contributors to behaviour (Pinker 2011:592). Heritability studies and the scientific attempts to share the “numbers” publicly through the media proved problematic (error prone) and contributed to the commonly held belief that genes are the primary (and selfish) determinants of what we are. This subtle yet pervasive gene-centric bias favours the view that traits, including behavioural ones, are primarily determined by our inherited genetic blueprint—i.e., that nature overrides nurture (Greenfield 2008; Steen 2007). Empirically, however, it has become increasingly clear that, “genes and environment are so interconnected as to render the old nature versus nurture debate futile “ (Greenfield 2008).

Trying to untangle the inextricably interlinked genetic and experiential factors that make up human life, in an attempt to assign primacy to nature over nurture, does not work. The interaction between genes and environment and the resultant traits including human behaviour are more interesting than a simplified concept like heritability could hope to express. It is not that genes do not matter; rather, they imbue human beings with millennia of evolutionary advantage. Whether or not those advantages develop (i.e., who we become), is primarily constrained or enabled by the existing environment. Genes, then, are about potential, whereas, environment is about the possibility of maximizing genetic potential.

Throughout development, genes play a part in the eventual mental makeup of each of us, our dispositions for this or that—a disposition to mathematics or verbosity, tall or short stature, higher or lower heart rates/metabolism—run in families and the mechanism for that behavioural, physical or physiological potential is genetics. This potential is greatest in childhood but even later environments continue to have wide-ranging effects on gene expression, turning some on and some off like so many light bulbs (Burton 2008; Kandel 2006). Even our physiology can be significantly influenced by later experience. For instance, the specificity of immune cells in the bloodstream as one approaches middle age depends largely on past experience (Lane 2009). Each behaviour pattern or psychological characteristic is affected by many different genes, each of which contributes to the variation between individuals. Genes do not map directly onto behaviour patterns.

Environment and Behaviour

The pathways running from genes to neurons and thence to behaviour are long, full of detours, with many other paths joining them and many leading away from them (Bateson 2004:161)
Genes are tiny bits of coded chemical possibilities (considering that gene expression varies with environment) transmitted down through the generations, very slowly and slightly improving a species’ ability to stabilize and survive in its environment, thus altering its gene pool and phenotype over evolutionary time. Genes enable human development in the “general strategies and tricks of the living trade” learned over evolutionary time (Dawkins 2006). Environments in this evolutionary sense are quite stable (except for those periods of environmental change where adaptation becomes difficult and both speciation and extinction increase). However, it is useful to reconceptualize the environment, in the here-and-now of human development, as a veritable maelstrom of moment-to-moment change, notably unstable. The brain is roughed in by our genetic blueprint but even this process is affected from one moment to the next in a shifting milieu of environmental change: millions of moments of experience wires the mind and shape gene expression (Boivin et al. 2012) This maelstrom of shifting environmental circumstances begins to affect gene expression in the embryo and, thus, exerts some effects on behaviour. However, the environmental milieu of development directly influences behaviour through its effects on the mind. **Environment is the architect of the mind.**

Human behaviour results from activity in the brain filtered by the mind. The mind is sculpted from experience (I am using the words “architect” and “sculpted” purposefully here, because environments are often constructed in such ways as to direct minds to think and behave in specific ways, e.g. religion, economics and politics). Human infants have very specific and lengthy developmental periods that allow brain development and the subsequent wiring, through experience. To even begin to fulfill whatever genetic potential they possess, infants “must be loved, touched, cleaned, warmed, kept free of disease and given adequate stimulation and rest” (Greenfield 2008:285). The neural plasticity of the brain is thus leveraged through a decade-long infancy and childhood where the synaptic pathways and complex circuitry of the mind are continually structured (Ramachandran 2011). Our environmental experience, especially in early childhood, results in tens of trillions of synaptic connections strengthened or lost, mimicking a type of selection process. Those massive populations of neurons that fire repetitively, form the most “burned in” neural circuits (and subsystems). Those synaptic connections remain, while those used less are pruned away. No other animal has a similar plasticity of brain or the infancy time required to utilize it. Note—the increasing size of baby brains and the necessity for years of
care also influenced the increasing sociality and cooperative traits of human groups (Linda Fedigan 1991).

To take one example of how environmental circumstance explains individual personality differences (different minds/similar genes) and has altered the course of history, look no further than birth order. In *Born to Rebel: Birth Order, Family Dynamics, and Creative Lives* (1996) Frank Sulloway wanted to know why rebels become rebels. What he found during an exhaustive and conclusive interdisciplinary historical research project surprised him. The causes of rebelliousness, he discovered, reside within the family—firstborns resist change and fight for the status quo and laterborns fuel rebellion, revolutions and social change. Copernican and Darwinian revolutions were resisted for centuries by firstborns and promulgated by the laterborns including both Copernicus and Darwin themselves. Voltaire spent his entire life resisting the status quo of his elder brother and family, driving his important contributions to the French Enlightenment of the 17th century. This birth order phenomenon occurs because later borns have to create new and novel ways to acquire parental investment; being noticed, especially by parents, is an overwhelming drive for human beings (evolutionarily inscribed in the DNA) (Bloom 2012; Sulloway 1996). Clearly, the minds of firstborn are wired differently, based on their position in the family and how they respond to that environmental happenstance. Sulloway demonstrated that Darwin was 100 times more likely to adopt a revolutionary point of view based on his position in the family. There are, of course, exceptions to this rule, but the majority of Sulloway’s research indicates the effect is powerful. Similar genes and different birth order creates different mental and even physical environments for each child predisposing one to conservatism (keep things as they are) and another to rebelliousness (change things, create new things), as each brain/mind modifies itself to suit the environment.

Genes are not a blueprint for behaviour. We are not just a robotic version of the genetic complement that existed in the fertilized ovum. Of course, there are certain constraints on development embedded in the human genome: maximum lifespan, height, strength; basic brain circuitry/plasticity and physiology etc. Human development is akin to jazz music: almost anything is possible musically but there are constraints imposed by the nature of the instruments themselves, i.e., the genes (Bateson 2004). Genetic constraints are only modified slowly and relentlessly by evolution (modern genetic tampering aside). However, the small genetic differences between Neanderthals (~.5%), chimpanzees (~1-2%) and Homo sapiens began to overcome this instrumental/genetic constraint. The small genetic difference seems to
have been sufficient for the human brain to achieve what no other animal has the capacity to do—engage in complex social learning.

Aggression, selfishness, altruism, cooperation, deception, empathy even belief in God, all cognitively evolved over millennia as we hunted, gathered and socialized in increasingly large groups. This slow steady evolutionary progression, constantly selecting for more complex brains, culminated in the distinctly human facility for social learning. The ability to imitate better than any other species lead to something extraordinary. Four billion years of evolutionary change finally gave way to a new evolutionary process that would change everything—cultural evolution had begun.

**Cultural Evolution - 150,000 years ago to today**

For an understanding of the evolution of modern man [sic], we must begin by throwing out the gene as the sole basis of our ideas of evolution (Dawkins 2006:191).

Cultural evolution refers to the process by which change occurs in human affairs through the spread of ideas and beliefs, through populations. It is an evolutionary process that occurs rapidly according to human time, not the deep time of biological evolution. If we were to reduce the four-billion-year history of evolution to a single year, early humans would not appear until the final day and human culture in the final seconds (Dennett 1995). The moment-to-moment environmental change that influences gene expression and wires the brain that will become the mind, all happens in a temporal and spatial context called “culture.” Culture has immense power, as it can, and has, changed the world, in a second.

**Culture**

Culture exerts a more powerful effect than strictly biological factors in shaping our brains (Restak 2006:215).

The concept of culture I espouse...is essentially a semiotic one. Believing, with Max Weber, that man is an animal suspended in webs of significance that he himself has spun, I take culture to be those webs and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning. It is explication I am after... (Geertz 2000:5).

Most of what is unusual about humanity can summed up in one word: culture (Dawkins 2006).

Culture is “based on the uniquely human capacity to classify experiences, encode such classifications symbolically and teach such abstractions to others” (Cultural Transmission 2007). And culture is composed of “those features of thought [ideas, beliefs and values], speech,
behaviour and technology that are learned and socially transmitted to other individuals” (Cultural Transmission 2007). So, cultures accumulate large reservoirs of complex skills, knowledges and beliefs and transmits them from person to person and generation to generation using systems of symbols, of which language is primary (Ramachandran 2011). One thing to remember about culture: it is primarily unconscious; we do not realize we have mastered our culture; culture only becomes conscious when we are in another culture and realize we don’t have the “skill” to survive in it, as our unconscious actions/reactions don’t “translate.” This “unconscious” internalization and tacit acceptance of our own culture as the only or at least a “better” culture, often induces us to view other cultures with suspicion if not downright alarm, contributing to “culture wars” (which we will get to later). Culture is arguably not unique to Homo sapiens, and has been demonstrated to exist in other species especially apes and earlier lines of Hominins. However, no other species has taken the roller-coaster ride of cultural evolution that humans have and no species has combined culture, cooperation and cognition with a rapidly-expanding technological proficiency.

The brain-based mechanism that enables humans to teach, learn and socially transmit skills and knowledge from one person to another is social learning. Social learning is the tool, culture is that which is being built and cumulative cultural adaptation is the relentless social change brought about by cultural evolution. Our ability to imitate and infer—social learning—is inscribed in the DNA and it is from this social learning that culture emerges.

**Social Learning**

In short, we have developed more interesting and adaptive ways to imitate each other than any other species (Bloom 2000).

Natural selection is a way of sorting among a range of genetic alternatives and finding the best one. Social learning is a way of sifting among a range of alternative options that are ideas, and choosing the best one of those (Pagel 2012:3)

Social learning combines our faculties for imitation and ‘mind reading’ (theory of mind). Theory of mind directly refers to a “set of [neural] processes for inferring what those around us are thinking and feeling” (Carr 2010:213). These evolved cognitive skills are structured by the human genome and “wire us” for culture. Imitation, the ability to copy others, is a deceptively simple but powerful skill. It does not require many innovators or good ideas with a lot of exceptional imitators present. One “good” idea can be imitated and spread throughout a small group, band, tribe, chiefdom, city state, nation state and now globally, quickly and efficiently.
When you add other skills, like manual dexterity (tool making), spoken language, symbol systems and written language, change becomes explosive. The techniques of symbolic were imitated many times, eventually forming the basis of many cultures (Rees and Rose 2004). “Social” learning emphasizes an ability, not just to copy/imitate but also to socially connect (through symbols, i.e. words and actions) with another person's mind. Social learning skills have evolved as a specialized set of brain mechanisms that enhance social intelligence and are not necessarily related to general intelligence (Ramachandran 2011). Since this mind reading/imitating ability (social learning) is innate and widespread, very large groups can coordinate and achieve outcomes; that is, we create cultures with shared meanings (Carr 2010).

Theory of mind or empathic accuracy is the ability to infer what someone else is thinking or feeling from their expression, behaviour or circumstances. For example, if a chimpanzee “learns” to wash dishes, usually for some type of reward, the chimp will usually wash dirty or already clean dishes indiscriminately. Humans are not only better imitators (i.e., they wash dirty dishes only), but also infer that the purpose is to clean the dish by seeing someone carefully examine a plate, remove the speck of food and smile, apparently pleased with the result. We generally realize that other human beings have thoughts, emotions, ideas and motivations somewhat like our own and have an uncanny ability to discern what they are feeling, perceiving, believing and intending. This allows us to infer that a person who missed the train is sad, angry or indecisive, based upon what we ourselves might feel/have felt and by interpreting their behaviour, demeanour and facial expression (Pinker 2011).

I want to take a short detour here to draw a connection between social learning and institutional (corporate) power (which I address more fully in chapter 2). The social learning ability of the human mind not only allows us to infer another’s mental state or states in order to better understand/copy behaviour, it also allows us to predict future behaviour. We use this cognitive skill in part to “read” onto other's intentions and predict future behaviours. We can use this predictive knowledge, amid the other emotional clues we get from observing people, to better influence and direct behaviours in both positive and negative ways for ourselves, others and the larger group. When the primary goal is to achieve wealth and power at the exclusion of all other considerations we are the “Machiavellian primate” (Ramachandran 2011). “Machiavellian” describes a person who utilizes complicated deceptions and manipulations of others for personal gain—while removing morality and ethics from such decision-making. History has seen its share of Machiavellian personalities since the 15th century when
Machiavelli wrote about the original shenanigans of the powerful Medici family in his book *The Prince*. But things have changed. We now have immensely powerful institutions called corporations that have all the rights and privileges of an individual person. By law they are Machiavellian and self-interested (ostensibly in the best interests of shareholders). At worst, they are psychopathic, a point to which I will also return in chapter 2. For now, just for argument sake, let us place a Machiavellian CEO (personality) in legal charge of the Machiavellian corporation. This person is particularly good at deceit and downright gifted at reading people’s emotions, predicting future behaviours and manipulating same. That’s helpful to achieving the goals of wealth and power. But utilizing the technology available to the corporation to exponentially expand and extend predictive capacity over millions of people (not just those in the room) grants the CEO a new level of power and control:

[Data mining] technology can improve to the point where they're able to tell what people are thinking about...to a much greater degree and control and influence what people think and feel...it’s potentially really bad. (Alex Speers-Roesch)

This utilization of computing technology together with data mining (computational social science) significantly improves and expands what began as a basic and innate human skill. Simply monitoring someone’s computer use provides enough information for “accurate” prediction of future behaviours. The National Security Agency in the United States has recently been caught utilizing this technology illegally against vast and presumably innocent swaths of civil society in the United States and abroad, ostensibly to predict terrorist attacks. The information mined can, in fact, be used for almost anything. Advertising, already extremely powerful, can be further refined and targeted using data mining technology. Political campaign research and targeting, already opened to unlimited corporate financing, is another example. The social sciences find more promise in data mining as a tool to shine a brighter light on individual human behaviours and “collective human behaviour in a completely new way” (Christakis 2012:2). The question becomes: how can the findings utilizing the technology be used ethically, cooperatively and constructively?

Returning to social learning, modern neuroimaging techniques have confirmed that there are highly active brain areas specifically connected with understanding other people's minds (Carr 2010). Specific types of neurons (so-called mirror neurons, which allow you to feel what others are feeling), hyper-developed and improved social learning skills, enable culture to overcome the constraints of our biology. Culture itself became a source of evolutionary pressure
selecting for increased numbers of neurons, especially “mirror” type neurons, resulting in Homo sapiens’ improved ability to imitate. Thus began a more rapid adaptation to environments, as knowledge was imitated and copied generation to generation, quickly overtaking the slow evolutionary pace of biological evolution (Ramachandran 2011).

Social learning is some combination of the human ability to imitate and infer. It is the basis of culture and separates our species from Neanderthals, apes, chimps and bonobos. Social learning was probably given rise by small random genetic changes in the brain between previous species and ours, the last one occurring around 50,000 years ago. Small changes cumulatively had a huge impact, unleashing an emergent complexity in the form of cultural evolution. The 50,000-year-old “imitatively and socially gifted” brain was enough to ignite complex culture and deliberate thought, which enabled the accumulation and distribution of knowledge to the collective: The pace of evolutionary change abruptly switched gears from deep time to human time. Cultural evolution accelerated. The vast experiment in human culture began ~50,000 years ago, then accelerated ~10,000 years ago as a result of cultural evolution, early agriculture and the unusual climate stability of the Holocene age. Cultural evolution itself has been driven by the uniquely human capacity for social learning.

Cultural Evolution 1 – Imitate

When this step [the ability to imitate others] was taken, our species suddenly made the transition from gene-based Darwinian evolution through natural selection—which can take millions of years—to cultural evolution (Ramachandran 2011:132).

Imitation, in the broad sense, is how memes can replicate (Dawkins 2006:194).

Besides defining what cultural evolution is and some of its attributes, I also theorize that there has been a shift in how cultural evolution operates in the recent digital age. This section makes the relatively standard argument that, our ability to imitate (social learning), combined with our ability to innovate drove cultural evolution “forward” creating, among other things, increasingly technological industrialized cultures. CE 2 – Copy follows argues that cultural evolution started to shift around 50 years ago in large part due to digital technologies. This shift is towards an increasing tendency to copy and follow, amidst a decreasing level of true innovation and creativity.

Biological evolution is the shift in frequencies of genes through the generations; whereas, cultural evolution is the shift in frequencies of ideas through the generations. The term
“cultural evolution” implies that processes similar to but not identical to, biological evolution are present and active. Therefore, there must be a gene-like replicator, some type of random mutation and a process of natural selection that selects those changes that contribute to stability, survival and improved adaptation to environment. In cultural evolution, the replicators are memes. Memes are sometimes described as a unit of meaning (or culture), but are more easily understood as the ideas or even beliefs that constitute a culture. Genes are ‘instructions’ passed from parent to offspring, body to body; memes, are ‘instructions’ (ideas) passed from person to person, mind to mind. And those ideas that seem to be the “best” (naturally selected by many minds/cultures), stick by establishing themselves in the neural circuitry and synaptic pathways of the mind. This cultural evolutionary process accumulates and transfers knowledge at an extraordinary rate driving the process of cumulative cultural adaptation, which has seen Homo sapiens take over the planet. Cultural evolution sidesteps biologic constraints and deep time creating an evolutionary process that is Lamarckian: meaning ideas, beliefs and behaviours that are socially learned (acquired characteristics) by one generation are passed on to the next. But it is even more powerful than that: What is learned in one cohort of one generation can be horizontally and vertically passed to other segments of the same generation and across cultures. This process, already extremely rapid compared to biological evolution, has itself been speeding up, utilizing the powerful combination of social learning and increasingly, digital technology (Carr 2010; Flanagan 2011).

Cultural evolution, idea evolution, led to something never seen in the natural world—a species that can override genetic “natural” impulses (directives) and learn to make alternative choices. This is important because, in biological nature, groups or societies are not based upon cooperation and altruism or social justice. Even though many aspects of these “civilizing” attributes developed and exist in nature, animal species can be particularly nasty or relatively benign, but they are always “natural.” Humans, of course, can also be overly aggressive and nasty but have come to understand that, “clearly what is natural is not necessarily good” (Dela Salla 2007:145). Reason, rationality, critical thinking and evidence-gathering may be the most important of the “non-natural,” mind-based developments of cultural evolution. These cognitive abilities developed rather slowly, with the brain evolving over millennia as humans hunted, gathered and socialized. However, as cultural evolution began to accelerate with complex systems of symbols, literacy and communications technology, our “collective rationality” even managed to reduce the overall level of violence driven by our biology (Pinker 2011:642).
Humans, therefore, have the ability to override natural tendencies. Reproductive choice and equality for the sexes are two obvious manifestations of alternative choices that do not occur in nature. Japan, for instance, has a negative birthrate (like many Western nations) and, since they have no immigration, the population is predicted to fall by 10 million by 2030. This is, if not a historical first, extremely rare: a species that voluntarily restricts its own reproductive success amidst abundance.

However, memes are like genes, with natural selection sorting out the “good and useful.” Yet, “good and useful,” as we know, is not quite as positive as it sounds. Complex memes like equality, non-violence and contraception are certainly possible and exist. But, equally, so are many other memes. The memes of selfishness, greed, and the “free market” may also be selected; while they are not necessarily “good and useful” for everyone, they remain lodged firmly in enough minds to be extensively promoted and replicated.

Regardless, cultural evolution has enabled Homo sapiens to contemplate and override the restrictions of genetic evolution, adapting to every environment on Earth, not just those for which we might be evolutionarily adapted. Homo sapiens accumulated this adaptive potential in a very short span of time. Our ability for social learning and thus rapid change has overcome our obvious physical restrictions with regard to the animal kingdom; we may not be the biggest, fastest or strongest, but we have spread a vast array of environments around the entire planet, and even into outer space (Greenfield 2008).

**Brains and Cultural Evolution**

The human brain itself has remained unchanged in its basic properties but has been affected deeply in the way it deploys its resources (Donald 2004:35).

Biological evolutionary processes on the brain alone do not sufficiently explain current brain states, capacities and outcomes. Biologically and genetically, we have the same basic brain as of 50,000 years ago and the same size as of 200,000 years ago (Restak 2006; Donald 2004). Functionally and cognitively, the brain/mind has undergone significant change driven by cultural evolution and its by-products—symbols (writing in particular), external memory devices and the burgeoning digital technology connecting minds in ever larger cognitive networks (Donald 2004). The powerful influence of culture and cultural evolutionary processes on how minds are wired means that, in a very real sense, “culture is part of our biology”

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16 Genes form gene complexes, memes form meme complexes representing multifaceted cultural ideas/beliefs i.e. education, social justice, free market.
(Henrich 2012). The physical changes in the brain/mind brought about by cultural environments have significant impacts on human societies and human behaviours. The newly minted discipline of neuroanthropology seeks to better understand this relationship between culture and brains keeping in mind that such relationships drive human beliefs and behaviours (Lende and Downey 2012).

Our innate cross-cultural genetic inheritance of manual dexterity and language, our fast, flexible, imitative, inferring brains and the resultant cultures provided the platform for cultural evolution to become the new genome. Writing, reading, politics, economics, religion, technology and reasoning systems, create memes that, used continuously, rewire the mind in new ways—not from genetic change but from cultural change alone. Indeed, we are “Homo plasticus” (Ramachandran 2011:38). As such, we are increasingly shaped by our cultural environments. So, as it now stands, our exquisite sensitivity and adaptability to environments through our highly malleable brains capable of social learning and culture have transformed both the world and our individual minds.

We imitate and then we innovate, then we imitate and on it goes. The need for innovators with fresh ideas is minimal amidst a talented group of copy artists capable of socially transmitting knowledge. But the history of human culture is sprinkled throughout with inventions and ideas that prompted progress and solutions to problems, often clustered in so-called “ages of genius.” Shakespeare lived in such an age, when many of the parameters for innovation and creativity thrived: new forms of urban human mixing, relatively lax copyrights, the beginnings of institutionalized education and rewards for creativity (Lehrer 2010:245). Arguably, environments, such as Shakespeare experienced, explicitly drive innovation and creativity spawning ideas that have allowed cultures to emerge over the past 10,000 years with attendant increases in human well-being. We know what a creative environment looks like; sadly, we do not appear to be applying this knowledge very well in the present. This is troublesome, because there may be a serious problem with not having an abundance of the necessarily fertile environments within which ideas can be constantly generated. The commonly held belief that ideas are generated purposefully and consciously may be in error—ideas (memes) might well be randomly generated and then “naturally” selected.

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17 Shakespeare would have been sued out of existence today, along with Bob Dylan and many others.
I am proposing that a shift has occurred from true innovation towards more copying and this has contributed to the human tendency to follow (blindly) over the past 50 years. This phenomenon can be demonstrated with cultural-evolutionary arguments, one purpose of which is to better understand some of the world’s current problems and dilemmas, which I discuss in chapter two. In addition, a better understanding of the problem (why we are easily led) is part of the solution.

We generally believe that ideas result from the reasoned, critical problem-solving and creative thinking applied to specific problems. However, according to Pagel (2012), ideas are likely randomly generated, like genetic mutation and are not derived from careful deliberation and reason (although these critical thinking faculties do come into play). The random mutations of genes passed from parent to child provide natural selection something to sort through. Cultural evolution arguably relies on ideas randomly generated in the unconscious, which sometimes leak into the conscious and then selectively spread through a culture, copied from mind to mind. The major difference between Einstein (or Bill Gates, for that matter) and the rest of us, is a matter of circumstance (environment), curiosity and doggedness, rather than “brilliant intellect.” To make matters worse, this random generation of ideas is actually quite difficult, requiring investments of time, relentless curiosity and suitable environments (those generally available during “ages of genius”). Combine this difficulty with acquiring and utilizing the cognitive reasoning and critical thinking skills necessary to bring an idea to fruition and one begins to wonder: Why bother, when you can just copy and imitate someone else’s efforts?

Not only are ideas randomly generated by those few of us persistent and curious enough to bother, but cultural evolution has been selecting for better and better imitators and copiers at the expense of creativity and innovation.¹⁸ This makes a certain type of sense if we consider that innovation, creativity and thinking are getting more difficult (copyrights extended from 15 years up to 95 years make an “age of genius” very difficult to generate). They are also more resource-intensive at a time when copying is easy and getting easier in the modern digital world. When I discussed this notion of copying versus innovation as a trend with a friend of mine (who holds a PhD in economics) he remarked: “Of course, that is what is happening, that is how China became an economic giant: copying, being very good at copying. If you go to a large conference

¹⁸ A massive study conducted by an educational psychologist revealed downward trends of children's creativity over the past two decades (Shellenbarger 2010).
dealing with innovation with 100 or 200 ideas (some representing entire lives of effort), maybe one or two will be taken into practice—meaning manufacturing or use. It’s a far better use of time and money to just copy extremely well” (pers com 5 April 2012).

Second, think of what real brain imitation means: as we watch somebody act, our own neurons activate as if we were doing the same thing. Our sense of self activation and independent thought and behaviour is actually significantly influenced by what we see others doing and by the culturally dominant ideas/beliefs we absorb. What is it that stops us from just imitating or copying everything (Ramachandran 2011; Restak 2006)? Just follow the rest whispers a little internal voice. Our tendency would be to externalize problem-solving—there is no need to think of solutions on our own when we can just copy them. Cultures conserve themselves in this way and, if the culture is stable or at least workable, the strategy is reasonable. But what if the culturally dominant ideas/beliefs are inherently self-destructive leading inevitably to collapse? This has occurred frequently in the past. Easter Island (Rapa Nui) is one of the more famous examples and reflects what generally happens as environmental degradation leads to collapse (Diamond 2005). In this instance, all the trees on the island were cut down in a competitive effort among 12 kin-based territories to build the most and biggest statues. During approximately four centuries more than 880 moiae (statues) were constructed (the moiae meme remained dominant) resulting in the complete deforestation of a once resplendent, palm-covered island. No materials were left for canoes to fish from, and soil erosion was extensive, leading to a collapse of the population (Fagan 2008). Unfortunately, knowledge in and of itself does not seem a particularly effective antidote. As more knowledge and information becomes available, the less likely we are to actually think and to “build stable knowledge structures, schemas: the brighter the software the dimmer the user” (Carr 2011:214). This trend is especially dangerous at times when innovation, creativity, ideas and problem-solving are important for the survival of what has become a global culture. According to participant Susan Linn, the overriding meme of the global culture may lead to collapse as well:

The global culture is really corporate culture and promoting those...[corporate] values of greed and, mostly greed. (Susan Linn)

This also explains why we are so often easily led. It is not that conforming to what has been previously learned is wrong; cumulative knowledge has obvious advantages. But, blindly following/imitating extreme ideologies (such as building the biggest statues or biggest houses in the face of limited resources) is potentially disastrous. The evidence that we 21st century
“moderns” copy and blindly follow is not hard to find. In the 1961 Stanley Milgram shock experiments, Milgram demonstrated that one person in a white coat projected enough authority to convince three quarters of participants to administer what they thought were 450-volt shocks to innocent people whom they could not see. At the time, psychiatrists, graduate students and even the Yale faculty predicted only one percent or two percent compliance when it came to administering the maximum shock (Milgram 1975). While we might think the results would have changed in the intervening half-century, a partial replication of the experiment concluded that obedience rates remained stubbornly unchanged (Burger 2006).

We must consider the possibility of our own “infinite stupidity” (Pagel 2012). Cultural evolution has promoted copying at the expense of more innovative thinking. Susan Jacoby in The Age of American Unreason (2008), carefully documents the unmistakable downward trend of innovative thinking in the United States since 1945. One example of this “stupidity/dumbness” is the post-1992 decline in the sophistication of American political campaigns, which today fluctuates between incoherence and a startling disassociation from reality. Intelligent economic discussion from politicians and the media began to fall even earlier, beginning in 1984 to the present. Ideas and creative solutions are now rare to absent in public and media.

This decline in intelligence and innovation eerily coincides with political strategists’ increasing use of scientifically-backed manipulation techniques (including those from brain science) and the corporate takeover of digital media and communications technology (Pinker 2011). Two Canadian politicians who excel at copying are our current Prime Minister Stephen Harper and Toronto Mayor, Rob Ford. Neither has ever expressed an original thought; their entire playbook is copied from the Tea Party/Republican Party and “free market” platitudes, including simplistic jargon, corporate tax cuts, support for the top one percent, media manipulation and bullying tactics.

What those strategists, politicians and corporations seem to somehow understand is that we are easily led, born and culturally evolved, copiers. One of our greatest gifts, imitation, combined with our tendency to generate beliefs unconnected to information and evidence, has turned against us and the prevailing environment has played a significant role.

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19 This sounds eerily familiar and reminds me we are essentially belief generating not truth seeking.
Changing Environments, Maladaptive Brains and Destructive Minds

It is obvious that some forms of behavior that may have benefited humans in the past have become dysfunctional in the radically different modern world (Bateson 2004:150).

Our evolutionary pasts, both biological and cultural, are very close, contained within the structural and functional parameters of the brain. The mind, though, is completely born of the current cultural environment, wired by experience and filled with the meaning broadcast by culture. The concept of changing environments for me is twofold: a kind of proximate environment that changes moment-to-moment; and, the ultimate environment that changes more ‘slowly’ over time. Cultural evolution has had a significant effect on both of these environments.

Both ecological and psychological environmental changes during the past 50,000 years have been rapid for Homo sapiens, driven by cultural evolution. Modern cultures began to form 10,000 years ago with the advent of farming. Written records emerged 6,000 years ago, industrialization 200 years ago, and so on. We have shaped our environment, through cultural evolution, to a more complex degree than any other species (Herbert 2007). The move from the pre-industrial to industrial to the digital age has been a series of rapid environmental changes. The explosion of digital connectivity and screen technologies has had a jarring effect on our moment-to-moment existence. The modern developmental environment is vastly different from anything that has come before, with the incessant flashing of digital images, the cacophony of sound, the manipulation of children’s and adult’s emotions, the endless distractions and the whining exhortations from corporate media (Giroux 2000). The narcissist and the sub-criminal psychopath increasingly provide the “good and useful” memes to be copied and passed mind to mind. Good and useful...for the top one percent.

Problem-solving, critical thinking and other evidence-based cognitive pursuits, as an antidote to blind copying, flourish only within certain environmental parameters. Thinking is energy intensive, aided by the oxygen rich atmosphere provided by physical exercise and the outdoors. Cognition is a time-and-attention consuming activity best done slowly, in a calm and relaxed environment. The symbol systems used in reading and writing activate neural networks and build better thinking brains.

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20The Anthropocene (human) age arguably began here as the Industrial Revolution began degrading global environments.
Currently, human cultures are creating environments that no longer take into account the necessary parameters for innovation, cooperation and cognition, making adaptation increasingly difficult (Steen 2007). For some generations now, the tendency to sit and watch the all-powerful screen, in a digital trance, not thinking, drifting deeply into the fog of “copy follow”, has occurred. Digital corporate culture is rapid, “frenzied,” all pervasive and all seeing (constant monitoring of the masses) and soaked with fear (Greenfield 2008). In this “new-style” environment, vastly different from those in which the human brain evolved, it is not surprising that the reasoning, creativity and critical thinking, qualities necessary for human flourishing, are in deficit (Greenfield 2008). Our evolutionary drift away from the necessity of nurturing children’s minds with psychological safety and emotional warmth towards some cruel abandonment to digital “coldness” is particularly sad and destructive (Carr 2010). One obvious manifestation of this is the widespread acceptance of advertising to children. The evidence over the past 20 years is conclusive, marketing to children has negative developmental outcomes (Hill 2013). As Susan Linn points out, the brain sciences only make the case stronger:

If you look at the science, it’s wrong to market to kids. If you think about the synapses that are getting stronger and the ones that are being used...the dangers of marketing to children and particularly young children are even [worse] then I realized when I first started this work. (Susan Linn)

Yet, the belief persists, that children have the capacity to protect themselves, that soliciting them as consumers poses no threat to their development (Linn 2004). Such ideologies and some obvious others (to be discussed shortly) have made significant gains over the past 40 years, utilizing the shifting environmental circumstance and fuelling the tendency, if not outright preference, of the brain to mimic other brains and copy rather than think. We can be anyone, easily, based upon various destructive and fraudulent belief systems in politics, economics and religion. No need to think, just copy and follow along strict behavioural guidelines, delineating beliefs, thoughts, actions and values (Taylor 2009). The three C’s of human evolution, that are largely responsible for the development of civilization—Cognition, Culture, and Cooperation—are, it seems, all struggling (Wilson 2007). Cooperation has recently become nonexistent among political parties, damaging the public sphere, entire cultures and economies. The “democratic” politics of the United States have reached a new level of dysfunctionality between Democrats and Republicans (to be a Republican, is to never vote yes to anything a Democrat would vote yes to, even if it is in the best interest of their constituents), whereby nothing gets done amidst increasingly difficult situations ecologically and economically (Jacoby 2008). In Canada,
Stephen Harper (authoritarian/conservative) avoids questions, works in secret, turned back women’s rights and environmental gains, illegally prorogues Parliament, hides authoritarian legislation in massive bills and passes them late on Friday nights, etc. Globally, Greece is one example where the May 8, 2012 emergency election resulted in the election of a large number of diametrically opposed and recently reincarnated neo-Nazis and Communist blocs. These ideologically opposed groups are incapable of the cooperation needed to avert or at least moderate the current economic crisis and prevent it escalating. Democracy, which is by definition cooperative, is becoming something else. One could even make the argument that Wilson’s three C’s, ‘cooperation, cognition and culture’ became somewhat distorted and overly influenced by other three C’s, ‘colonialism, christianity and capitalism’ (hyper), eventually resulting in the current dilemma.

Evolutionarily adaptive threat responses from millennia ago are maladaptive in the modern world. The digital media (both corporate and noncorporate) are a massive stress-and-fear inducing machine (consciously and/or unconsciously), endlessly delivering a stream of negativity and violence at levels never before seen in human history. Turn on the TV any night in North America and surf the channels, especially movies and the news. The level of violence is astounding and has been getting worse (the competition to keep eyes on the screen keeps the violence escalating) for decades. Video games, unbelievably violent and commonly played by adolescents, have been found to impair their ability to be empathic, to care about others (Funk et al 2004; Bilton 2014). This is where evolutionary “ghosts of the past” can be strongly felt, shutting down thinking, hunkering down in fear, increasing aggression, copying and following. Concurrent with this is the brain's perception of threat and the need to react in some way. People experience extreme stress when presented with responsibilities that scream out for action but feel powerless to actually do anything. The result of these environmental circumstances is the epidemic of depression identified by the World Health Organization as the major health hazard of the 21st century (Rose 2004). Depression is the brain/mind breaking down, unprepared and unable to cope with the environmental stressors in which it finds itself surrounded and unable to escape.

Cultural evolution operates according to ideas and beliefs. It does not automatically select those ideas and beliefs that are “best” in terms of human flourishing. This is similar to natural selection and adaptation wherein traits may evolve that are adaptive to the majority of the species or not, depending on changing environments in particular. A “good” trait may, in
fact, be good (morally, ethically, value-based\textsuperscript{21}), fostering cooperation, altruism and sociality, and increasing the stability and survival of the population. Traits may also be those of aggression, selfishness, deception and greed; yet, these can still be evolutionarily “good” by increasing the survival of the overall population. However, these traits can also encourage the collapse and extinction of cultures by contributing to environmental degradation (both ecological and psychological). Similarly, there are ideas and beliefs, meta-memes, that the collective cognitive network of the Internet and other digital media marvels are capable of delivering endlessly and repetitively. The “free market/endless growth” meta-meme spread in this digital way and promoted as a “naturally occurring phenomenon” has had powerful negative effects environmentally (ecologically and psychologically). What is natural is not necessarily good.

Yes, we can imitate and infer another’s thought processes, copy their ideas and develop cultures in the process. Cultural evolution then takes over, speeding up change until our technology overwhelms the brains and the cultures that created it. Technology overwhelms by enabling cultures to create environments that disable the very mind that created such technology in the first place.

**Horrible Environments make for Horrible Minds\textsuperscript{22}**

With corporate culture, because media is disseminating the same stories and the same messaging and because technologies...it’s not just the messages but it’s also the amount of time that is consumed, engaged with technologies, engaged with screen-based technologies that are increasingly shaping children all around the world in the same way. (Sharna Olfman)

Cultures embed themselves into minds almost unbeknownst to the recipient—wired by culture by virtue of exposure. As Sharna Olfman points out, currently, many cultures are being influenced by, if not becoming, “corporate culture” and this presents a problem. As we know, early environments are critically important as the “highly malleable inner world is shaped by the external world” (Wexler 2006: 143) of culture. Then as we grow into adulthood:

The individual largely acts to alter the external world to match an increasingly inflexible inner world...learning and action are in an inverse relationship throughout the lifespan. We learned the most when we are unable to act. But by the time we are able to act on the world, our ability to learn has dramatically diminished (Wexler 2006:144).

\textsuperscript{21} VEM values ethics and morals will be discussed in detail below.

\textsuperscript{22} This applies to psycho chimps and hens as well as psycho humans where environment wires the brain poorly and turns on all the wrong genes.
This means we learn about the world and how to perceive it when we are quite young. As we age, we shape the world to our previous understandings. This occurs regardless of what the external world presents to us. For example, many children born in the early 1990s experienced an early environment flooded with intense marketing and messaging across multiple media platforms from corporate marketers (corporate culture). Corporate advertising expenditures directed at children quadrupled, while the ads themselves were supercharged with new techniques and technologies (Linn 2004). As a result, many of those children “learned” and retained beliefs into early adulthood such as, advertising is fine, consumption is happiness, ACD is not a problem, corporations do not lie and capitalism is the only way, regardless of evidence to the contrary (Hill 2013). This is the fundamental problem of early learning in dysfunctional environments; it remains resistant to change, and makes fighting for social justice, social change—including ideological shifts—depressingly difficult.

One last note on sociopathy to keep in mind for our later discussion of economics. Antonio Damasio, whom we met earlier with regard to the somatic marker hypothesis, warns us that developmental sociopaths are created by a “sick culture,” like that of the Pol Pot regime and the Cultural Revolution in China. He goes on to say that, “I fear sizable sectors of Western society are gradually becoming other tragic...examples” of this phenomenon, producing increasing numbers of sociopaths from the disturbed cultural milieu (Damasio 1994:178-9). As I mentioned earlier sociopaths/psychopaths are often created by the hostile environment in which their development occurs.23

Time to Change

The most compelling reason for reforming our system is that the system is in no one’s interest. It is a suicide machine (Wright 2006:190).

Action on global warming can be driven by heroic leadership or by events...It'll probably be events (Smalley in Roston 2008).

Quick and continued evolution of the human mind is essential for the continued existence of our species (Herbert 2007).

Evolutionary processes, directed by environmental circumstance, have moved life from a simple replicator 3.8 billion years ago, to the marvellous complexity of the human brain just 200,000 years ago. A brain emerged capable of social learning, wired for culture and so did a new evolutionary process on a new timeline: cultural evolution.

23There is evidence that psychopathy runs in families and therefore has a heritability/genetic component, however, early abuse remains a common trigger for gene expression and determining severity.
Ideas and beliefs became the new memome, passed around from mind to mind, altering synaptic connections within the brain and bringing a new accelerated evolutionary force of change upon the world. With the advent of agriculture over 10,000 years ago, Homo sapiens began it’s slow but relentless assault on the biosphere, already altering the recently stabilized carbon levels. And then, in the 1800s, our technology fired up the steam engine and the all-out assault on nature began to take form.

We have almost been the meteor before, twice. Both occasions were driven by technology developed during the Second World War. First, we split the atom and built the nuclear bomb. By the 1950s, nuclear technology began to overwhelm us and our love affair with atomics, detonating over 500 nuclear explosions, laced the atmosphere and our bodies with strontium20. Civilization teetered on the brink for the duration of the Cold War and it was then that randomness worked in our favour, and civilization survived. Incredibly, during the same time frame another assault on the earth was occurring. America, having “inherited” advanced German chemical technologies in 1945, immediately ramped up the war on nature. The amount of toxic chemicals unleashed throughout the world in the 1950s and 1960s is staggering to comprehend. And their legacy continues. If not for the persistence, curiosity and circumstance, not to mention heroism, of Rachel Carson and other rebels and heroes, chemical companies would have undoubtedly continued poisoning the earth. The stated purpose of this wanton dosing of chemicals all over the planet was to free the world of “pests;” and, of course, that failed. But profits were really all that mattered and at that they were wildly successful. Almost worse than the poisoning, was that the chemical corporations modeled the “successful” corporate-psychopathic behaviour meme that continues evolving to this day—‘greed is good,’ nothing else matters. The Corporation as a psychopath metaphor was well documented in both the book (Bakan 2004) and associated documentary The Corporation: the pathological pursuit of profit and power (Achbar et al. 2003). In the intervening decade, there has been no change to the Corporation’s psychopathic tendencies, as Kat Dodds (distributor of The Corporation) points out:

What I see is that the disease it [the Corporation book and documentary] diagnosed of profit over people and the psychopathic nature of [the Corporation] and the kind of structural problems haven't changed. They've only gotten worse. (Kat Dodds)

With barely enough time to take a breath, Anthropogenic Climate Disruption descended upon the earth in the late 1980s and early 1990s delivering a clear message: stop burning fossil
fuels. We all know how that worked out: fossil fuels continued to be burned at an accelerated rate. CO$_2$ continues to billow into the atmosphere.

If the planet, as we know it, is to survive, the human brain must evolve beyond its present constraints. We are dangerously out of sync with our environment—the ghosts, both old, biological, evolutionary (aggression, shortsightedness, greed, self-interest) and new, cultural (consumption, digital disconnection, narcissism) are killing us. The good ghosts, though, are still here: empathy, self-control, cooperation, cognition and moral sense. With them, lie hope.

Given the universality of our biological predisposition [for empathy], we now have a potent empirical baseline and the realistic potential for creating environments that enhance the flourishing of empathy, the foundation of our moral sense. (Olson 2013:110)

Modernity is the result of developing and expanding, by critical thinking and reasoning, the evolving brain’s good ghosts and, as Olson states above, we can do so much more to create environments that allow humans to flourish. The experiment that is contemporary human culture and society has the understanding and knowledge to bring itself under control and override the maladaptive traits of the biological past and cultural present. The experiment is now entering dangerous territory by degrading the biosphere to a state in which Homo sapiens can no longer be sustained and choices become more limited (Wright 2006).

The outcome of the 21st century clash between the competing meta-memes of hope and fear will probably determine the fate of humanity (Flannery 2010). Fear constricts and darkens the mind as evidenced by the embrace of conservative political parties, neo-Nazis, corporate predators and religious zealots. Hope expands and enlightens the mind, driven by the present moment and informed by all that has gone before. Hope is interdisciplinary, connecting the evolutionary angels of our past (altruism, empathy, cooperation, sociality) with the cultural evolutionary angels of our present (reason, rationality, equality and social justice). We need all the rebels, heroes and activists available, along with some random good luck.

**Did Anyone See the Elephant? Free Will and The Self: Elusive and Illusory**

I mean...even looking at myself, reflex-driven and just kind of do it. Free will would give me a choice; that I really, each day, could choose to do something totally different would be my thought...I don't tend to believe I could do something completely different. I mean, in a whole bunch of cogs, wheels that are already moving and I don't really feel I have the choice to just jump wheels...(Karen K)
We can have freedom some of the time. We can look at the ways that we have been acting and say I don’t really want to act that way anymore. (Tim Kasser)

We are constrained by our biology, by the nature of our brains, by the nature of our wiring and so, in that sense, we are not free to be anything we choose to be. We’re constrained by your biology but that's not necessarily a bad thing. (Sharna Olfman)

Free will, as most people believe it to operate, is an illusion according to Sam Harris who has PhDs in both philosophy and neuroscience (Harris 2010a). Prior experiences (those that we did not necessarily choose) and unconscious processes (that we do not control) lead us inevitably to reconsider free will and the self. The argument being made within the brain sciences (and Buddhist philosophy) is that that neither free will nor the self actually exist in the way that we all experience them and “feel” them to be real. Free will and the “self” do not exist independently in any way that is coherent with currently understood cognitive science and the natural laws under which neurons, brains and minds operate (Hood 2012; Harris 2012a).24 The actual extent to which free will is illusory is an ongoing debate among academics. Of note is the recent back and forth exchange between Sam Harris and philosopher Daniel Dennett (Harris 2014). Dennett argues a compatibilist position, which maintains that free will is compatible with determinism (natural laws). Compatibilism argues that as long as we are not subjected to undue external or internal forces that would restrict our acting on our desires and intentions, our actions are free. Sam Harris would argue that those very influences are the only thing that can truly change and direct our behaviours and beliefs, not what we imagine as free will. Harris would also argue that choice—“decisions, intentions, efforts, goals and willpower”—has effects and results in specific behaviours; however, the choice itself arises out of a murky brain soup unavailable to and uncontrollable by the conscious you, the “free” you. The argument running throughout this thesis is more consistent with Harris’s view and, as such, reinforces the importance of early childhood where “intentions and desires” in large part originate (more on this in a moment and later in the results section).

This is not to say that conceptions of free will and the self (to the extent they exist) are not necessary and do not have some positive attributes in human affairs. It is helpful to think to ourselves: “I make choices” freely, however, the opposite is also helpful; “I make choices”

24For a quick and informative overview of the self as an illusion and its relationship to free will, refer to the Sam Harris interview of Bruce Hood (Harris 2012b).
within serious constraints. To be completely unaware of how many “choices” are a function of previous experience, unconscious processes and current environmental factors (framing, levels of fear, happiness) creates a playground for those with the means and the power to “encourage” specific ideologies not necessarily of benefit to those unaware. And this is where it becomes extremely difficult, because the negation of free will and the self (even slightly) makes the current conflict between evolutionists and creationists seem a mere hiccup of misunderstanding. In Buddhist psychology (which agrees that the self does not exist), contemplating the non-self is the most difficult practice. The Buddhist monk, Ajahan Chah, advises that “if you try to understand it [our sense of self as just transient, tentative and a play of shifting patterns] intellectually, your head will probably explode” (Kornfield 2008:200). Kornfield goes on to say that the Buddhist experience of “selflessness in practice can bring us to great freedom.” (This is an important observation because it is in direct opposition to what CIP preaches: that selfishness brings freedom and reflects completely different and opposite worldviews). Any argument, no matter how evidence-based, negating free will and the self is risky territory, individually and collectively. To ignore it is problematic as well. Evolutionary thinking in the 19th century is the only thing I can think of that is comparable in terms of science initiating an outright belief war and we have yet to come to terms with that one.

The foundation for reconceptualizing free will and the self has already been laid down over the past 15 years of work in the brain sciences. Mental events are brain events. The brain evolved over millennia, removing intention from consciousness and creating a malleable adaptive neuronal system. Experience wires the mind, building worldviews, beliefs and behaviours, experiences we do not choose and have no control over but that have immense control over us.

Karl Marx once said and I paraphrase...We make choices but not in conditions of our own choosing. And so, when you look at the conditions that are not of our own choosing, some of those conditions are social, economic and political conditions. (Joel Bakan)

Prior events, prior causes and unconscious processes precede every choice, thus calling into question how much of our will is actually free. Our parents, genes and millions and millions of moments of individual formative experiences while not of our doing, have much to do with our personal and collective success or failure. If the brain sciences are to be of long-term value, their emphatic confirmation of the extraordinary importance of early environments and all subsequent environments must be recognized.
A puppet is free as long as he loves his strings (Harris 2012)
Recognizing we have strings and learning not to love them is possible and necessary but often long and difficult territory. Having no strings to love would change the world.
2. Memes, Vemes, Myth, and the Power of Story (Culture)

The only future myth worth thinking about now is the planet and its people. (Campbell 2005)

The four interconnected concepts reviewed here are an integral part of the increasingly complicated story I am endeavoring to tell. All of these twists and turns exist to deepen our understanding of ourselves in this specific moment in time. Yet, even more importantly, the totality of information is to provide more grist for the unconscious mind to dwell on in order to generate ideas, some of which we hope bubble to the surface and become part of the solution. To begin with, I explicate the “Dilemma” the human race is now facing—Anthropogenic Climate Disruption (ACD) and Income Inequality—to illustrate the importance of new strategies and creative solutions. Second, I take a look at institutions focusing on “Cultures and Risk” and how the latter is determined, primarily to understand why ACD and hypercapitalism have been largely minimized as a risk in many cultures. The third concept, “Values, Ethics and Morals” (VEMs) is important in determining a shared common morality enabling thousands of disparate social justice groups (and, hopefully, civil society) to join together into a more cohesive force. VEMs will help determine what strategies and tactics, especially with regard to brain sciences, activists are willing to utilize or not. Finally, the fourth concept, “Myth” (narrative and story) is reviewed to show how it has a powerful ability to influence cultural directions and ideals as well as direct positive social change. But first, more on the meme.

**Memes Are Us, We Are Our Memes**

Memes, like the memory and genes they are named after, are a very important aspect of the human mind. Richard Dawkins coined both the term and the concept by devoting the final chapter in *The Selfish Gene* (1976) to the meme. A meme is a self-replicator that inhabits the neural soup of minds influencing the brain’s operations and our behaviours. A meme is a thought, behaviour or habit (i.e. cultural traits) transmitted (replicated) from mind to mind and generation to generation. Conceptually, memetic theory positions humans as a host organism, whereby the particular idea/thought is only interested in replicating itself i.e. it is competing with other memes. Howard Bloom in *Global Brain* (2000) and *The God Problem* (2012) endorses the concept of memes extensively: “Words, slogans, poems, pop songs, religions, ideologies, opinions, rallying cries and pleas for peace” swirl around in human minds.
replicating and connecting us in social groups with theories, worldviews and cultures (Bloom 2013:165). In Bloom’s view, memes compete for dominance in human minds often using specific “hooks.” Religion, for example promises heavenly rewards if you abide by the tenets of the religion by retaining the religious meme or, alternatively, eternal damnation if you reject it (Bloom 1995). Arguably, proponents of the “free market” use an almost identical “hook,” by propagating the classical economics and free market capitalism meme to inhabit your mind so you will believe that you have a chance at mountains of gold and material rewards. To reject it is to die poor. This becomes a somewhat “selfish gene-like” stance, making memes “ambitious” and somewhat problematic to many anthropological and cultural theories. However, memes are a very useful concept when there is a battle of narratives or stories presenting and promulgating distinct and often opposing ideas/memes. Between CIP and social justice lie many opposing memes that can be considered as if in a battle for supremacy: selflessness/selfishness, inclusion/exclusion, sociality/individuality, generosity/greed, hope/fear, and corporate benevolence/corporate malevolence, etc. Memes are important because the battle of the story is primarily a battle of the memes. Whoever can best design and promote their particular memetic ideological idea (with the best hooks) and colonize the greatest number of minds, generally reaches more people and achieves more success.

How do you install a meme? Well, the first time the kid hears it, it’s just a sound. The second time the kid hears it, it’s a somewhat familiar sound and maybe there’s something about the context that’s the same...Pretty soon, by a process of gradual installation, a structure gets established, a little tiny micro habit in the brain, which is then available to be exploited in various ways and, of course, not always well. (Dennett 2014)

It should come as no surprise that the best time to “install a meme,” simple or complicated, for future exploitation for better or worse, is childhood.

Another cautionary note: these next two sections, the “Dilemma” and “Institutions” may appear overwhelmingly grim and consequently demotivating for some. As Michael alludes to in the following quote, he doesn’t need any more information pertaining to climate change in particular:

I used to read all sorts of books on global warming and I'm done. Now, I just read books on change and bright spots around the world and around communities that are changing because I want to learn how to do that and I want to be inspired about that. (Michael K)

25 Our abilities to imitate and infer discussed previously are part of this process.
In principle, I tend to agree with Michael that global warming itself is mind-chillingly well-documented and, in my own research, I had to stop reading around book number seven of twelve in order not to topple over into a well of despair. I feel the same way about the topic of hypercapitalism/neoliberalism and the current state of neoclassical economics. Going over the evidence is so brutalizing that you end up in a dark, angry place. However, in order to make the academic argument stronger, I must engage in both these distasteful tasks and provide some background. However, in working to understand the current dilemma and institutional failure, it is important to emphasize that although solutions may remain elusive and difficult, they are definitely not optional. Enhanced understanding may even generate some solution-based ideas.

The Dilemma

It’s not about information. I mean the science is horrific. I’ve been working on global warming issues for almost 20 years and...we have barely even planted the seeds...in terms of the basic foundation for the kind of scale of response [needed]. (Patrick Reinsborough)

The lack of response that Patrick Reinsborough mentions has been with us, unbelievably, for over half a century. In 1957, the National Academy of Sciences reported that “in consuming our fossil fuels at a prodigious rate, our civilization is conducting a grandiose scientific experiment” (Hillman 2007:163). The US government and most others, ignored this prescient warning and despite the overwhelming data available today of ACD, a disturbing level of apathy and outright resistance to act continues (Hillman 2007). The resultant dilemma is the growing body of evidence that indicates a global systems failure is likely to occur unless significant reductions can be made in the more destructive aspects of human activity, particularly ACD (Brown 2009; Dyer 2008; Heinberg 2005; Jensen 2006). ACD effects include increasing desertification and drought (water wars), rapidly increasing glacier melt/rising sea levels (precipitating massive movement of coastal populations) and super storms (super destructive/super expensive). Those who study global conflicts, both presently and historically, conclude that, if ACD effects continue to worsen, destabilizing conflicts and the breakdown of global economic and political systems are likely (Dyer 2008; Fagan 2008; Hillman et al. 2007; Heinberg 2005). Climate changes and resource depletion and scarcity have led to cultures collapsing in the past and in the present.

26To understand this “systems failure” argument in great detail (as well as more about the ideological war with CIP, I would advise reading Naomi Klein’s new book This Changes Everything: Capitalism Versus the Climate (2014).
During the medieval warm period (circa 950 to 1250), climate change, particularly drought, made measurable contributions to increasing warfare and violence and played a significant role in the “implosion” of the lowland Maya civilization, as well as many other cultural and societal disruptions (Fagan 2008:153). The drought during the medieval warm period changed the face of history and the larger-scale, man-made reenactment we are currently facing may likewise demonstrate just how vulnerable humans are to environmental change (Fagan 2008; Hillman 2007).

In Dmitry Orlov’s *The Five Stages of Collapse: Survivors’ Toolkit* (2013) the first three stages of collapse are financial, commercial and political. The antecedents to these stages collapsing, Orlov maintains, are ACD and neo-conservative economics, both of which I am about to discuss. This Stage four ensues when social institutions/social contracts (already failing according to Orlov) disintegrate. Finally, culture itself collapses, characterized by a breakdown of trust and VEM (values/ethics/morals)—in other words, our ability to cooperate with each other all but disappears.

**Anthropogenic Climate Disruption (Climate Change/Global Warming)**

It is not so much that climate change predictions of planetary warming from rising CO\(^2\) (carbon dioxide) levels and the measurable effects over just the past 20 years (Hansen 2009) have so far proved accurate, even understated. It is not only that certain areas and people of the planet are being hit particularly hard, although this is disturbing in and of itself. The depressing aspect is the seemingly unstoppable rise in CO\(^2\), the primarily human-made greenhouse gas produced by burning carbon-based fuels. Historically, Britain has pumped the most CO\(^2\) into the atmosphere, followed by the United States. With help from other developed/developing nations, CO\(^2\) levels have spiralled to over 390 ppm. It is now understood that 350 ppm is the level at which the world as we knew it can be maintained. Anything approaching 450 ppm is the level at which the world as we knew it can be maintained. Anything approaching 450 ppm increases the likelihood of ACD spiraling out of control by activating unstoppable feedback loops, resulting in the release of massive amounts of CO\(^2\) into the atmosphere (Hansen 2009). Currently, few societies seem concerned about those numbers or the dangerous outcome. China (not to forget India), in a manic dash to “catch up” (both economically and by getting their “fair” share of carbon into the atmosphere), is burning coal (by far the worst carbon fuel) at dizzying rate. For instance, in 2005 and 2006 alone, China built enough new coal-fired power plants to power the United Kingdom and France (Troost 2008:85). Combined with the stubborn historical reluctance of the United States to do anything about ACD (Hansen 2009; Hillman 2007; Heinberg 2005)—
other than continue to contribute a generous 25 percent of the total greenhouse gases—the potential for hitting 450 ppm and far beyond becomes almost inevitable.\(^{27}\) Already, we are on a rescue mission—attempting to maintain some of what we have through a “graceful decline, hunkering down, holding on against the storm” (McKibben 2010:124). I should note here that Canada is now complicit (not that we really did much about ACD before) with the United States, with an entrenched neo-conservative government that basically denies climate change and has allowed oil and gas emissions to rapidly increase over its tenure, exited the Kyoto climate accord and enabled energy companies to increase drilling and fracking (Patterson 2014).

In December 2012, Canada became the only country of 180 signatories to legally exit Kyoto in a brazenly strategic move that allowed the entrenched conservative government to approve a $15 billion corporate sale of Alberta tar sands (the dirtiest oil on the planet) assets to a Chinese company (Lewis 2012). This is again, alarming when you consider that processing the majority of the tar sands, which the Canadian government seems obsessed with doing, and burning it, in and of itself, is enough to tip ACD past the point of no return (McQuaig 2014).

The climate science of today is capable of providing a provisional truth, a firm but grim one, about the causes and future effects of ACD. The scientific and economic understandings of what climate change will produce are understood. They are monumentally bad—massive environmental degradation and political/economic chaos (McKibben 2010; Klein 2014; Barlow 2013). The availability of fresh water, already approaching crisis levels on a global scale, is precipitating mass migrations and starvation for millions (Barlow 2013). Our water future is particularly dire, with a projected ~3 billion of us living with scarce water resources by 2025. California is currently experiencing its worst drought and lowest level of water reserves in its history, a drought that is visible from space (Phillips 2014).

There are certain irrefutable truths in the world. One of them is we need fresh air to breathe. We can't survive without clean air. Another one is we need clean water to drink. And that’s the same for everything on the planet. I don't think there's a person or creature on the planet that would argue with that. (Bob Purdy)

Nobody lives, let alone lives well, without clean fresh water. The question, therefore, is if the risk is objectively “known,” why would individual cultures and/or global culture, choose to ignore it?

\(^{27}\) The technologists would argue there is the possibility of a technical solution, and, yes, that, as yet unknown technology may (or may not) at some indeterminate time slow down or reverse CO\(^2\).
Endgame scenarios and global systems failures are relatively new concepts in world history and represent threats to humanity that we seem unprepared for. Beginning in the 1960s, with the advent of atomic bombs and a Cold War mentality, humanity came within minutes of self-destruction (Morris and McNamara 2004). Nuclear threat plagues us even now as numerous nation states have come to possess nuclear weapons (i.e. North Korea) and, Gwynne Dyer (2008) argues that ACD radically increases the possibility of nuclear war. Additionally, today, we face other threats: the meltdown of the world economy, as occurred in 2008, poses a real threat of continued instability, as does spiraling, out-of-control income inequality in industrialized Western countries.

Economics

America is descending into madness. (Giroux 2013)

One need look no further than the neoliberal economic machine, which has taken over American capitalism and is now exported globally, to fully understand what has led us to the edge of insanity. The global economic system is now driven openly by greed and controlled primarily by “sub-criminal psychopaths” (Dobbin 2010). This system is morally bankrupt and unconcerned with the well-being of conscious creatures (Chernomas and Hudson 2007). Going back to coal, as a brief illustration, there was an additional 1200 coal-fired plants planned in 2012, with over 800 of them in China (363) and India (455). That kind of building takes a lot of investment money and over the previous six years of coal plant expansion the two global leaders were JP Morgan Chase and Citibank (Wall Street investment banks) that provided more than $30 billion in coal plant financing and there’s no reason to think they will stop investing in their own demise. Madness indeed, as Michael Moore has pointed out, capitalism will do absolutely anything for a buck, up to and including the point where the “rich man will sell you the rope to hang himself with if he thinks he can make a buck off it” (Moore in The Corporation 2004).

Income disparity grows unabated as “Canada's richest one percent enjoy more of the gains from economic growth than ever before in recorded history” (CCPA 2010), while the middle class struggles and the poor (and increasingly, the young) become disposable. They are disposable because, if “you’re not a worker, not a consumer and you don’t earn significant income from investments, then you don’t have much of a place in capitalist society” (Garson 2013:269). American corporate capitalism (ACC), has been eliminating workers, reducing wages and concentrating wealth in fewer hands since the 1970s, swelling the ranks of those whom the “elite have no regular use for” (Garson 2013:269). For example, between 1971 and
2007, US productivity nearly doubled (increased 99 percent); meanwhile, over this corresponding 37-year period, hourly wages rose by 4 percent! Fewer jobs, less pay, more debt, less ownership for the 99 percent—all point to the fact that “capitalism is clearly winning,” while civil society loses (Corporation 2004).

This does not preclude the possibility that corporations and industry might contribute to solutions regarding global problems. But moral concern for societies has never been, and certainly is not now, a strength of corporate culture. All costs that can be offloaded onto citizens or the global commons will be “externalized,” regardless of consequence (Bakan 2004). There is no reason to think that hypercapitalism and the massive multinational corporations it has spawned will bring themselves under control. The current integration, therefore, of economics into democratic and other forms of political systems in many parts of the world has become quite worrisome (Wolin 2008).

The reasons for the 2008 global economic debacle and its negative consequences, have been exhaustively documented and roundly ignored (Barber 2007; Freeland 2012; Chomsky 2007; Wolin 2009; De graaf 2005; Lewis 2010; Smith 2010; Bloom 2014; Graeber 2011; Markopolous 2010; Bremmer 2010;). Conservative Economics, a.k.a. Social Murder: and Other Shortcomings of Conservative Economics (Chernomas and Hudson 2007) has behaved so badly over the past three or four decades (at least) and is designed so poorly (resistant to change and reality, anti-creative, immoral) that, to demonstrate its perversity seems almost too easy. To be blunt, capitalism is corrupted and badly broken because ideologues of the “failed orthodoxy” of neoclassical economics and the “free market” have established almost impenetrable defenses, despite overwhelming evidence that the system is unproven and error-prone (Smith 2010). The economic global meltdown of 2008 is one of those “errors,” while income inequality, overconsumption and ACD are others. Income inequality has reached mind-boggling levels as a result of the “state capture” of politics and the entire economic system by the financial plutocrats and oligarchs (Smith 2010). Unfortunately, this sad state of affairs has been accelerated by globalization and technology, which enable plutocrats to operate and live anywhere with no pressure to contribute to any society (e.g. through taxes) (Freeland 2012). Digital technology made the 2008 economic meltdown possible by enabling the criminals on Wall Street to create mortgage securitization and other “financial instruments” (think Ponzi schemes) using high-speed computers and algorithms previously unavailable (Freeland 2012).
Oligarchs and plutocrats are exceedingly wealthy individuals who influence politics to gain greater wealth and power (creating a plutocracy). This process continues, unless actively rebelled against, until the wealthy control economic and political institutions and extract wealth from the society on an ongoing basis. The worldwide development organization Oxfam, warned in a report published January 20, 2014 that, “wealthy elites have co-opted political power to rig the rules of the economic game, undermining democracy and creating a world where the 85 richest people own the wealth of half of the world’s population.” Just 85 global oligarchs own as much as 3.5 billion people and the gap is growing (Oxfam 2014). The rest, increasingly, compete for the scraps. Of significant benefit to plutocrats and CIP in general, was the landmark 2010 legal decision, *Citizens United vs Federal Election Commission*, which gave American corporations the right to unlimited financial contributions to fund political advocacy (Coll 2011). Democracy inevitably suffers as the rich get richer and further influence democratic systems (Braun 1991). It should come as no surprise that, in 2012, the wealth of the top 400 American super rich increased by 13 percent, leaving them with wealth equal to that of the 150 million Americans at the bottom (Burns 2012: Moore 2011).

Although using brain scanning technology to sway political decision is in its infancy, I predict that the 2008 American presidential showdown will be the last ever election to be governed by traditional surveys and that by 2012, neuroscience will begin to dominate all election predictions. (Lindström 2008:30)

The question Lindström does not ask and is probably not interested in (he provides corporations with neuromarketing, not ethical, advice) is: Who exactly has the resources, moral flexibility, and the power to fully utilize neuroscience and “sway political decision[s]” to their advantage? Answer: Corporate institutional power. When politics becomes imbued with corporate cash and cronyism, democracy dies a slow death and transforms itself into a plutocracy that Wolin (2008) described as an “inverted totalitarianism.” In *Democracy Incorporated: Managed Democracy and the Specter of Inverted Totalitarianism* (2008), Wolin describes an American “democracy” wherein it makes absolutely no difference who is elected because the entrenched systems continuously operate to the benefit of the wealthy few. But capitalism, almost from its very beginning (and accelerating from1978 onwards with the Reagan/Thatcher years), has treated sociality itself “as abusive, criminal, demonic” (Graeber 2011:379). This aspect of capitalism should strike us as odd considering what we know from the brain sciences about the driving and irresistible need of human beings to connect with other humans, to be recognized, to be a
contributing, inclusive part of the social group (Bloom 2012). Empathy itself is “imperiled” by neoliberalism and its capitalist underpinnings (Olson 2013). Empathy, one of the angels of our nature, integral to social groups and arguably burned down to our DNA, allows human beings to “feel” the emotional state of others (theory of mind) and to care about other beings, especially important is the ability to care about those outside of our own small social group. Once a culture becomes infused with capitalism, neoliberalism, militarism and hyper-masculinity, our innate tendencies toward empathy become lost, difficult to locate within the fog of individualism, greed and cruelty blanketing the environment (Olson 2013). The foggier it gets, the less empathy shines through and the harder it becomes to find our way towards human well-being and human flourishing.

The “tragedy of the commons,” which is the ongoing privatization of public (social) space is another example of a complete disconnect between capitalism and the basic human need to be social. The divisive authoritarian capitalist worldview based on extraction and exclusion further demeans human beings by insisting on quantifying (objectifying) everything, thereby allowing any policy, no matter how obscene and outrageous to human well-being (Graeber 2011), more on this in the ethics and morals section. Graeber goes on to say that what we are currently seeing is the “the final effects of the militarization of American capitalism,” with effects he describes as follows:

The last 30 years have seen the construction of a vast bureaucratic apparatus for the creation and maintenance of hopelessness...To destroy any sense of possible alternative futures...at its root is a veritable obsession...with ensuring that social movements cannot be seen to grow, flourish or propose alternatives; that those who challenge existing power arrangements can never, under any circumstances, be perceived to win. (Graeber 2011:382)

Many people may find it difficult to comprehend, let alone believe, the extent to which Graeber and Olson implicate society’s neoliberal institutions in the degradation of the population. Activists though, understand it well, as Patrick Reinsborough’s comments attest:

It is important to understand that there are people out there making designer memes that are specifically intended to derail social movements, to prevent structural change and to keep people...contained. (Patrick Reinsborough)

These “containment” strategies and behaviours are justified by oligarchs and plutocrats who embrace a worldview based on Ayn Rand (i.e. society be damned) in combination with a deeply entrenched and false sense of supremacy as stated by Russian oligarch Mikael Khodorkovsky:
“if a man is not an oligarch, something is not right with him...everyone had the same starting conditions, everyone could have done it” (Freeland 2012).

This is an ignorant view of the human condition and human development. Mark Rudd comments on the philosophies of Ayn Rand, which incorporate this view:

Ayn Rand doesn't believe that there is anything like society. I think we had a chairman of the Federal Reserve (Alan Greenspan?) who did not believe in the existence of society but these are barbaric philosophies. (Mark Rudd)

However barbaric the belief system of the “free market” and its attendant extraction and exclusion tendencies, “reform, which is urgently needed, will not come from within the Corporation or from its ideologically committed allies” (Rowland 2006:226). Rowland goes on to say in “Greed Inc.” that, to the Corporation “vice is virtue and virtue is vice.” That is how it was designed, with its attendant simple, intractable and impenetrable belief system.

The now-continuous “great recession” started in 2009 by the Wall Street debacle, is actually worse than the Great Depression of 1929, because no “Jubilee” occurred (Garson 2013). In the past, after these periods of capitalist gorging gone bad, a redistribution has generally occurred: a rebalancing of the distribution of wealth. There is none of that here, corporate profits in 2011 made up a larger proportion of American total income (compared to wages/small business income) than at any time since 1929, meaning the current system is unsustainable and heading for an even bigger crash. This brings us to the question of why all of this is bad, besides its detrimental effects on democracy and social contracts (Coll 2012). First, it is bad for those very plutocrats and oligarchs at the top, because “To continue—through chicanery, fraud and naked force—to steal from the poor to enrich those who are already abundantly wealthy carries an eventual extreme penalty” (Braun 1991:1). Braun is here referencing the fact that Marie Antoinette lost her head over this very issue of income inequality in 18th century France. The current level of corrupted capitalism (income inequality) and corporate power is new in the human experience. However, similar situations in the past have turned out badly. The aforementioned beheading of Marie Antoinette and the fall of the 18th century French aristocrats in a bloody revolution, as well as the stock market crash of 1929 and the subsequent Depression are just two examples of what happens when a corrupt and unequal economic system spins out of control. Another very telling tale takes place in the city-state of Venice in the early 14th century. After building a magnificent economy utilizing “the colleganza,” a simple, joint-stock company (to fund trade expeditions) that allowed new, risk-taking entrepreneurs to share in profits and social mobility with existing businessman, those at
the top suddenly changed the rules. In 1315, the ruling oligarchy literally closed the book on social mobility by registering all the current nobility in a “book of gold.” If you were not in that book, you never would be. This political change and the subsequent upheaval that accompanied this dissolution of upward mobility became known as “La Serrata – the closure.” The political serrata was quickly followed by an economic one, eliminating the “collegnaza” and removing commercial opportunities for new entrants. All of this unenlightened self-interested behaviour by the elites had disastrous consequences for everyone, including themselves. The prosperity from which Venetian oligarchs extracted their wealth quickly collapsed and the city continued to shrink for centuries, relative to the rest of Europe (Freeland 2012). As you might recall, the first three stages of collapse are financial, commercial and political. Today, all three of these, once fully infiltrated by the corporation, slowly but inexorably, mimicking lemmings, head for the nearest cliff.

There is another lesson here—argued extensively by Daron Acemoglu and James A. Robinson, in *Why Nations Fail: The Origins of Power, Prosperity and Poverty* (2012)—nations fail when governing institutions become extractive as opposed to inclusive. Inclusive political institutions are pluralistic, distributing power throughout a society (as opposed to residing with an individual or small group) and tend to promote inclusive economic institutions. Inclusive economic institutions enable civil society to participate on a “level playing field” of economic activities, with fair rules and law, opportunities for entry into the market and careers of choice (Acemoglu and Robinson 2012). Inclusive political institutions promote inclusive economic institutions, which in turn creates prosperity/mobility, which in turn creates more inclusiveness and plurality. When this constructive feedback loop closes (as in Venice), as the political and economic institutions become infested by the wealthy elite (plutocrats and oligarchs), the institutions shift to become extraction machines for the elite. Institutions then facilitate the extraction and concentration of wealth from society, rather than generalized social prosperity to the detriment of the many (and the environment). A powerful synergy develops between extractive economic and extractive political institutions, creating a destructive feedback loop in which politics becomes a tool for the wealthy to increase extractive economic policies (Acemoglu and Robinson 2012). When institutions turn extractive, cultures stagnate, economies crash and sometimes collapse occurs. Christia Freeland (2012) argues the United States is undergoing this very process right now as it moves toward a more extractive institutional model to better serve the one percent. Tim Kasser concurs:
We’re also moving toward a system that’s driven by the one percent and it’s driving the ninety-nine percent. The idea is that we should serve those who are already well served. (Tim Kasser)

The capitalists, unwittingly, as Marx warned, are sowing the seeds of their own destruction and probably ours.

This harmonizes nicely with the analysis of institutions and cultures in the next section. But first, just a quick reminder from the brain sciences and memetic theory about why the plutocrats and oligarchs fail to see the train coming. Those at the top continue to defend their “free market” ideologies amidst overwhelming contrary evidence because the “free market” meme is deeply embedded with its various “hooks” and promises. For many, that meme was “installed” in the childhood mind. The belief in endless growth, “market forces” and “rational choice” is so strong and feels so good, that evidence is irrelevant. Highly intelligent people (including many economists and some scientists amidst the plutocrats), once ensconced in the Citadel and bathed in self-interest can concoct incredible fantasies to support their positions (Bloom 2013).

Who responds to this unprecedented climatic (and economic) threat; who can be “trusted not to abuse the dangerous knowledge of climate change and appropriate social responses for personal gain” (Fagan 2008:81)? Certainly, if cultures could embrace inclusionary institutions and the creativity and distributed prosperity they represent, our largest institutions in economics and politics might be “trusted” to respond. Currently, however, our largest cultural institutions in politics and economics remain blinded to the characteristics of the human brain and seem unwilling to use moral reasoning and creative/critical thinking to face ACD and income equality constructively or quickly. This is, unfortunately, not an unusual institutional response to risk.

**Institutions, Culture and Risk**

The problem isn’t that people don’t know how to make the world better, there are a million obvious ideas how to make the world a better place and solve almost every problem that we have. The problem is what’s standing in the way; and that is the institutional power holders. (Patrick Reinsborough)

Institutions matter. The difference between the horror that is North Korea and the relative peaceful prosperity that marks South Korea are primarily the result of institutions, both political and economic (Acemoglu and Robinson 2012). Institutions arise out of the choices made within cultural and societal contexts. Those “choices” of late have had some damaging effects on those very political and economic institutions that made South Korea and much of the
developed world prosperous. The hope that those powerful institutions—economics, politics and religion—can, of their own volition, significantly alter the destructive global direction that is now occurring, is unlikely. Corporations do not self-regulate, politicians do not always work in the best interest of citizens, especially global citizens, and religion is shackled by its history of abuses and out-of-date mythologies. Institutional power needs to be taken back, restructured and redirected.

**Institutional Power Failures: Economics/Politics**

There are two aspects to this mad sprint toward ACD and the breakdown of global systems (Dyer 2008). First, there is a type of psychological (mental) contamination spreading globally that I have written about previously, involving a rising global trend towards authoritarianism that permeates cultures and institutions (economics, politics and religion) in negative ways (Brillinger 2009). Second, and what should be more obvious and somewhat easier to respond to, is the ecological degradation (the physical aspect) that is now spreading across the planet. The primary psychological contamination consists of the global obsession with a conservative economic growth model in combination with an increasingly cruel authoritarian institutional model that has produced a truly frightening climate scenario. No matter how hard I try to resist it, the word *apocalyptic* forces itself onto the page.

The way I would justify what I do is that I'm trying to create information to enable us as individuals to activate ourselves as citizens within the frameworks we have, because those frameworks are pretty good, given what history has [shown]. In terms of different governing frameworks this one [democratic] is not a bad one. (Joel Bakan)

If the structure of society is a function of choosing the least corrupt system with the best chance of improving the well-being of citizens, then democracy seems like the best of a bad bunch—that is, until it became infiltrated and saturated with corporate cash and conservative economic idealism.

The biggest lie of all is that capitalism is democracy. We have no way of understanding democracy outside of the market, just as we have no understanding of how to understand freedom outside of market values. (Giroux 2013b)

The current difficulties that many democracies, both established and fledgling, are experiencing has been facilitated with the assistance of both economics and religion. I have argued elsewhere (Brillinger 2009) that the malady, from which all of these institutions are suffering, is a global
wave of rising authoritarianism promoting an authoritarian worldview\textsuperscript{28} that sanctifies the aggressive coercion of individuals and promotes group prejudice towards difference (Adorno 1950; Stenner 2005). Authoritarianism drives intolerance and generates societies that promote uniformity through group authority using coercive means to reduce diversity of people, beliefs and behaviour (Adorno 1950; Bloom 2000; Giroux 2005; Lifton 1989; Stenner 2005). More specifically, rising authoritarianism, in collusion with politics, economics and religion, facilitates disconnection from the well-being of conscious creatures. We appear to have reached the point where the most powerful institutions in history are confused or unconcerned about morality, at a time when there is a real need for the powerful to reconsider the moral effects of their actions on the rest of the world.

Here, I review the difficulty with which culture and the institutions it creates, determine and respond to risks within the confines of brains and cultures. The primary risks being considered here are ACD and income inequality, which are aspects of what I call the “Dilemma.” This is important because numerous cultures are choosing to ignore ACD (and rising income inequality) as a risk.

Cultural diversity itself seems to be getting flattened by the authoritarian economic model, whereby cultural beliefs, values and behaviours become unduly shaped and influenced by conservative economics. But even so, if it became apparent that a certain path was leading to oblivion, should not cultural institutions assign a risk factor to that dilemma? Culture's partner in obfuscating future or long-term risk is the brain/mind. As I have indicated, scientists are in the process of revealing how the brain/mind functions and often misfires at inopportune times with regard to human belief and behaviour. The purpose of attempting to understand the inadequacy of cultural institutions and the brain itself to assess ACD as a serious risk is, ultimately, to fashion a solution.

**Culture and Risk**

As far back as 1977, Margaret Mead was concerned that human beings have “no defense against their own environmental interventions” (Douglas and Wildavsky 1982:62) and that the emerging global civilization was at risk of, well, what we see today. Mead pointed out that,

\textsuperscript{28} Worldview meaning ‘Weltanschauung’ “a comprehensive conception or apprehension of the world especially from a given standpoint” (http://www.merriam-webster.com/dictionary/weltanschauung).
Only if natural scientists can develop ways of making their statements on the present state of danger credible to each other can we hope to make them credible (and understandable) to social scientists, politicians and the citizenry (Mead in Douglas and Wildavsky 1982:62).

Mead believed that if the scientists could agree on what is and is not dangerous, societies would be forewarned and would comply. At the scientific meeting that Mead was writing about, scientists were divided into two different groups. One reiterated what much of civil society still claimed: “the world has been around for thousands of years surviving and adapting to large changes so best to leave it alone and it will take care of itself.” The second group argued that the ecosystem is so complex that even minor changes may have some large effects. There was a lot of scientific discord on climate change prior to 1980. Today, there is little discord; and yet, many cultural institutions remain unconvinced or unwilling to act. There are reasons for this based upon institutional and cultural constructs, not least of which is that “risk judgments are essentially social rather than scientific” (Douglas and Wildavsky 1982:16). Therefore, evidence and data play a secondary role, at best, while risk assessment succumbs to the institutional and cultural norms and cultural predilections, past and present, of any given group.

How do we choose what danger is to be acknowledged? The cultural theory of risk perception explored/advanced by Mary Douglas and Aaron Wildavsky in Risk and Culture (1982) presented the rationale for why many cultures ignore objective risks like climate change. The basis of this theory is simple: Culture is socially constructed. Risks are socially selected (Douglas and Wildavsky 1982:14; Hulme 2009:163). Cultural, political and psychological factors determine what risks qualify as dangers requiring attention within a society (Hulme 2009). These may not be a “direct assessment of physical dangers” (Douglas and Wildavsky 1982:14) or even objective measurements, either scientific or economic. Further and to what I turn to now, institutions within that culture exert a “social control of cognition” (Douglas 1986:3) that often contributes to and, at times, determines what is to be considered a risk to society regardless of external objective cues.

**Group Minds and Institutions**

Durkheim and Fleck29 taught that each kind of community is a thought world, expressed in its own thought style, penetrating the minds of its members, defining their experience and set in the poles of their moral understanding...

Individuals really do share their thoughts and they do to some extent

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29The microbiologist Ludwig Fleck developed his ideas about group cognition in the 1930s; preceded by the sociologist Emile Durkeim writing in the 1890s.
harmonize their preferences and they have no other way to make the big
decisions except within the scope of institutions they build (Douglas

Starting with Durkheim, then Fleck (Douglas 1986:14) and ending with Bloom (2000)
the “super organic group mind” has taken on shape and form over the past 300 years. Durkheim
and Fleck were “emphatic about the social basis of cognition” (Douglas 1986:10).
Considerations about the individual and society, according to Durkheim, must begin by
admitting the “social origins of individual thought.” Fleck went on to insist that “cognition is the
most socially conditioned activity of man and knowledge is the paramount social creation”
(Douglas 1986:12). Durkheim and Fleck also indicated that society behaves as a mind “writ
large” (group think, group feel) or, alternatively, the individual is society “writ small” (Douglas
1986:45). Durkheim posits the “conscience collective” [indicating that society has] a common
consciousness and a common conscience” (Anderson 1989:72). Bloom (2000), with access to
extensive advancements in evolutionary biology, argues for a group mind far beyond that of
culture, possibly residing within the brain itself. He argues that our biologic predisposition
toward cultural construction is but a small part of the story and we are intimately connected on a
global scale: a global brain in operation. I will return to this idea of an overarching system and
connection between living beings in the myth section. This group mind concept is particularly
important if the systemic “drift” of the institution, culture and global brain is towards an
authoritarianism manifested most clearly as the economic authoritarianism previously discussed.
This drift occurs as institutional power becomes corrupted and increasingly powerful, while
resistance and the endless battle for social justice wanes.

I would say, first off, I don’t think the battle has been lost but I would
definitely agree that we are losing the battle over the last 30 years and it
definitely feels to me as though things have gotten worse rather than better.
(Tim Kasser)

As institutions, on a global scale, increasingly discount ACD as a risk, the situation deteriorates.
Objective, scientific realities (or even the creation of that science) have a limited ability to
influence individuals within such a cultural milieu. Additionally, values, ethics and morals
(VEMs) are other casualties of institutional failures as institutionally promulgated VEMs seep
into the minds of the community and its members.

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30 This was also argued in anthropology as the “psychic unity of mankind” by the likes of Tylor, Langer
and other early types when discussing human evolution and the so-called primitive mind...
The institutions born out of culture, past and present, generally seem incapable of acknowledging ACD as a risk factor. In Douglas’s (1982) institutional hierarchal model, culturally constructed and corporate institutions—including politics, religion and economics—are hierarchal and bureaucratic. This hierarchal structure and culturally-imposed purpose (to maintain things as they have been, i.e., conservative, is a byproduct of hierarchal structures) have a strong tendency to ignore and downplay future threats of the ACD variety. This tendency may be explained by the future-ness and inexact timeline of climate change: we know it is coming, we know it can have an effect, yet we don't have an exact date and people don't want to hear the bad news anyway. Alternately, “individualism,” which Douglas (1986:90) describes as a type of libertarian, free-market, infinite-growth mentality, unfortunately also downplays future threats. These two separate, yet powerful, aspects of the cultural centre are essentially blind to risks of the type characterized by ACD.

The...marketing/advertising/public relations industries inculcate fears that don't serve us, that are actually not constructive or accurate fears, in order to sell products to alleviate our fear. But, at the same time, they repress fears that we should have. (Joel Bakan)

We now have a scenario in which a powerful cultural group mind driven by institutional and individual blindness influences and restricts individuals within the culture to effectively access objective scientific truth in relation to risk assessment. What Mary Douglas could not have foreseen thirty years ago is the integration of individualism and institutional hierarchies into one system or “inverted totalitarianism” (IT) (Wolin 2008). IT takes the individualism of the free market and melds it into a hybridized political/economic system, creating an institutional powerhouse of immense proportions. IT, essentially, captures the current takeover of democracy by conservative economics as an inverted totalitarianism in which presidents have become mere figureheads and the system functions purely to increase the wealth and power of those at the top (Wolin 2008). An IT state has only one culture—one of greed for money/power. This puts serious restrictions on individuals within those cultures and makes it difficult to maintain a sense of reality, even amidst all obvious indicators.

It seems...they [civil society] just come home beaten and exhausted...I think the system works very well to perpetuate that. (Karen K)

It's a death machine. It's a death machine because, in my estimation, it does everything it can to kill any vestige of a robust democracy. It turns people into zombies, people who basically are so caught up with surviving that...they become like the walking dead...they lose their sense of agency—I mean they lose their homes, they lose their jobs. (Giroux 2013a)
The United States leads the way in modeling an IT state wherein the likes of Exxon make the laws while the citizenry has the illusion of living in a democracy that is, in reality, a plutocracy. Modern-day China, already totalitarian, has been easily led into an economic authoritarianism that is already beginning to dwarf all past periods of industrialization. Developed, developing, democratic and dictatorial regimes alike, are rushing towards an ecological disaster. Cultures, around the world, have been infected by the viral memes of authoritarian economics perverting institutions and crushing the cognition of their members. Culturally and in practice, economic growth is primary, while pollution, ACD, income equality and social justice are secondary considerations, if considered any at all.

Another example that has arisen over the past few decades, which illustrates risk as a socially selected aspect of culture, is child safety. A near obsession with physical safety, far above what the evidence calls for, seems to have occurred. Myriad “safety” precautions against physical harm include: childproofing, highly restrictive outdoor rules for the unlikely event of child abduction and children wearing helmets for no reason (e.g., while playing). Hanna Rosin (2014), in *The Overprotected Kid*, documents numerous negative outcomes of this “riskless” childhood, including an inability for risk management, loss of independence and a diluted sense of discovery. Meanwhile, a child’s “psychological” safety (which has as much to do with well-being) has been socially/culturally minimized as a risk amidst growing evidence of harm. The first harm is simple: the more time children spend in front of screens, the less time they spend playing, running and exploring in nature. Exposure to media itself causes young children to suffer, considering the extreme levels of violence, sexuality and negative behaviours so characterisitic of today’s media. It is no surprise that the American Pediatrics Association (APA) recommended that children under the age of two have no exposure to television (Certain and Kahn 2002). The primary risks for children are not in the natural world, real risk lies in exposure to the myriad screen technologies (which in and of itself is damaging to developing brains) and the caustic and manipulative memes incessantly implanted by hypercapitalism (Linn 2004; Schor 2004; Kasser 2007; Carr 2010).

Jared Diamond, in *Why Do Some Societies Make Disastrous Decisions* (2003), adds a few more factors pertinent to this discussion. The aforementioned “creeping normalcy,” especially with regard to slowly evolving ACD/ecological degradation, is one reason that institutional reactions are slow. The (non)response to Mayan drought in the medieval warm
period, the Rapa Nui (Easter Island) deforestation and the last 30 years of ACD are three examples. Diamond goes on to say that probably the most common failure is not addressing problems even when they are perceived clearly. The problem here is largely economic as “rational behaviour” is only defined in financial terms, allowing a “good for me, bad for you and the rest of society” stance for plutocrats and oligarchs to take. Of course, this is profoundly selfish behaviour benefitting the few (high motivation to act/bad behaviour), who seem to get away with it because the “costs/losses” are distributed widely among the many (low motivation to react/good behaviour). As we know, there are limits to this “rational” selfish extraction of resources, such as in 18th century France and 14th century Venice. The 2008 global economic meltdown is another example, with the exception that the oligarchs and the plutocrats came out of that richer than ever.

We can also think about “rational behaviour” or, to be more accurate, unenlightened31 selfishness in evolutionary terms. Just because a phenotypic trait has evolved and survived because of its past “good and useful” effects on the ability of human populations to adapt to their environments does not mean that it maintains that survival value in the present. Indeed, as has been mentioned, this particular trait of greed/selfishness has become a particularly virulent and destructive entity/meme forming the basis of the neoclassical economic ideology.

Embedded within powerful systems of culture and its institutions, the individual, as Foucault, Marx and Gramsci pointed out, struggles within a straitjacket, ever tightening upon the mind and body (Douglas 1986:92). It is evident now that societies must be careful constructing institutions and, maybe more importantly, remain in control of those institutions. Institutional power today, arguably, has more ability to control cognition than times past.

The Mind/Brain

Once again we are reminded or, forewarned, that “we are easily led” by the ideologies (meme complexes) promulgated by cultural institutions. For example, in the early 1990s, 76 percent of Americans understood ACD to be a credible threat. Following a spectacular decade-long misinformation campaign funded by global energy companies,32 that reasonable 76 percent number dropped to a disastrous and shocking 44 percent, taking ACD from a credible threat to

31 Selfishness in the opposite “enlightened” sense allows personal benefit from your efforts, but those efforts also benefit other people and the planet.
32 i.e. One company, Exxon (oil and gas) in 2006 through 2008 made more money than any company in the history of money...the disinformation campaign was “rational behaviour” for them, but disastrous for the planet.
nothing but a natural, “long-term planetary trend” (McKibben 2011:57). All this occurring during the time that the science of ACD became overwhelming within the realms of science research. Scientists are generally unlikely to approach unanimity on anything; one exception is the existence of evolution and the other is ACD (97 percent). This is also an example of the power of directed media to purposefully infect much of a population with a specific meme (ACD does not exist), which not only negatively impacts risk assessment but also buttresses the status quo (e.g., energy companies continue to enjoy record profits). It also illustrates that under certain circumstances even mature human beings can, and will, change their minds. This “changing” of mind can have positive or negative consequences for social change, although this certainly may be limited by particular parameters laid down during childhood experiences. The shift in climate deniers is an interesting case: Almost all of those Americans changing their minds on the threat of ACD to consider it a non-threat were of a specific political group, namely, Republicans. It is open to debate whether this is more a function of childhood experience (Republicans, like Democrats, are made not born and critical thinking is a learned skill) or, a function of group allegiance (easily led) or, (most likely) some combination of the two. Another interesting instance is the case regarding President Clinton and Monica Lewinsky:

Almost to a person, members of Congress selected component parts of the evidence, valued those components and reached conclusions as to whether certain things had or had not happened in a manner consonant with their party membership. (Wexler 2006:147)

In this case, each party “cherry picked” the evidence that would best fit with its previous preconceptions of the world, according to party membership, not the evidence that best fit the situation.

Beginning in the early 1990s, a massive corporate attack on childhood began and cultural norms towards children began to change (Linn 2004; Schor 2004). The normalization of intrusive and advanced advertising techniques applied to younger and younger children continues to this day. Children are acculturated into their environments through learning and experience. The ideology of the “American dream” is ubiquitous in its scope and influence, meaning material success is touted as the ultimate fulfillment (Kasser and Ryan 1993). Indeed, the lie that happiness is achieved through consumption eventually becomes deeply embedded and accepted as truth. As we grow into adults, our worldviews become culture-bound and we are increasingly resistant to change. The extraordinary neuronal flexibility of the child brain dissipates and a much more limited ability for change sets in. This means that, as we age, our
perception of the world morphs to “fit” our previous experiences in the world, embedded in our culture. In other words, our “highly malleable inner world is shaped by the external world” during childhood. As we move through adolescence to early adulthood a reversal takes place whereby “the individual largely acts to alter the perception and experience of the external world according to pre-existing internal structures” (Wexler 2006:143). This is why cultures and ideologies interpret the world in completely different ways—it is the basis of the culture wars.

Sports teams are another fascinating example of people reacting in very predictable ways. Sports team “allegiances are most strongly established during childhood and are often fostered by family and peer group attitudes and shared experience” (Wexler 2006:146). The effects of the “chosen” team’s performance on the fans and the interpretation of that performance are both predictable and powerful. Hearing and saying “we won” causes one’s confidence and competence on tasks to increase, along with testosterone levels. Physiology shifts...you are feeling good. If one’s team loses, there is often a distancing, illustrated by a change in language, “they lost.” And, of course, the interpretation of certain events during the game are always hotly and unreliably contested between self-interested fans of each side.

The malleability of the human brain in a newborn and young children has been known for quite some time, but the adult mind can also rewire itself, albeit slowly and haltingly under specific environmental conditions. This, on the surface, looks promising because we should be able to alter preconceived notions and beliefs. But even that malleability is currently being overwhelmed and directed in unconstructive ways. Powerful cultural forces driven by corporately controlled media relentlessly push a narrow band of thought that eventually convinces all but the most resistant of its authenticity (Chomsky et al. 1992).

Let us not forget the feeling of certainty that the brain generates so freely and convincingly for a dopamine reward, may or may not have a basis in reality (Burton 2008). This applies to religion, politics and economics. For instance, I could assert any and all of the following: “God spoke to me and I now believe Christianity [sic] is the one true religion. Conservatism and preemptive war is the only way we can be safe. Corporations must operate without restriction for the world economy to reach its full potential. ACD is an exaggeration of ill-conceived science. The world will take care of itself.” What brain science has taught us about feelings of certainty, such as those embedded in the statements I just made, is that no objective measurement or reality or, even later experience can alter those feelings, let alone disprove them, once they are deeply and firmly embedded. The feelings of certainty, correctness and
rightness that occur in the brain are driven by the cultural institutions that we create and are rarely overcome by the provisional truths of an objective science.

Economic authoritarianism, casino capitalism, disaster capitalism, whatever label one wants to give the currently dysfunctional economic system, the outcome is the same—an increasingly dysfunctional political system that Henry Giroux has labeled “zombie politics:”

The zombie metaphor is a way to suggest that democracy is losing its oxygen; you know, it’s losing its vitality, that we have a politics that really is about the organization of the production of violence. It’s losing its soul. It’s losing its spirit. It’s losing its ability to speak to itself in ways that would span the human spirit and the human possibility for justice and equality. (Giroux 2013b)

The corporate institutional powerholders who control the system and in whose best interest it operates, are adept at using influence and coercion and have extensive resources to commandeer the gold rush in the brain sciences, both in private and public spheres. So the benefit of what we find out about the brain is not evenly distributed or utilized. The necessary balance between conformity enforcers and diversity generators (Bloom 2000), between institutional power and social justice is being lost.

Our cultural risk assessment and reasoning faculties as human beings have reached the limit of their usefulness and efficacy. This is true in both rich and poor countries, different cultures (to varying degrees) and academia. The university, as a cultural hierarchal institution, has a certain institutional reluctance to respond to ACD. The additional infiltration of conservative economics into the university itself (Giroux 2007) serves to explain the embarrassingly muted and delayed response to the threat and risk of ACD/income inequality. Unfortunately, all this is occurring at a time in human history when it has become paramount to utilize objective measurements and scientific evidence—a task that is evidently becoming more difficult.33 We must not underestimate the cultural effects of the corporate free-market system: psychopathy, cruelty and the normalization of outright disgust to anything social, anything inclusive of difference, anything that involves a social contract (Giroux 2014). The outcome of corporate dominance is an inability to see, let alone care about, income inequality or climate degradation. Transnational corporations, simply smile at this while licking their lips, continuing to mold a global cultural mind tailored to their need for even greater profit—oblivious and/or unconcerned about anything else (Bakan 2004; Lewis 2010).

33 Daniel Dennett, for one, has spent his entire career trying to bridge this gap between humanism and science (Thompson 2009).
The cultural and social construction of knowledge and risk can and does override objective arguments, measurements and conclusions. The brain is deeply complicit in this process. And, there are many more habits of brain that interfere with perceptions of risk. Many of our rote thinking (non-conscious) processes used for questions of morality have wildly inconsistent results with regard to the well-being of conscious creatures (Harris 2010). It is to that seemingly intractable and unsolvable problem of morality that I now turn. Difficulties aside, morality is the first pillar on which a connected cohesive foundation for social change must reside because, ultimately, ACD (and income inequality) should be considered a moral issue; they involve the suffering of millions of human beings. Unfortunately, we are not well-equipped, morally or otherwise, to deal with issues of the magnitude described. The brain is most easily activated to action when faced with another’s suffering when the ‘other’ is, at most, a small number of people, an acquaintance or a family member perhaps, or some miners stuck in a minshaft or a child fallen down a well. We actually lose interest as the numbers of suffering people increase into the hundreds, thousands or higher (Harris 2010a). As Stalin was reputed to have said: “A single death is a tragedy, a million is a statistic.” Humans also tend to ignore and obfuscate future threats, however real, as well as those that might hit us too deeply in the pocketbook. Most dangerous of all, often automatically and unconsciously, we react with absolute moral certitude (the “feeling” of knowing) in numerous situations without using moral reasoning or considering the well-being of conscious creatures (Burton 2008; Harris 2010a). But all of this can be overcome.

**Values, Ethics and Morals (The Science of Morality)**

Responding to climate change is a moral choice...an ethical issue. (Hillman, et al. 2007:243)

It seems to be that mass movements arise as a response to great moral wrongs. (Mark Rudd)

Should we be deceptive? No, I think when you're doing activist work you have to come at it from a place of higher ethics. (Joel Bakan)

Why should one side care about morality and the other one totally disregard it? (Karen K)

Marc: Do you think there is a moral issue utilizing some of the knowledge from the brain sciences?
Michael K: There most certainly is a moral issue.

34 Stalin was also brutalized by a violent alcoholic father as a child: horrible environments/horrrible minds.
Introducing the topic of morality into a discussion among any given group of people is like pulling the pin on a live hand grenade—it is only a matter of time before it explodes. Some might argue that the majority should determine what is moral; others might argue that morality is contained in an ancient text and handed down by figureheads who correctly interpreted that text. Others might also argue that each individual determines his or her own morality or that morality exists only within cultural contexts. Finally, someone might posit that science can determine morality (Harris 2012). This is generally when the pin comes out of the grenade. The discussion then turns to specific moral questions, examples, explanations, arguments and inevitably the grenade explodes. It can explode on any number of contentious issues: female genital excision/mutilation, hitting/disciplining children, infallible moral truths, pre-emptive wars or a thousand other scenarios. There comes a point in moral discussions when everybody looks at each other and thinks: what planet are you from? For better or worse, we are all from the same planet and the global pin, so to speak, is being pulled as we continue to quibble about what is moral.

They can sell it all they want
But you cannot agree
I don't like the taste
of their morality (LeRoux 2009)

The word “morality” is tossed around in popular language as though it is a solid entity, a known quantity; apparently, everybody knows what it is to be moral. In academia and the world at large, nothing could be further from the truth. What is it to be good, to do good or bad? We know that morality influences numerous aspects of cognition (Knobe 2010). We have observed that little has been resolved despite two millennia of moral theories and discussions, some “divinely” delivered from “above” and many others debated, discussed and argued within the confines of philosophy, sociology and anthropology. The world abounds in moralities of difference and moral disagreements. The unresolved fluctuating states of morality have not previously stopped the slow progression of humanity towards a slightly less violent, more prosperous, more equal and somewhat healthier place. For instance, the abolition of slavery has, over time, achieved a global consensus. One might even argue it is a normative moral truth that slavery is wrong—this, in spite of the fact that, slavery continues for millions of people. Sometimes, it appears that we can agree globally in the interest of reducing human suffering. However, the abolition of slavery, increases in women's rights, the UN Declaration of the Rights
of the Child, all took decades, even centuries, to materialize. Today, human progress and well-being is threatened by situations that are not only infinitely more difficult to solve than those just described, but also that require resolution in years, not decades or centuries. Humans have evolved with an innate morality, most easily seen in the behaviour of young children (Coles 1997; Gopnik 2009), such as cooperation and altruism. We will need to support and expand such traits to help us avoid global collapse. The slow but, nonetheless progressive, nature of human morality, brought about by the interplay of evolutionarily innate aspects of human morality and environmental/cultural experience has, apparently, hit a wall.

Essentially, I am arguing here that science, broadly defined, is the most practical system with which to determine global moral truths. Science is defined in the broad sense as a system of rational, empirical inquiry that relies upon critical thinking and reason to understand natural phenomena including human minds, brains and behaviour.

To my surprise, many people think about science primarily in terms of academic titles, budgets and architecture and not in terms of the logical and empirical intuitions that allow us to form justified beliefs about the world...this larger domain of justified truth-claims is “science” in my sense. (Harris 2014) Harris is pointing out that most of us (not just scientists) use “science” liberally to navigate through the world day-to-day and to solve problems through the aforementioned use of rational empirical inquiry. However, the “justified truth claims” that result from such inquiry are not necessarily absolute but often provide provisional “truths” that can guide cultures and societies in progressive directions (inclusionary political and economic institutions, increasing levels of well-being and social justice). I am also arguing that morality is a battleground that must be contested by social justice in the struggles against CIP. Values, ethics and morals (VEMs) are synonyms anchored by the a priori position that VEMs are concerned with the well-being of conscious creatures. Moral normative truths are those concepts of morality that are global in scope and generally applicable, regardless of person or place (or culture).

I think it is important to discard religion as a moral superpower. To the nonbeliever, religion seems to be simultaneously confused and absolutely sure about matters of morality. The confusion is twofold. First, religious belief systems can have diverse “holy” (infallible) moral truths that confuse us as to which one is actually correct. This claim to absolute moral truth promotes religious wars over moral systems and ongoing crusades to convert us all. Second, religions continue to be confused about what constitutes the well-being of conscious creatures. Religious moral precepts toward the well-being of women and children, both in holy books and
in actual behaviour, can be characterized as erratic at best (Spong 2005). For example, in the Bible, rampant violence by adults rains down ceaselessly upon children and expectations of strict obedience are plentiful. What seems conspicuously absent is any reference at all to a child’s needs (DeMause 1974). Interestingly, and maybe, understandably, the countries currently more successful in providing for the well-being of women and children (at least by the majority of measurements available) also tend to be secular (e.g., Sweden, Finland). The “confusions” are understandable as most religious moral systems were constructed in the distant past. Again, this is not to deny that some aspects of religious morality do contribute to the well-being of conscious creatures. However, the differing and inconsistent moral truths of religion(s) remains problematic and, ultimately, divisive.

The cornucopia of religious moral systems differs from corporate institutional power’s moral system in terms of its homogeneity/simplicity. Corporations, inasmuch as they actually have “morality,” repetitively project a unified meme (that does tend to incorporate definitive values) through the institutional powers at their disposal. Of particular note, is that these individual memes (individuality, selfishness, greed etc.) are forming a very powerful and destructive meme complex that seems increasingly to devalue people and the very idea of social contracts within democracies (Graeber 2011). A large part of this devaluing has to do with the quantifying and monetizing of all aspects of the society so that very harmful, destructive and even, brutal, choices can be made based on the “numbers.” A frightening example of this corporatization-monetization in the humanities in particular, is well documented by Henry Giroux in Neoliberalism’s War on Higher Education (2014). The infiltration of “casino capitalism” into the university means treating students as consumers and education as a commodity. This “free market” approach reduces academic freedom, fills the university with cheap part-time faculty and creates new levels of managers. In other words, Holden argues, universities are to be reconfigured as “a sterile Darwinian shark tank in which the only thing that matters is the bottom line” (Gioux 2014). The University slowly loses its ability to be critical, civic or even interested in pursuing what is good for the public as it adopts the corporate meme of individuality and selfishness (Giroux 2014).

The High Stakes of Moral Disagreements (meme/veme Wars)

VEMs based-ideas, (“vemes”) represent a sub-type of meme that relates directly to values, ethics and morals. ACD is currently our most pressing moral dilemma (Rowland 2006; Hillman 2007; McKibben 1989). It is a pressing moral dilemma because it involves the
fundamentals of survival and the suffering of millions of human beings. The intractable
economic and corporate resistance to any reasonable response to ACD can only be explained by
an economic system with a complete inability to talk or think in moral terms (Rowland 2006). A
morality of inclusion, empathy, compassion, equity, sociality and even “enlightened self-
interest” is nonexistent in conservative economics (Chernomas and Hudson 2007). Economics,
imaging itself to be a science, preaches objectivity but oozes putrid values like a festering
sore. Greed is good, virtue is vice and vice is virtue—this is the corporate mantra blared
throughout the mediated world, which it almost entirely owns (Rowland 2006).

If the deterioration of global systems is the result of a global moral error (i.e
authoritarian hypercapitalism endorsing greed and cruelty), one that is encouraging entrenched
institutional power to endanger the well-being of conscious creatures, then a global normative
moral truth might assist humanity to resume a slow yet steady progression toward increasing
levels of well-being for people and the planet. However, the disjointed and sometimes
conflicting moralities (not to mention strategies and goals) of activists may inadvertently limit
their ability to join together to form a more united and powerful front to challenge the existing
hegemonic power. A common ground could be established to link divergent and even
ideologically separate resistance groups in a massive coordinated change campaign. Since the
well-being of a large number of conscious creatures is at stake, a global normative moral truth is
key to creating a connective thread or commonality among people. Harris (2010) argues
convincingly that, science, as a globally standardized, rational-empirical method of inquiry, is
the primary methodology capable of attempting this task. As it happens, science has recently
been extremely productive in the advancement of knowledge surrounding morality and how
humans flourish.

Values war...At some level, I think it turns out to be a battle about values. It
turns out to be thinking about the ways in which we would want to
restructure our own lives, restructure societal practices, governmental
practices, business practices...that take the focus off materialism and,
instead, focus on what my colleagues and I called intrinsic values or personal
growth and affiliation and community feeling and those kinds of things, which
the research suggests promote higher levels of well-being or sustainability at
both the individual and at the national level. (Tim Kasser)

What Tim Kasser refers to as the “values war,” I will reference as the meme/veme wars. It is a
war of CIP ideas (memes unrelated to morality and human flourishing) versus VEMs based
ideas (vemes) favoured by the majority and promoting social justice. Kasser has demonstrated
through research that intrinsic values (accepting oneself, personal growth, being social with friends, family and the wider community) are constructive and serve to enhance human flourishing by satisfying inherent psychological needs. Alternately, extrinsic value systems (make lots of money, look “cool” and attain status/stuff) are pushed from outside by CIP and are highly materialistic and self-interested.

The meme/veme war becomes a battle between the previously mentioned meme complex favoured by CIP that vilifies social connections and the concept of a social contract and whatever vemes social justice movements can stitch together. The meme/veme war is another example of the struggle for “inclusionary institutions” versus “extractive institutions” discussed previously, which is similar to what Kasser describes above using different terms such as “restructuring government practices.” The meme/veme war extends through a “global culture” in which currently CIP broadcasts and reinforces the relatively simple and highly unified hypercapitalist meme complex of “greed is good.” Social justice then needs a unified, relatively simple (to convey) veme complex, based in secular humanism (as religious moralities remain too divisive), with which to fully enter the fray.

**The New Science of Morality**

The science of morality is in its infancy. It utilizes interdisciplinary knowledge from the natural sciences, the social sciences and the humanities (EDGE 2010b). It uses the scientific method to study human behaviour and beliefs surrounding the topic of morality with attention to which moralities assist in human flourishing. This use of multiple academic disciplines to inform a central theme, in this case, morality, is incidentally very similar to how the brain itself actually deals with moral cognition. “Moral judgments depend on the operation of multiple neural systems that are distinct but that interact with one another, sometimes in a competitive fashion” (EDGE 2010a). However, the interdisciplinary scientific method relies on multiple academic disciplines using rational empirical evidence to arrive at a provisional truth. Individuals, on the other hand, who are genetically and often environmentally predisposed, seem to bypass reasoning altogether and embrace a position of certainty in moral matters (Burton 2008). The tendency to rely on moral intuitions and to become habituated to the reinforcing effects of dopamine that accompany feelings of certainty is a luxury we can no longer afford: such judgments are sometimes correct but often horribly wrong. The brain sciences have turbocharged the science of morality and granted powerful insights into consciousness itself (Kandel 2006; Rees and Rose 2004; Restak 2003; Taylor 2004).
I am not entirely certain why science and scientists have been so reticent on questions of morality. Science has its own morality, a common set of values involving rational-empirical inquiry. Science has long been in the business of observing and describing moral behaviour and debating moral theories. Indeed, whole departments, journals and careers have been built on this project. Scientists now openly assert that merely because moral diversity exists, this does not support the argument that “all moral systems must be judged to be equally good.” In fact, “some moral systems do [support societal growth and human flourishing] better than others” (EDGE 2010a). But this is to get ahead of ourselves: let us first step back in time for a moment.

**Morality in the 21st Century**

Changes in knowledge and numbers (population) have been immense over the past two millennia. In 450 BCE, Socrates was brilliantly discussing morality in a world that was allegedly flat and inhabited by some 300 million human beings. Hume and Kant continued the discussion in a world suddenly round, where knowledge and population had both doubled in over 2,200 years. Today, in 2014, the conversation on morality continues but the logarithmic scale on which knowledge increases is producing a doubling every two to four years amidst an exploding population of over seven billion (Cowan 2010). The importance of the brain sciences and other new sciences regarding human well-being cannot be ignored as the population of the earth grows exponentially and heads towards nine billion. Despite the brilliance of Socrates—and all those philosophers, theologians and miscellaneous moral explorers of the past—our moral progress seems to have stalled and at a most inopportune time. Any discussion of morality should, if possible, be firmly situated in the conditions and knowledge of today's world.

The science of morality is being pushed forward by new discoveries in the sciences, especially neuroscience and concern about our collective global future. The sources on morality that I work with here are principally: *The Moral Landscape: How Science Can Determine Human Values* (2010) by Sam Harris; and, the interdisciplinary *Edge Conference* that brought together nine of the world's leading scientific “experts” in the science of morality, including Harris. Each Edge participant presented their current work, followed by discussions and the eventual drafting of a consensus statement. The statement represents the beginnings of a science of morality. It is attached in its two-page entirety as appendix B and touches on the following eight points: 1) Morality, like language, sexuality and music is a result of the interaction between nature (evolutionary “building blocks” within the brain) and nurture (environment/culture). 2) Many of the moral “psychological building blocks” are innate, visible
in other primates, cross-cultural and appear even in babyhood. 3) Moral judgments are often made intuitively, mechanically, without critical thinking or evidence. 4) Alternately, moral reasoning can result in positive moral changes in a society. 5) It takes significant effort for people to maintain the connection between their stated moral values and actual behavior. 6) Moral cognition uses multiple neural systems in the brain and operates similarly to other cognitive tasks. 7) Individual and cultural differences exist as a result of childhood experience, situational and cultural factors. 8) Moral systems contribute to human flourishing and well-being—though not all moral systems succeed at this task equally well.

Conspicuously absent from the consensus statement are many of the more common terms and deep philosophical arguments related to morality that have arisen over the centuries: Hume’s is/ought distinction, moral realism/naturalism/unaturalism/relativism, utilitarianism, compatibilism; Hume’s guillotine; E.O Wilson's open question; deontology, hedonism and so on. While recognizing the inherent value of many of these arguments, I (and, I expect, Edge participants) purposefully ignore this quagmire of descriptive language and arguments. When talking about morality, I believe this shift in language is a necessary movement towards resolutions within the study of morality. However, it cannot be ignored that certain moral arguments but not others, are persuasive and Sam Harris undertakes proving this in The Moral Landscape (2010). One notable exception to the exclusion of traditional moral language within the consensus statement is the specific rejection of moral relativism. The science of morality is an attempt to construct culturally transferable (cross-cultural, global) moral truths with regard to human well-being and flourishing based on 21st century knowledge and scientific method. The science of morality is neither absolute nor infallible yet it holds the promise of delineating and defining the provisional moral truths about human well-being that can provide direction to activists to influence powerful institutions in directions.

Morality, Human Flourishing and Human Well-Being

We note, however, that moral evaluations across cultures must be made cautiously because there are multiple justifiable visions of flourishing and wellbeing, even within western societies. (EDGE 2010a)

Logically, if morality (ethics and values) encompasses the well-being of conscious creatures and science has knowledge about human well-being, then science has something to say about morality. This statement relies on the premise that science does know something about the various possibilities for human well-being and human flourishing. However, many would argue
that human well-being—happiness, for instance—is impossible to delineate, even within science. A comprehensive science of well-being and human flourishing lies in the future; however, scientists have learned a tremendous amount about how the experiences of conscious creatures can be understood and moved in the direction of well-being as opposed to pain and suffering.

Since I mentioned happiness, I deal with it as the first example of how science is inextricably intertwined in moral questions. Happiness research has exploded in the past fifteen years and has generated significant insights (Ben-Shahar 2007; Layard 2005). We know that the more we stay mentally in the here-and-now, not ruminating about the past or the future, the happier we will be. We also know that we are often confused about what will make us happy and have difficulty making choices that actually lead to more happiness (Gilbert 2006). In North America, most of us are absolutely convinced that more money and material possessions will significantly increase personal happiness. Yet, this is untrue above certain relatively modest levels of economic, social and health satisfaction (Green 2008; Kahneman et al. 2006; Van Evra 2009). This information is highly relevant to questions of human flourishing and suffering. The free market has now unleashed a plague of loneliness and depression on the planet and its people. Fueled by mistaken beliefs, our individual participation in rampant consumerism and consumption appears connected to increasing rates of depression, obesity and income disparity. Some might argue that a state of unhappiness is a personal choice. However, on a global level the spiraling pursuit of more things and money by more people has made a pivotal contribution to carbon buildup in the atmosphere and ACD has fueled extractive institutions and income inequality. I would rather argue that overconsumption is no longer a personal choice; it is a culturally embedded imperative (driven by CIP) with significant negative effects on well-being. Regardless, there is something to be learned from the science of well-being with regard to happiness and the well-being of conscious creatures. Happiness studies are becoming more comprehensive, conclusive and cross-cultural in their findings, which in summary do not suggest that materialism beyond a certain minimum has much of a relationship to happiness.

If I wanted to truly solidify an argument regarding the capacity of science to influence and delineate well-being and human flourishing, I need only delve into the science of child development. Child development studies now reside on an extensive knowledge base.

The history of childhood is a nightmare from which I am trying to awake. (DeMause 1974)
Historically, as the DeMause quote above emphatically states in his 1974 treatise on the history of childhood, culture was rampant with child abuse in all its forms. A large portion of that abuse was predicated on the complete ignorance of the developmental needs of children. DeMause has argued that this childhood abuse and the damaged adults that resulted, have had negative and influential effects on cultures and societies throughout history (he called this psychohistory). The embedding of early experience and worldviews during childhood and other aspects of the brain sciences previously discussed, lead us to conclude that DeMause had a point. If you are interested to see what the society of tomorrow might look like, take a close look at how children are treated today.

Currently, and for over 30 years now, there is very little mystery left about how childhood environments contribute to, or negate, successful child development (Boivin et al. 2012). Regardless of culture, children have specific universal requirements (e.g. unstructured, intrinsically directed play) that allow for the developmental accomplishments needed to grow into functional and moral human beings (Coles 1997; Gopnik 2009; Hirsh-Pasek et al. 2003). But the utilization of our now extensive knowledge of child development, in the West and elsewhere, has been sporadic at best. For children, especially babies, increasing psychological safety and emotional warmth is constructive and decreasing psychological safety and emotional warmth is destructive (Leach 1994). In the worst-case scenario, when few or none of the requirements are met, childhood becomes a breeding ground for sociopaths (Barker and Hunt 2004). To raise children using what we know about the science of child development, moves a society toward human flourishing; to do the opposite is to move toward human suffering. The morality of the global treatment of children can only be reliably accessed and promulgated through the science of child development. Application of those basic and unyielding needs of children has proven very difficult to implement and is often cloaked in moralities of ignorance. This is not to deny that we have come a long way from Demause’s historical nightmare. However, industrialized and especially digital societies, as mentioned, hold new threats to childhood development. Cultures around the world often treat children well, sometimes not so well and, sometimes, dismally. We do not choose those things most important to us in our early development (our parents, our culture, our environments), yet we are the product of that experience. The mind is wired accordingly.

Science has a lot to offer on the subject of the well-being of conscious creatures. Thus, science should have a lot to say about morality. If the deterioration of global systems is moving
humanity towards the worst possible misery for everyone (morally ‘bad’) and science has knowledge on ways of moving humanity towards the best possible good for everyone (morally ‘good’), then science has something to say about morality and the deterioration of global systems (Harris 2010a).

Dr. Jekyll and Mr. Hyde

They (corporate interests aided by science) are putting little babies in fMRI machines to see what lights up in their brain when you show them different colours or different shapes and all the rest...I think we have to be careful...not to fall into the trap or the bad habits and the bad activities that marketers have done when reaching out to young people. (Tim Kasser)

Science has had its share of arrogant and immoral practitioners pushing various distorted versions of truth and suppressing others for their own benefit (Bloom 2000). Too many psychologists, for instance, have been instrumental in the development of advanced marketing techniques used on babies and young children. Neuroscience powered techniques utilizing fMRI scans and other advanced techniques are even more powerful and arguably amoral, with growing evidence of harm (Dittmar 2007; Kasser 2007; Kramer 2006). Psychologists also played a significant role in the Guantánamo Bay torture techniques, a phenomenon to which the American Psychological Association (APA) has yet to voice objection (Zimbardo 2007). The university and academia have their own unresolved moral dilemmas. The principal employer of anthropologists, hired straight out of university, is the United States Department of Defense, which seeks their assistance in the endless wars of American imperialism and profit (Lutz 2009). Anthropology (along with other social sciences) then contributes to the US military’s Human Terrain Systems (HTS), which cooks up strategies to better get inside the heads of the “enemy” both culturally and psychologically, in order to kill them (and presumably reduce US casualties) or extract resources. Many of these strategies are co-opted by the corporate and political sector, including manipulating emotions like empathy, to achieve their goals (Olson 2013). Henry Giroux (2007) argues that universities are being steamrolled by economic, political, military and religious special interests into factory-like economic zones. They are losing sight of their educational purpose—to keep citizens (including activists) informed and to model a moral standard that encourages well-being and human flourishing.

Scientific knowledge alone is no panacea for the moral problems of the world. The advantage of science lies in its resistance to absolute truths and a reliance on empirical, evidence-based rational inquiry. Morality influences many aspects of human thinking and
human activity and is prone to serious errors of “certainty.” Many such errors have contributed significantly to the spectre of global systems failure. Locating normative moral truth that is concerned about the well-being of conscious creatures is necessary to overcome the present stalemate. Science is neither absolute nor infallible but, for moral “truth” to continue to move in the direction of greater well-being and human flourishing, science must be involved.

The science of morality has not so far discovered some magical moral truth that will unite us all in harmony and it probably never will. But, the science of morality has other things of significant value to offer. It highlights the mechanics of moral cognition and exposes the error-prone divisiveness of many existing moral systems. It offers a moral connective thread for disparate activists and social justice groups by basing its “good” moralities upon the well-being of conscious creatures and human flourishing. It offers an evidence-based alternative to some of the more brutal moralities that we have been burdened with for thousands of years.

**Memes, Vemes and Social Change**

Thus far my argument goes something like this: morality is about the well-being of conscious creatures. Global systems failure is the significant threat to the well-being of conscious creatures. Current institutional powers have repeatedly failed to address the problem of global systems failure in a meaningful and effective way, thus indicating a moral systems failure. A large and coordinated resistance movement is needed to push institutional power and civil society back towards increasing the well-being of conscious creatures. In order to unify and inform such a global change movement, understanding a more normative global moral system would be helpful, if not an outright necessity. Considering the current failure of existing moral systems, with their reliance on moral intuition and other methods of determination prone to error, morality itself needs to be reconsidered. Interdisciplinary science, using a methodology of rational-empirical inquiry and infused with a rapidly expanding knowledge base about human cognition and human well-being, is best suited for that task.

Rising authoritarianism in economics, politics and religion (historically) has resulted in a decreased concern about morality and, consequently, the well-being of conscious creatures. Unfortunately, the moral confusion (mistakes) of powerful institutions has now reached a point where its global effects on well-being are being felt. This combination of increasing power and decreasing morality has predicated the current crisis regarding climate change/income inequality and the possibility of global systems failure. In order to shift these institutions and humanity
from the present course, an increase in coordination, activism and resistance is necessary for the needed change to occur.

There are currently thousands upon thousands of social justice groups fighting small-, medium- and large-scale battles on a multitude of fronts related to global systems failure and other issues surrounding social justice (Hawken 2007). Most notably, in North America, but also globally, erratic resistance efforts are massed against vastly superior institutional systems of power. Rising authoritarianism has emboldened powerful institutions to use 21st century forms of control, thereby consolidating power (Bloom 2000; Chomsky et al. 1992; Deleuze 1992; Wolin 2008). The current advancement and entrenchment of power have been enabled by the development and interconnection of a working plutarchy (rule by the wealthy few), advanced influence techniques and a widely distributed, corporately-owned, digital media network. These interconnecting systems have enabled the state (in collusion with corporations) to achieve what Antonio Gramsci referred to as the “unconscious transformation of human consciousness,” whereby the citizens of a society participate willingly in their own oppression (Salamini 1974:370). This ideological resocialization is being achieved at a deep and troubling level; the very act of resistance to injustice is being dismantled and recast as “immoral” and unpatriotic. Existing social justice groups already have to battle a superior foe without the necessary support from or solidarity with other organizations. Institutional power is now promoting a morality whereby acts of direct resistance to injustice and suffering are themselves depicted as morally reprehensible. They have also co-opted activism and redefined its very nature (Dauvergne and LaBaron 2014). Social justice groups face these formidable barriers in their efforts to redress injustice and are further burdened with moral questions about “fighting back with the master’s tools.” Global moral normative truths might then have multiple benefits, by clarifying what it means to resist, what should be resisted against and the shape and form of the resistance itself.

Recognizing this sustained effort by corporate institutional power to influence ideologies consistent with their ideals requires a well coordinated and easily understood response. Widespread scientific thinking on morality may act as a catalyst to inform and direct a 21st century global cultural meme encouraging the well-being of conscious creatures. This “well-being together” meme I have renamed a veme, because it is essentially a cultural norm/idea based on values, ethics and morals. Consider that scientists in general are not known for their vibrant resistance and activism and climate scientists were no different, until recently. Reacting to changes to the atmosphere and global climate and to the antipathy with which governments
have responded, climate scientists (most notably James Hansen) banded together in a movement from the purely descriptive aspects of their science to issuing global normative statements and then used persuasive emotional and articulate pleas for action. They crossed over into activism based upon their extensive knowledge of the destructive aspects of ACD and the future suffering of conscious creatures. They took a moral stand based on the scientific knowledge surrounding climate change and its future effects on human flourishing. The direct connection between a “common ground” to think about morality and social movements themselves, is clarified by Mark Rudd:

You can't predict. It seems to be that mass movements arise as a response to great moral wrongs. That is Tom’s [Tom Hayden] formulation. Secondly, they gain power as a cultural movement in the society when about 25 percent of the population agrees. (Mark Rudd)

Mark Rudd was indicating that, in order to have a mass movement against a great moral wrong, civil society in particular must realize that such a wrong is occurring. This is sometimes difficult amidst the “creeping normalcy” of institutional power’s pursuit of what thirty years ago would likely have been considered criminal as well as immoral: surveillance of its own citizens, Citizens United, “precautionary” wars, privatization of public space, plutocratic and oligarchical tax reductions and so on.

Powerful institutions do not change without unified resistance, activism and direct action. That change could be less painful if the progressive elements within such institutions were given some common moral ground on which to effect change from within. If the science of morality can provide some such commonality, thereby reinforcing the existing moral precepts within and between institutions, the external pressures need not be so intense. The significant problem of integrating new or existing knowledge into a changing global culture, even if just to save itself, remains. It seems nothing holds promise except the global spread of powerful new veme(s) or myth(s), constructed from the knowledge and realities of the modern world and integrated into global culture through both digital and personal networks (thousands of social justice groups). Currently, it seems whoever controls the story, determines the values, ethics and morals, regardless of whether or not they are “good and useful” for the majority of citizens in civil society. Tim Kasser reminds us who is currently telling the story:

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“Creeping normalcy” refers to slow change by degree, sometimes over decades and barely noticeable, whereby baseline measures creep into increasingly negative territory i.e. ACD, income inequality.
The destructive free-market “mythology” driven by media has reached such a level of saturation and power that, to many, it seems unassailable. It is not. Everything changes; just ask Goliath and Marie Antoinette. The mythology of the world can be rewritten into a “factual creation myth, a creation story based on history and science” (Bloom 2010:14) with its attendant values, ethics and morals, which recognizes what we can achieve, together.

**The Promise and Power of Myth (Stories and Narrative)**

Myth might be more usefully defined as a narrative which is considered socially important and is told in such a way as to allow the entire social collective to share a sense of this importance (Csapo 2005:9).

What is the mythology surrounding the world? (Saul 1993:14)

In *Voltaire’s Bastards* (1993), John Ralston Saul argues that the currently dominant mythology of the world is driven by a bastardized version of the concepts developed in the Age of Reason. The positive attributes of the age of reason, originally ignited by Voltaire, have been transformed by the modern elite (the bastards in the title) into an age of structure and complexity. In the age of structure, reason is a weapon, a blind logic untouched by morality, history or reality—just another tool for manipulation. The cultural elite, using the bastardized version of reason, develop a self-reinforcing, structural (i.e., cultural) system that inevitably leads to a position of never being wrong, despite the obvious global carnage caused by such “reasoning.” The following exchange is an example of someone trained in elite “reasoning” interviewing Joseph Campbell:

**Interviewer:** I'm tough, I put it right to you. I studied law. The word myth, means a lie. Myth is a lie.

**Campbell:** No, myth is not a lie. A whole mythology is an organization of symbolic images and narratives, metaphorical of the possibilities of human experience and the fulfillment of a given culture at a given time.

**Interviewer:** It's a lie.

**Campbell:** It's a metaphor.

**Interviewer:** It's a lie (Campbell and Kennedy 2001:2) Campbell eventually discovers that the interviewer has no idea what a metaphor is. But the point remains: the interviewer questions nothing but clings to his “reasonable” answer. We could argue that the interviewer’s culture and educative process has been contaminated by bastardized reason, rendered him incapable of critical thinking, like so many others in this *Age of American*
Unreason (Jacoby 2008). The age of structure (or unreason) as described by Ralston Saul reconfirms the inability of the centre (individualism and hierarchal bureaucratic structures) to determine risk. Bill McKibben (2011) brings up the same point, asserting that current hierarchical bureaucracy with its quants (quantitative analysts) and absurd technical complexity, benefits only one small group—the plutocrats—at the expense of the planet and everyone else.

The process of decline accelerated with the fall of reason in the latter half of the twentieth century (Saul 1993). While “reason” was becoming increasingly obsessed with winning arguments, unfettered by reality, the ecological health of the earth was being shattered by the meme of consumption, as economic gain through a brutal conservative economic model spread throughout the world. This particular economic meme has infiltrated both individual and institutional “minds,” including democracies, dictatorships, religions. The result, after thirty years of virulent memetic spread, is a terminal illness—ACD.

A new mythology is rapidly becoming a necessity both socially and spiritually (Campbell and Kennedy 2001:6).

I think Campbell is right. We need a new myth, a global myth, a powerful anti-corporate meme/veme (antistructure). The new myth should be based upon some understandings of culture, society, institutions, climate change, the brain and myth itself. Myth can be invoked by bypassing the more conscious aspects of mind and invoking the more intuitive faculties that myth creation (mythopoesis) requires. Myth requires the unconscious but an unconscious wise in the ways of the modern world, informed by experience and influenced by the angels of our nature. We are in desperate need of a 21st century mythology.

21st century Myth

Marc: Do you think that a kind of global myth [for positive social change] could be created?

Susan Magsamen: I do. I think that there is enough trans-media potential to be able to do that. I think it has to be authentic, it has to be the kind of thing that relates to universal truths and not [just] cultural truths.

The new myth is to be of the whole human race. (Campbell 1985)

Myth, although born of culture, has the capacity to confront deep psychological imperfections and override and/or rewire the mind/brain into a new worldview. Myth,

36 Mercier (2011) in the Argumentative theory of reason, and Shermer in The Believing Brain (2011) make the neuroscientific argument that “reasoning” in large part is completely unconcerned/unconnected with reality, history, common sense, science etc. Saul (1993) makes the social science/philosophic argument for the same idea in great detail.
functionally, is a “socially important” (Csapo 2005: 9) and “shared” (Hulme 2009:341) narrative that symbolizes an underlying reality or cultural “truth.” Stories and narratives (of which myth is composed) is the universal “problem solution” vehicle that spreads memes/veemes effectively throughout a culture or society.

No matter where you go in the world, no matter how different people seem, no matter how hard their lives are, people tell stories, universally, and universally the stories are more or less like ours: the same basic human obsessions and the same basic structure. The structure comes down to: stories have a character, the character has a predicament or a problem—they're always problem-focused—and the character tries to solve the problem. In its most basic terms, that's what a story is—a problem solution narrative. (Gottschall 2014)

Myth is also a rather large and sometimes controversial entity. Joseph Campbell's interpretation of myth, some of which is related here, is certainly part of that discussion. But what Campbell stressed through film (Campbell et al. 2005) and books (Campbell 1985; Campbell and Moyers 1988), was the desperate need for a new global mythology: one capable of generating the necessary collective force for change. The construction of the new global myth will no doubt be influenced by varying definitions of myth itself and, possibly, the liberal use and interpretation of past myths. Commenting on the successful energy sector disinformation campaign around ACD mentioned earlier, Susan Magsamen compares the resources and power of the energy sector to those of social-justice forces by reference to an old mythology:

It [disinformation campaign] is insidious, it is very difficult [to stop], it is like David and Goliath.37 (Susan Magsamen)

David and Goliath is an appropriate metaphor for today’s social justice activists and considering the wealth and power imbalance between the plutocrats and the rest. It reminds me of Smaug in J.R.R. Tolkien’s The Hobbit, a fierce firebreathing dragon guards his massive piles of stolen gold and jewels. Smaug, like today’s super wealthy, does very little with his mass of extracted wealth, other than figure out where to stash it all safely and guard it. Bilbo Baggins, our intrepid hero, somewhat reluctantly does battle with the Dragon. The cultural hero/trickster can be like David—“event making”—intentionally attempting to change history. Or it might be a more trickster-like character performing a random yet “eventful” act that unintentionally wreaks change (like Bilbo finding the magic ring) (Segal 2000:4). Wild, inventive, non-rule-based, creative, passionate, even desperate solutions to the current dilemma, including the

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37 Susan was commenting on the US energy sector manipulating and successfully moving public opinion on global warming from 44% climate deniers to 74% with a 10 year dis-information campaign (certainly using brian science technology regarding belief).
The creation of a unifying mythology, need be considered. The form and structure of the new mythology (as solution) has yet to reveal itself, although some proposals are on the table. Howard Bloom argues that the new creation myth should be a radical re-visioning of “western civilization [the beast]—and of its capitalist [currently creatively and morally asleep] digestive machinery” (Bloom 2010:14). The key to Bloom’s resurgent capitalism is a reconstructed morality, a powerful Veme of connection, empathy, caring and creative joy that reinvigorates capitalism to be more than it ever was or anyone thought it could be.

Myth at its best delivers the fundamental truth of its time to a majority of the culture in which it is born. Myth—possibly timeless truths regarding cosmic forces, humanity and nature—is created through a dynamic process and affects the “collective consciousness” (Campbell and Kennedy 2001:102; Langer 1957:172). Some of the fundamental truths of our time evolve around what I have described as the dilemma and its antecedent causes. The vast forces of engorged cash-hoarding corporate entities seem relentless in their determination to drive humans over the edge of the cliff. The need to foster a new global myth derives from this misguided drive and the inability of cultures, institutions and societies to respond. This is a global, deeply rooted, psychological problem that has proven resistant to change. Therefore, something capable of affecting both the psychological—a mythology is metaphorical of the psychological posture of the people to whom it maintains—and the global “collective conscience” (Langer 1957:12:144), deserves our attention. Additionally, myth may offer one of the few possibilities for overcoming cultural failure to determine risk and to reintegrate objective science into risk assessment.

Myth and Science

[Myths] embody fundamental truths underlying our assumptions about everyday or scientific reality. Myths in this non-pejorative sense become powerful shared narrative which may bind together otherwise quite different perspectives and people (Hulme 2009:341).

The science in all of the traditional mythology, reflected that of its time (Campbell and Kennedy 2001:4).

The science of our time is not reflected in Judeo-Christian mythology, nor in “free market” mythology. Certainly, some of our assumptions about science, though mistaken, are widespread. This implies that “reason,” rationality and the scientific method through education and culture are incapable of influencing society to act (or, alternatively, maybe we are just not
delivering them properly). No matter what the objective evidence, scientific or otherwise, responses to ACD and income inequality or even preparatory strategies to deal with them, will remain muted. It seems appropriate, then, that if we are unable to grasp the scientific reality of ACD, we should turn to mythology with its ability to “transcend the scientific categories of ‘true and false’” (Hulme 2009).

 Myth may transcend science, but at the same time, it must incorporate the essence of contemporary scientific knowledge (Campbell 2005). This definition of mythology allows science, reality, common sense and historical knowledge access to influence the collective conscience. Myth gives hope because of its inherent capacity to delineate “scientific reality” and “bind together” disparate groups in a group consciousness; as Lessing notes,

> It is the storyteller, the dream maker, the mythmaker that is our Phoenix, that represents us at our best and our most creative. (Moyers 2013)

However:

> We create culture but, right now our culture has been stolen from us, it is no longer our culture, it is corporate culture. (Sharna Olfman)

Corporate culture, as a storyteller, dream maker and mythmaker is a suicide machine. Shedding the ideological/mythological straitjacket currently imposed upon global culture, however difficult, will require a powerful new mythology. “What [then] is the new mythology to be, a mythology of this unified earth as one harmonious being?” (Campbell and Kennedy 2001:17). Possibly, no one knows the answer, but it must include the science of our time and the better angels of our nature.

> Smarter, wiser, creative – together
> Higher, stronger, faster – together
> Empathic, caring, kind – together
> Hopeful, happy, joyous – together

We are all in this together now, there is no doubt of that.
3. Methodology

Qualitative Analysis: the process of examining and interpreting data in order to elicit meaning, gain understanding, and develop empirical knowledge. (Corbin 2008:1)

The research undertaken was based on the qualitative method Corbin refers to above. Qualitative research is not a mysterious process or less valid than other methods; it is scientific in the broad sense, in that data “evidence” and critical thinking converge. The result of researchers “examining and interpreting,” the data is to elicit new understandings to guide action. In this particular case, the data consists of 15 transcripts of one hour to one and a half hour interviews with experienced social activists. The subject under examination—the application of brain science into areas of activism and social justice has attracted little attention to date, making this an early foray into the relatively unknown. Last but not least and especially in “unknown” areas of research, qualitative research is also an art—a creative act—allowing the free flow of data and “thinking” to operate beneath conscious awareness, thus bringing to consciousness new and interesting possibilities. One might even consider qualitative analysis as an example of the emergent complexity discussed in chapter one and/or the myth creation discussed in chapter two. At its best, it reveals something more interesting than the sum of its parts.

Research Aim, Problem and Questions

The aim of this study was to explore the extent to which social justice organizations are utilizing 21st century knowledge about human behaviour from the brain sciences in their pursuits of social change. The research concurrently sought to uncover novel “paradigms of resistance” that arose out of integrating knowledge from the brain sciences with social justice and activist strategies and goals.

Simply stated, the problem is us. Human behaviour, on a global scale, is making for an increasingly precarious future. The mind/brain from which human behaviour emanates seems to have been unduly influenced, as of late, by the plutocrats and oligarchs (CIP). This influence needs to be moderated and/or reversed by an ideological alternative; broadly defined, a social justice agenda. This ideological struggle is now being contested openly at the level of the mind and therefore responses, strategies and tactics must be considered at that level. The two research questions that drove the research design and methods were:
1. What methods and strategies can social justice groups adopt through the utilization of a 21st century understanding of human behaviour (brain sciences)? And when these are identified,

2. Which methods will mobilize support from civil society and directly influence institutional power to adopt policies that reduce the likelihood of a global systems failure?

**Research Design and Methods**

Grounded theory (Corbin and Strauss 2008) is an inductive data-driven form of research in which data analysis occurs immediately following data acquisition enabling continual development of theoretical leads and concepts relevant to the problem. Grounded theory is thus a concept-driven methodology in which concepts are constantly generated in a cumulative process leading to multiple categories. Analysis could stop here and would result in a very interesting descriptive study, along with some insights into the phenomenon under consideration. However, true to its name, grounded theory also has the capacity to build theory as a connective overriding theme or themes become evident in the research process; thus, integrating categories in meaningful ways. The use of memos and diagrams is central to grounded theory. It is through memos and diagrams that the researcher makes visible the internal critical thinking processes (including reflexivity) that generate analysis from raw data.

**Theoretical Sampling**

Initial sampling decisions (interview participants) were derived locally by referral. Subsequent sampling decisions were derived from data analysis and driven by concepts (theoretical sampling) in combination with participant recommendations (snowball sampling). Participants were selected based on their experience and expertise in social justice and activism in areas related to global crises (e.g., ACD, income inequality, depression, childhood health and well-being). Sample size was fifteen. All participants at the time were working as activists in North America—nine in Canada, six in the United States. In practice, the sampling decisions were driven in the following manner. After the initial interviews were analyzed, I decided to move towards activists with more expertise in childhood development and the brain sciences. Subsequently, I began to search out a more eclectic group of, at times, more hard-core activists, both young and old, with field experience (e.g., in the Battle of Seattle). Finally, I recruited...
someone from a large NGO in order to try and answer questions that had arisen in the previous interviews regarding that sector.

**Research Interview Questions**

The research interview questions were designed to elicit understanding along three interconnected lines:

- What is the current state of institutional power/control and, what activism/resistance strategies and methods are currently being used or considered?
- What are the participants’ understanding of the brain sciences as they apply to human behaviour?
- In which ways do the participants think that the two areas discussed above might interact and be utilized in future strategies?

**Interview Script – Appendix C**

That's another really interesting question...wow, that's a great question...that's an excellent question...great questions really...you’re asking the right questions (various participants)

The research interview script began with the following:

a) This is a three-part set up but I would like to get all three parts out before you respond.
   i) There are those who argue that the “battle” for social justice/change (ACD, income inequality, poverty etc.) has been lost in a slow *coup d’état* over the last 20 or 30 years.
   ii) This *coup d’état* occurred as corporate industrialized states become more efficient and effective at manipulating civil society and concentrating both wealth and power at the top in the hands of plutocrats and oligarchs: the paradigms of power changed.
   iii) Further, in order to successfully alter this scenario, social justice and social change activists must utilize new paradigms of resistance...Comments? Agree? Disagree?

It was from this initial point that the participants responded spontaneously and relatively easily to the majority of the interview script. It might be worthwhile for the reader to peruse Appendix C prior to moving on to the results and note what answers come forth for them. The Brain Sciences comprised the second strand of questions and explored the participants’ views and understandings of the brain science primer summarized in chapter one. The third strand was my attempt to combine the previous two which I labeled Brain Science and Social Justice. The first
two strands were primary in terms of numbers of questions and the most fully saturated with data. The interview script\footnote{Subtle improvements were made to the interview script throughout the process. Appendix C is the final version.} was developed and presented in a way so as to remain engaging and relevant to the participants’ experience.

**Participants (Contributors) Appendix A**

My participant selection and interviews began locally and spread slowly to other geographic sites in North America. All participants were contacted by an email with an attached consent form (Appendix D and E). I interviewed a wide cross-section of activists almost evenly split between males (8) and females (7), including those who were academically-based to those who engaged in street actions during the Battle of Seattle, ranging in age from their early 20s to those in their 60s. I purposefully sought an eclectic group of participants, while theoretical sampling (ideas/analysis that came out in interviews pointing to who should be interviewed next) and participant recommendations did the rest. Activists displayed a high level of interest in the topic. I have simply dipped a spoon into an ocean of possible participants.

The 15 participants who were interviewed, although from diverse backgrounds, provided not only “thick and rich” descriptions but also data containing numerous connective threads. For the purposes of this study, the topic reached a saturation point, despite the fact that the number of participants was relatively low compared with the pool of possibilities (see results).

**Research Process**

Entry and exit observations were recorded before and after each interview with comments on the setting and process. Initial data analysis was conducted after each interview and before the commencement of any subsequent interviews as per grounded theory methodology. MAXQDA computer software was used for all memos and textual data analysis from initial coding, conceptualization, core categories, storyline and theory development. MAXQDA is suited for grounded theory research due to its highly developed memo and theory development capacities (see Corbin 2008). The written thesis is a “clear analytic story with the logic spelled out” (Corbin and Strauss 2008:278) derived from the research diagrams, memos and data analysis. Although MAXQDA has diagramatic functions, I prefered the use of large sheets of drawing paper, at least 15 inches x 20 inches and colored pens, using both text and symbols.
Procedures

Entry into the field

Participants received an e-mail request for participation (Appendix D) which contained a brief summary of the project and an attached consent form (Appendix E approved by the UBC Behavioural Research Ethics Board). Follow-up e-mails were exchanged as required. Participants were offered prior access to the interview script in the initial email request, but this was requested only by Alex Speers-Roesch (Greenpeace).

Data Sources

Primary data was obtained from participants through open-ended, semistructured interviews in order to “understand the complex behaviour of members of society without imposing any a priori categorization that may limit the field of inquiry” (Fontana and Frey 2005:706). Interviews are understandably “not neutral tools of data gathering but rather active interactions between two (or more) people leading to a negotiated, contextually based result” (p.698). In the face-to-face interview situation, I maintained a stance of “active listening, empathic reflection and minimal encouragers” (Creswell 2007:289) to allow participants the opportunity to discuss each topic freely. The official research questions and the open-ended questions provided in the interview guide were employed merely as guides. This divergent open-ended interview style fits with grounded theory. Each participant’s interview was analyzed immediately afterward and prior to a new participant’s interview taking place. Participants were contacted for clarifications and confirmations of analysis. This early analysis served to guide alterations and changes to the interview format, as well as to create a list of alternative interview participants and/or alternative data gathering techniques. Interviews, observational and all other data, were collected via notes and digital audio recordings.

Data Analysis

The very act of writing memos and doing diagrams forces the analyst to think about the data...[and] in thinking is the heart and soul of doing qualitative analysis. Thinking is the engine that drives the process and brings the researcher into the analytic process. (Corbin and Strauss 2008:183-118)

Data analysis began with the first text, code and memo entered. Data was collected and analyzed immediately following each interaction. These initial coding sessions, often referred to as “open coding,” were followed by periods of “immersion in the data” (axial coding, comparative analysis) to further elaborate the analysis of concepts, examining the relationships
among concepts, forming them into categories, and finally, allowing a core category to emerge (Corbin and Strauss 2008). What this looks like in practice is “chunking” each transcript upon first reading into sections separated by natural breaks or changes in topic. The second reading analyzes each chunk, developing and connecting concepts and initial codes (open coding). Multiple diagrams were then developed to identify possible categories and core categories and the relationships among them. The diagram development is aided by referring back to memos written throughout the analysis. The third reading (immersion), further refines coded segments into categories and builds connections toward establishing core categories (axial coding). Finally, the coded segments in each category were reviewed and given a numerical value based on their conceptual strength and relationship to the category. The results section is populated by the highest value coded segments organized by category.

The discussion section takes the analysis one step further by making some initial attempts to theorize the results under the umbrella of an overriding theme. Theory was obtained using the interpretive definition suggested by Charmaz (2006:128):

Theories flash illuminating insights and make sense of murky musings and knotty problems. The ideas fit. Phenomena and relationships between them you only sensed beforehand become visible. Still, theories can do more. A theory can alter your viewpoint and change your consciousness. Through it, you can see the world from a different vantage point and create new meanings of it. Theories have an internal logic and more or less coalesce into coherent forms.

Quality and Credibility

A word on quality and credibility (reliability/validity). Qualitative research must retain its core creativeness (the art) without being subsumed by the structure (the science). Qualitative research must “feel right” (Corbin and Strauss 2008:307) to the “sensitive” researcher trying to get to the essence of what a participant is trying to say. Maintaining creative quality is true of both quantitative and qualitative research. For example, Santiago Ramon y Cajal (1852-1934), “arguably the most important brain scientist who ever lived” (Kandel 2006:61), began as a painter, an artist. Although eventually mired in the most scientific of pursuits, the study of brain cells, he utilized an “uncanny ability to infer the properties of living nerve cells from static images of dead nerve cells. This enabled him to capture and describe in vivid terms with beautiful drawings the essential nature of any observation he made” (61). Cajal was able to describe correctly how living brain neurons worked by looking at dead neurons through a microscope. It was this intuitive leap, derived from a sensitivity to form and function, a “feeling
right,” upon which Cajal “formulated the neuron doctrine, the basis for all modern thinking about the nervous system” (61). Grounded theory can provide the necessary framework for retaining the creative quality, which breakthrough research often necessitates, within a credible structure. As important qualitative and quantitative research findings continue to have limited integration into the wider culture, this should not be taken as a license to become more lax or rigid about the quality aspects of research, but as an indication that research must now affect people emotionally, through “an innovative, thoughtful and creative component” (Corbin and Strauss 2008:301).

Are you looking at interviewing anyone from the other side? (Celine Trojand)

There is no “voice” from the other side (corporate, capitalist, neoliberal, marketing) in this research. I chose to interview activists only. There were suggestions to the contrary from committee members and the one participant quoted above. Celine Trojand felt strongly that it would be interesting and worthwhile to interview someone with an opposing worldview and proposed some names. I remain sceptical that it would have had a significant impact on, or would enhance this research. I felt adding more complexity to something already very complicated was problematic. Second, and maybe more importantly, the “voice” from the other side is ever-present, ubiquitous and deafening in the modern mediated West. Just being in North American culture exposed to media, television, radio, strip malls and billboards, is to be immersed in the other side. Thirdly, this was not meant to be a debate whereby each side (institutional power and social justice) gets equal time as though both have similar evidence-based views that deserve to be heard. For example, in today’s media discussions about evolutionary processes, treating creationism as an equal is absurd. This reflects a dysfunctional corporate-controlled media, not “fairness.” The corrupting effect of transnational corporations on democracy and media and the plutocracy that results was not a matter of debate for myself or the participants interviewed; nor should it be for anyone who looks carefully at the evidence. This was a research project designed to examine the myriad problems associated with corporate-institutional power, not quibbling about the obvious.

Research Summary

‘There’s no use trying, [Alice] said. ‘One can’t believe impossible things.’

‘I daresay you haven't had much practice,’ said the Queen.” (Carroll 1928)

Alice is mistaken. We believe impossible things, both destructive and constructive, all the time and, contrary to the Queen, we do not need to practice. We are born with belief
generating, not truth seeking brains. Our beliefs and behaviours are easily molded by culture, institutions and those powerful few at the top. Our beliefs and behaviours need not be related or connected to human flourishing, reality, rationality, critical thinking or evidence. Institutional power, which has slowly tilted towards authoritarianism over the past 30 years, has rapidly grown by utilizing 21st century brain science and other technologies, exposing and manipulating the brain’s weaknesses and early childhood malleability. Authoritarian strategies have changed, primarily as a result of new scientific, technological and communications advances, as well as the growth of corporate power and wealth. On 20 August 2012, Apple Corporation became the most valuable corporation in history on the New York Stock Exchange, worth $621 billion, with extensive cash reserves that exceeded $120 billion (Svensson 2012). Exxon, just a month earlier (26 July 2012) set its own record for a US corporation reporting $16 billion in profit in a single quarter (Hargraves 2012). The world has never seen such concentrated wealth in the hands of so few.

ExxonMobil, JPMorganChase, Apple, Peabody Coal, Pfizer, Altria, Goldman Sachs, Koch Industries, Dow, Monsanto and numerous other megacorporate entities have ingratiated themselves with despotic and democratic governments alike and the minds of civil society, controlling and manipulating, relentlessly pushing their own narrow agendas. This process has proceeded so effectively that many and, in some cases, the majority of civil society have adopted beliefs more appropriate to ages long past than to the modern world. This trend, sadly, has convinced many of the rest that we are collectively “doomed.” Hope for the future of global citizens and modern civilization, appears to lie with the social justice organizations and activists, who, despite their best efforts, continue to lose ground. It seems that those seeking social change and social justice have thus far brought a dull knife to a gunfight. A deeper understanding of the brain and brain sciences, within the context of the ongoing struggle for social justice, is an area best examined.

This research was based upon the premise that we are faced with a significant and, ultimately, dangerous time in human history due to ACD, income inequality and other global threats. It is a time that requires innovative thinking to promote a change in human behaviour, both locally and globally. The research methodology allowed for flexibility in data collection and analysis, lending itself to new theoretical possibilities, those which may renew the sense of hope that so many of us have lost.

There is one more challenge for the academic researcher in the modern world:
So, I always put this challenge out to academics, to figure out that balance [between academic writing/researching and readability/practical application]...So, I encourage you as I encourage all academics, to struggle with it because I know academics are rewarded for writing in ways that are not the most accessible...to figure out how to bridge that gap...to make something that works both in the Academy but also can be [utilized by] the people who need it the most, which is the folks out there on the front lines. (Patrick Reinsborough)
4. Results

This research explored the intersection between the brain sciences and activist strategies in the 21st century. The topic was of interest to activists both young and old, academic and frontline, male and female, from large organizations and small and advancing various operational styles and causes. The interest in the brain sciences seemed predominantly driven by the need for new strategies and tactics aimed at slowing down the corporatization of North America and making some headway towards a socially-just society. All participants were, to some extent, struggling to manage what they perceived to be the relentless “push” by CIP bulldozing over civil society, democracy and the planet. “Time squeeze” and isolation from other pockets of activism and resistance were two other issues for the participants. A large majority of activists interviewed were also concerned that institutional power was successfully employing the brain sciences against social justice movements, making social change difficult.

The one- to one and-a-half hour interviews resulted in a significant amount of relevant data. Each transcript reflected a deep repository of the knowledge and insights, the concerns and hopes, of an experienced activist at a specific point in time. Each is unique and informative enough to stand on its own. However, due to restrictions of time and space, I am not able to share the level of detail that I would like and that each transcript deserves. The analysis resulted in six initial categories roughly correlated to the questionnaire: Institutional (corporate) Power, Winning/Losing, Strategies and Tactics (largest category), Brain Sciences (second-largest), Environments and, Technology. This results section is largely recounts what the participants said, as well as my interpretation and synthesis of the 15 transcripts.

It is worth remembering that, in a sense, participants responded to questions “unprepared,” as 14 of the 15 did not have the interview guide. As I read through the transcripts, I was struck by the depth and eloquence of responses and was reminded that a lifetime of experience was a necessary and sufficient preparation or pre-requisite for the interview. Each category is followed by a list of subcategories or lower-level concepts. For a reminder of who’s who, see (Appendix A).

Corporate Institutional Power  (the badger don’t give a shit, the badger don’t care39)

Changes in Institutional Power—Last 30 Years
Oligarchs, Plutocrats and Bullies (Rising Authoritarianism)

39 See the viral video “Honey Badger Don’t Give a Shit”
The Corporation and the Free Market

I think you really have to know what you're up against, you have to know your enemy. (Susan Magsamen)

The “enemy” was quite well known to the participants, who generally support the position I have taken throughout the thesis concerning the damaging effects of CIP and the hypercapitalism that drives it. There was very little confusion or disagreement among participants about the causes of such things as ACD (Anthropogenic Climate Disruption), income inequality, crumbling democracies and difficult social change. However, I think many participants felt that activists for social justice, in general, might not fully understand the level at which institutional power was operating and the corporate backbone with which it is supported.

Kat Dodds and Mark Rudd point out the need to promote this recognition:

There seems to be an abysmal lack of faith in the political process by the younger generation and I worry about what difference a lot of these things are going to make politically, unless we attack the power at the corporate level (Kat Dodds)

In standard Marxist terms, it's the power of capital versus the power of labour. And capital is really in control completely now and labour is in decline (Mark Rudd)

There was an understanding of difficulty of achieving positive change, illustrated by what Bob Purdy and I have referred to as “the badger,” broadly defined as CIP.

It's like backing up a badger into a corner; you know they've had a pretty good ride and they're making record profits...and they're not going to give that up easily...why would they? (Bob Purdy)

Changes in Institutional Power – Last 30 Years

The participants painted a picture of a rather dismal, Orwellian-leaning society, with citizens hammered for decades by a relentlessly intrusive (now digital) media, leaving them shaken and despairing (or oblivious). Critical thinking is said to be waning as voter apathy spikes. Meanwhile, the takeover of democracy increasingly taken over by CIP is masked, so that many fail to recognize what is happening.

They [corporate institutional power] have taken the long view and I think that’s part of why things have gotten rougher for the progressives. (Tim Kasser)

I think institutional power has changed profoundly. (Joel Bakan)

I think what's happened in Canada over the last decade or so is that one group of interests has gotten really good at utilizing the cracks in the system.
So, the success of the conservative party depends on things like voter apathy and despair and the feeling of being disenfranchised and voter suppression tactics and, thus, accountability has been almost taken off the table. (Celine Trojand)

**Oligarchs, Plutocrats and Bullies (The Elites)**

As the participants point out, a significant portion of the general public is not pleased with the concentration of power and wealth in the hands of the few. More importantly, the participants observed this concentration of wealth and power to be expanding and strengthening in an unsustainable way.

The oligarchy and the whole corporatocracy has changed the playing field and that turning point in the US was when they allowed the corporations to fund any amount [of money] into the [elective process of] legal and governmental candidates. (Karen K)

The elites, if you will, have expanded their repertoire of control into a broader arena that represents not just an expansion [but], actually, a change in [the] form and the way power operates. (Patrick Reinsborough)

Tim Kasser points out that the ideological “machine” is pushing plutarchy as the best system and a claim divorced from truth:

The basic notion is that oligarchy, plutocracy will actually be the best route to go, not just for the oligarchs and the plutocrats but for all of us and, if history has proven anything, it's that this is wrong and what more can be said. But there's a powerful ideological machine that is driving that notion. (Joel Bakan)

The references to sociopaths (or psychopaths) that occurred throughout various participant transcripts are disturbing. You know you are in trouble when powerful people and corporate entities, including CEOs and heads of state, are referred to in such terms:

Harper is a true bully and a sociopath when it comes to what he thinks about nature and about other, less empowered peoples. (Karen K)

I think some of...[the 7 CEOs of big tobacco companies who perjured themselves in 1994] are sociopaths and some of them totally do believe what they're saying in a incredibly denying, rationalizing way. (Susan Magsamen)

The question I asked all participants regarding the infamous “seven dwarves” grand-jury enquiry into tobacco companies in 1994 (where as a group, executives denied that tobacco was

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40This videotaped testimony of big tobacco executives was made infamous in the motion picture “The Insider” about Jeffrey Wigand, (an ex-tobacco executive and chemist). Wigand testified that the tobacco industry not only knew all about addiction and cancer but also were chemically spiking the tobacco to be more addictive. The
addictive or cancer-related) concerned belief. Did these men believe what they were saying or were they consciously lying sociopaths? Responses varied and some were mixed, such as Susan Magsamen’s above. But Susan Linn put it in a different perspective: “Does it really matter?”

**The Corporation and the Decline of Democracy**

Two of the participants interviewed (Bakan, Dodds) were deeply involved in the making and distribution of the most successful documentary in Canadian history, *The Corporation: the Pathological Pursuit of Profit and Power*. Joel Bakan wrote the book and worked on the movie and Kat Dodds distributed and marketed the film. I asked Joel Bakan what has happened since the making of that documentary ten years ago:

> My thinking now is that we are no longer just a society that has corporations but we’ve become a corporate society...the Corporation has become a governing institution. (Joel Bakan)

This was an important observation, because the film makes a powerful argument that corporations resemble psychopaths. Having a corporate (psychopathic) government, according to some participants, was highly problematic for democracy and civil society.

> I think we’ve kind of merged into...a fake democracy and that Harper is letting the corporations, especially the oil companies become our government. So there's no more separation between government and corporation, it’s starting to merge as one and that's pretty terrifying to me. (Danielle Prins)

> I just don't think Pfizer [i.e., multinational corporations] is going to change. It's just not going to happen. (Michael K)

Danielle Prins observed the same phenomenon as Joel Bakan, describing the increasingly direct connection between the energy companies (psychopaths) and the current Canadian government.

> Alberta is not coming out of this rich. They've depleted their own revenue instead of building it up. You know there's some real contradictions in what would be good capitalism. Good market capitalism is not happening in any of this. (Karen K)

Karen K is referring to the tar sands area in Alberta, Canada, the third largest (and dirtiest) crude oil reserve in the world. It is currently processing ~2 million barrels a day with an intent to double that by 2022.

tobacco companies made Wigands life a living hell, yet he persisted and ushered in the era of successful billion-dollar lawsuits against big tobacco. The term “seven dwarves” was Wigands.
Winning/Losing

The Darkness
Optimism/Hope

This category arose early in the transcripts, following the first question and was woven throughout the responses as participants mused about the degree of optimism necessary to keep an activist in motion. Alternately, there was no doubt in the minds of many of the participants that the battle for social justice had entered a relatively dangerous and difficult time, historically, with mounting challenges.

Marc: What level of success is social justice and social change having in the current environment?

Karen K: Terribly limited.

I simply can't afford to adopt the attitude that we've lost, because I'm a parent and so, to adopt the attitude that we've lost is to say that my children's lives are, in a sense, doomed; that they are part of a psychologically dying generation and I'm not prepared to go there. (Sharna Olfman)

The latter statement was particularly poignant, reflecting both an awareness of the enormous problems society currently faces and our responsibility to children and young people to maintain an attitude of hope, accompanied by action to drive change forward.

It [the outcome of the battle between social justice and corporate power] could go either way. So, I don't know; it's up in the air. (Alex Speers-Roesch)

The Darkness

My fear is that it will be too late for certain things and that, if really bad stuff ends up happening, one of the directions that society could go would make things even worse. (Tim Kasser)

Participant references to “massive burnout,”“deeply defeatist,”“paralyzed by fear,”“despair,”“extinction,” although apparently not reflective of participants’ personal feelings, reflected their sense of struggles for social justice in the wider culture. Bob Purdy sums up what many participants reported regarding the level of effort required to make real headway.

I never in my wildest dreams thought I would have to fight so hard for change at this stage of my life. (Bob Purdy)

Optimism/Hope

The participants described the necessity of maintaining an optimistic stance in order to succeed as an activist in the modern world. And, although some were battle weary, none were
ready to give up. Kat Dodds explained the need for activists to have some sort of base optimism from which to work, regardless of the somewhat dismal reality:

I think I'm slightly pathologically optimistic. There's no real reason for it but I don't think I could keep doing this if I wasn't. (Kat Dodds)

Participants believed encouraging things were happening in other parts of the world (e.g. Turkey, South America) that indicated hope for social justice in North America. The excessive level of effort exerted by institutional power to maintain the “pathological way in which we live” (Patrick Reinsborough) was indicative that people could change, given the right environment. As Mark Rudd reminded us, anything can happen:

I have a general hope or a general optimism that there is something within human beings. That in the end...there is a possibility for rational decision-making. For example, when faced with global warming it may very well be that people [will] come to their senses. It could happen. (Mark Rudd)

I'll Never Stop

The level of commitment displayed by the participants was consistent and impressive:

I just have to do it [activism] and I have to encourage other people to do it. So, when I think about hope, it varies on different days... [But] I'll never stop [being an activist]... for me there's no other option. (Danielle Prins)

I think we’re fucked to be honest, but...every ounce of my being is going to keep trying... and I’m not just going to give up, I can't, it's just morally against my being. (Michael K)

After hearing these two statement I wondered how these two young people became such committed activists? And how have most of the other participants remained activists for much of their adult lives? This led me to start asking participants about their early lives and when and why they became activists. That information eventually became a subcategory of Environment (Participants’ Childhood). Below, Kat Dodds muses on why activists like Danielle Prins and Michael K. might be so committed:

When I think about the activists I admire, I don't really think they have any choice. They just feel like this is the right thing to do and then at the same time... being true to those feelings of social obligation as personal obligation. (Kat Dodds)

Two very important aspects of this quote are: first, the idea that those who become activists, have no choice; in a sense, it just occurs “naturally” (I will return to this in the Brain Sciences category). Second, they have a strong sense of social obligation, of connection to something
larger than themselves. Why? How did the their personal millions of moments of experience push them inexorably in that direction?

**Prelude To Change**

There was a general consensus that change takes time and effort, sometimes a long time and immense effort. Many participants felt that what had occurred so far were preparatory stages towards significant social change. There was also sentiment expressed that the situation might have to get worse before it can get better.

I think history tells you, the people who succeed [with social change] are ones who are part of a movement that has gone on for decades. (Tim Kasser)

It is not over yet. There will be future mass movements. (Mark Rudd)

I've seen small, powerful grassroots organizations...able to make change and so, everything has cycles and we may be moving in that [direction]. There's always a breaking point and we're getting closer to a place where things are unsustainable, unmanageable, very, very broken and sometimes things have to fall apart to rebuild them. So, I can see that at the other side...there will be big changes. (Susan Magsamen)

**Strategies and Tactics**

Stories, Narrative, Myth, Memes (Metaphors)
Influencing/Changing Existing Institutions
Influence/Create/Organize Social Movements
Direct Action
AIEd Awareness/Information/Education
Multiple Strategies Tactics/Multiple Connected Groups
VEM – Values, Ethics and Morals
Children/Millenials
Brain Sciences as Strategy - “Magic Meme Wand”
Use Corporate Tactics? (All Hands on Deck)
Activist/Social Justice Groups/People

Strategies and Tactics, the third and largest category (approximately half of the total coded segments), contains the participants’ current, recommended strategies and tactics for social change. Strategy is the development of ideas that specify the direction needed and most likely to succeed in the attainment of a desired objective or goal. Strategy involves the big picture ideas of how resources might be utilized most effectively. The strategic plan drives tactics and the learning of tactics. Tactics are where the action is. Tactics are the activities and procedures carried out in support of the strategy that, in their totality, make possible the
attainment of objectives. A well-thought-out strategy focused on objectives is the first and most critical aspect of planning.

To clarify, there is a “brain-science-as-strategy” sub-category here that deals with participants’ thoughts on utilizing the brain sciences as strategy/tactics. The “Brain Sciences” category in the next section deals primarily with the participants’ understanding and views of what I presented in chapter one (the primer on brain sciences). I begin with just a few general statements from participants that reflect the general feeling of the need for alternatives or changes in strategy.

Marc: What types of resistance strategies might you recommend today?

Tim Kasser: Yes, well, I think about this all the time. The kind of transformation that needs to happen, literally in the next generation, is absolutely unprecedented in the history of the species. We're talking about fundamental reimagining of almost every political, economic and cultural system. (Patrick Reinsborough)

Stories, Narrative, Myth, Memes (Metaphors)

I think that simple awareness of humans as narrative animals has sweeping consequences that suggests dramatic changes in social movement strategy. (Patrick Reinsborough)

In my previous academic work, I looked closely at memes and myth as possible elements of the solution for our present difficulties and naively assumed this was new and novel. I was completely wrong. The power of story, narrative, myth and memes is well understood by the participants and in many ways they are actively trying to implement narrative in a more effective manner.

Our [social justice] movements need to be able to create new mythologies that are liberatory and inhabitable by diverse communities, to shape the future that is possible and livable and hopeful. (Patrick Reinsborough)

You have to know the [mythic] archetypes, you have to seek, you have to know the way these things play out. You need to be prepared for great adversity, great battles, because the battles are great. I think it's naïve not to think that, but that doesn't mean you don't fight them. (Susan Magsamen)

Mythologies are built around storytelling and this idea of stories and storytelling (narrative) was a repetitive theme in the participants’ responses.

There’s the dark arts of marketing but there's also the power of storytelling...stories of hope and empowerment, being able to place people in the story of heroes. (Celine Trojand)
There is a lot of evidence, as well as narrative, out there right now, around storytelling being effective. (Kat Dodds)

The biggest thing for NGOs and nonprofits—because we don't have the money to run the same type of ad campaigns—but we can compete...if we tell good stories. (Cameron Gray)

Some of the participants considered storytelling to be important, in that it acts as a leveler in what is perceived to be an unfair playing field. The stories of the right (many of which are considered to be effectively untrue and destabilizing) can be counteracted by stories that impact the human condition in a more relevant and truthful way. As Susan Magsamen points out:

From the beginning of time, stories have been the way we passed on what we know, cautionary, inspirational...in every aspect of our lives, how we approach different feelings and it's humanizing and it's deep. (Susan Magsamen)

This idea of narrative might be considered a core strategy: first, because “it’s deep” and second, because it shapes other tactics, as Mark Rudd points out,

I think we have an even more powerful tool for organizing, which is called story-based organizing...so the idea of building a movement through storytelling and the relationships that come out of storytelling is actually more powerful than anything that advertising has because, remember, advertising tends to create, to address the individual as an individual consumer.41 (Mark Rudd)

**Online Digital (Including Social Media)**

As the analysis proceeded, “online digital” eventually became subsumed under storytelling because that seems to be its essential role—to connect people with storytelling. The actual power and importance of online digital was reiterated but debated as to how much it can actually impact social justice and social change.

I watch things like AVAZZ [global online activist group connecting millions]. I see the capacity of millions to be touched quickly and do Internet activism, press a key stroke and send something. There is something to that. (Karen K)

We've never lived in an area where we have the global communication that we have now. I think it's one of the blessings of this time and one of the keys to unlocking the gate is social media. (Bob Purdy)

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41It was at this point in the interview that Mark Rudd pointed me in the direction of an organization called storybasedstrategy.org (formerly smartmeme.org). I subsequently contacted Patrick Reinsborough for an interview.
The argument that online and social media were adjuncts and needed to be utilized to improve face-to-face and person-to-person interactions were voiced even by those whose organizations were predominantly online:

   Even if our organization excels at digital and online communications and digital storytelling—that's what my group LeadNow.ca does—what we need to constantly be thinking about is how can our digital improve our face-to-face, not how can digital replace face-to-face. (Cameron Gray)

   Face-to-face communication, hands down, is more effective to motivate, mobilize and catalyze people than are social media tools and broadcast news. (Celine Trojand)

Moreover, online strategies have their problems and misrepresentations:

   What I've found is people take what's posted on Twitter [and Facebook] at face value as being legitimate news, including major news stories, without ever going through the proper steps of triangulating, making sure that your story is rock solid. (Cameron Gray)

**Make It Appealing/Simple/Clear To People (graphics and visuals)**

Positive, simple, appealing and clear messaging was mentioned by various participants as something that social justice movements, in general, have difficulty with. In other words, creating “sticky” memes seems easier for and done better by, the opposition. In the 2013 British Columbia provincial election, the progressive party (NDP), despite a substantial lead prior to the election, lost decisively to the incumbent neoliberal party. Many of the participants commented on the need for social justice groups to relay positive messages:

   The biggest thing for me is creating a palatable positive message that is clear...this is the reason why the B.C. NDP didn't win and ultimately why more people are not involved with social movements, because this exact question is the toughest one: how to push back against the status quo that is so much easier to message, so, so much easier. (Cameron Gray)

   That's another big thing that [Greenpeace] is...incorporating, presenting information in a way that is compelling and that people process easily. What comes out of psychology is that narrative structure for information and storytelling...people will understand that and process that much more easily... (Alex Speers-Roesch)

   So I think what social justice causes can learn from [corporate messaging] is that, whether it is political parties of the left or social justice groups, we have to be able to appeal to things that are appealing for people. It's not enough to just sort of stand up and say this is wrong. (Joel Bakan)

The most obvious kind of examples of the failings of the environmental movement is communications around climate change and global warming.
‘Inconvenient truth’...facts bombarding people every day...it’s not going to be persuasive. (Celine Trojand)

Some participants noted the importance of not getting too carried away with the power of simple, repetitive messages:

350.org with Bill McKibben [has] started to put out some really simple, repetitive messages. (Michael K)

[Mike Martens] is actually responsible for the Conservative Party as it is today and he achieved that through digging down and doing the work and being really consistent and having a clear vision. There is this document...their communications director at the Manning Centre [Canadian neoconservative think tank] is a guy named Olivier Balou...and he produced a graphic book on what it means to be a conservative and it’s beautiful, it’s clear and it’s open source. If you Google it, Olivier Balou, conservatism or something, it’ll come up and you can just download it and it’s gorgeous. (Celine Trojand)

Celine also pointed out that the conservative machine has been cranking out the same message for well over 30 years. Tim Kasser remains skeptical that such “cool” messaging, regardless of how ethical, state-of-the-art and driven by social-justice concerns will be influential enough to win the battle.

Somebody sent me this very interesting set of ideas, nice graphics [etc.] for a way forward on climate change issues. He's actually a well-known individual (I won't name him) and I looked through it and it was pretty cool and interesting but, as I read it, I was [thinking] ‘well-designed graphics and PDFs don’t win campaigns’...Another research paper published doesn’t win these things and another hundred “likes” on your Facebook page or another hundred and twenty followers on your Twitter account this week, what a lot of these organizations look at, doesn’t win the [fight for social justice]. (Tim Kasser)

**Control Mythologies/Designer Memes**

The participants recognized that CIP has a fairly good understanding of the power of narrative, messaging and the “dark arts of marketing” (Celine Trojand) and utilizes all of these techniques in the development of “control mythologies.”

It's essential that our ideas are able to spread...and focus on helping people inoculate themselves against some of what we often call ‘control mythologies’ and find ways to challenge them categorically. That's the theory in our work and we are committed to being a sort of experimental organization, a laboratory of resistance, if you will. (Patrick Reinsborough)
Influencing/Changing Existing Institutions

This subcategory covers the concept of taking back institutional control, as opposed to all-out rebellion (revolution) and rebuilding from the bottom up.

I'm not suggesting that we shouldn't be involved in protest movements similar to the Occupy movement but what I am suggesting is that those kinds of actions should be connected to the ultimate goal of trying to wrest back the institutions that have been taken away from us. (Joel Bakan)

Joel Bakan was situating Occupy as a tactic within a larger strategy of reducing and removing corporate intrusions into democratic and other institutions.

It's often easier and more effective, to get somebody to change if you are targeting a corporation rather than a government. And you can often influence the government better by influencing the corporation first...so, it's not attacking the shadow, it’s going after the body of power. (Alex Speers-Roesch)

The suggestion here was to focus the application of social justice pressure directly on the corporation. The methods may differ but the goal is the same—to banish the influence of corporate power over institutional players. Politics, namely democracy, is one of those players where being savvy about the power of the corporation is a prerequisite for it to function properly.

Democracy is...a society that gives us the power and the responsibility to actually shape our conditions collectively so as individuals we can make better choices...You can't have democracy without an informed citizenry and by informed, I mean really informed. Informed about...the nature of the Corporation, what corporations are doing. (Joel Bakan)

Furthermore, according to Joel Bakan, democracy can be understood as an environmental circumstance (the condition) that allows and requires the citizenry to be informed, educated and aware (e.g., of corporate power), thereby making collectively intelligent choices possible. If the democratic environment (conditions) shifts and critical thinking wanes, decision-making falters and the environment changes. The underlying understanding here was that, better awareness, information and education (AIEd) is a prerequisite for democracy to function properly. I will explore this idea more closely in the category labeled “AIEd as a Strategy.” Mark Rudd notes what type of democracy we can hope for:

There are many interesting political experiments taking place in Latin America...however, I’ve come around to believe that about the best we can hope for is European-style social democracy. (Mark Rudd)
Influence/Create/Organize Social Movements

Many of the participants believed that creating cohesive and powerful social movements (usually VEMs based/inspired) is a necessary condition for social change and one way to achieve that is through face-to-face organizing.

Our work is premised on the idea of social movements as being a key factor in terms of making transformational change, a historical force that has shaped the world we live in...even the story of movements has been undermined, particularly here in the US, where it has been removed from collective history [memory]. (Patrick Reinsborough)

Ideally, there needs to be a movement that’s built...there is an effort to address that within Greenpeace and so more resources are going to just support other people’s activities and be supportive of trainings or supporting other people’s events, to basically support the building of a broader movement. (Alex Speers-Roesch)

One of the things that I’ve learned most about community building is to engage the willing. If they’re not willing, than just forget about it. It just takes too much to change them. Engage those who are willing to change, because [otherwise] you’re just going to beat your head against the wall. And that’s part of my thing about Harper. I don’t think he’s going to change. (Michael K)

The understanding that a cohesive movement is necessary is tempered by the difficulties that pervade the current environment. Can a movement of sufficient force rise, as Michael K suggests, by just engaging the willing? Or, must some way be found to enlist the support of at least the majority of citizens who seem intent on voting in their own collective worst interest, based on deeply-held beliefs?

Organizing – Grassroots – Community Building

I found a high level of support, led by Mark Rudd and Celine Trojand, for good ‘old-fashioned’ traditional organizing.

Already, a large majority of the population of the United States has expressed views in public opinion polls that are quite progressive. They’re not organized and so the problem, I think, is one of organization rather than people being essentially on the wrong track. (Mark Rudd)

I think that we can actually organize better than some of the other forces out there, even though it feels like the Manning Centre [Canadian conservative propaganda mill]...has a jump on us. I think that the dormant potential of the progressive movement can be activated and is activated, through personal conversations. (Celine Trojand)
Celine Trojand was committed to “face-to-face personal relationships, [sharing] stories of hope and abundance,” in order to help people stand up and shake off the endless undercurrent of “fear and inadequacy” and become more engaged in social change. Growing movements by building relationships, while “developing leadership from below,” was cited as the central element of the traditional organizing strategy. According to Mark Rudd:

I'm a big believer in the traditional organizing method which the labour and civil rights movements developed in the middle 20th century. As part of the antiwar movement, I was an heir to that tradition. I think that traditional organizing strategy has been lost, because young people don't know about it, they have not seen how it works, but I always advocate studying history; namely, the successful social and political movements of the 20th century and figuring out a strategy based on that.

Danielle Prins offered another reason why young people might not be aware of or even interested in the traditional organizing strategy:

It's very enticing to be impulsive with decisions and want to fix things right away, but it takes a lot more patience and a lot more maturity and wisdom, to sit down and look at the long-term solution...that requires a lot more work and may be why a lot of people don't want to do it. (Danielle Prins)

We live in a time where the young and young adults expect everything instantaneously. To work at something for decades, building relationships with others outside of your own tight social circle, must seem foreign, difficult and, at some level, scary. Mark Rudd, on the other hand, became involved in the civil rights movement and organizing (SDS, the acronym for Students for a Democratic Society) at Columbia University in the 1960s) because:

It was the most fun around and I enjoyed being with the other people involved in the movement. They were the coolest people around. Someday that will come back, because reality TV has a short half-life. I know it's been around about 20 years now and I think people are going to just get fed up with it. (Mark Rudd)

The participants kept coming back to the importance of expanding civil society’s (especially millennials’) level of interest, beyond the personal and self-interest preached by the corporation.

To take on, say, the global fossil fuel industry, we need to change people's conception of what is normal and what is acceptable both for their worldview and their sense of self-interest; expanding it beyond an individual or their family, expanding into the broader sense of our planetary situation but, also, what they are willing to do. (Patrick Reinsborough)
Kat Dodds concurred with the necessity to “empathize with something beyond your own self-interests” as a prerequisite for social movements and social change to occur. A number of participants brought up the Obama presidential campaign as an example of a successful face-to-face organizing model somewhat integrated with online tools. This prompted references to one of the architects of that campaign, Marshall Ganz, who has a PhD in organizing strategy and to whom I refer in the conclusion. The last word goes to Mark Rudd and Ella Jo Baker, both organizers extraordinaire.

[Charles M Payne, 1995] went and talked to everybody who was involved [in the civil rights movement] on all different sides and he [found] that it was the organizing strategies and tactics of Ms. Ella Jo Baker, who was the genius who knew that you had to have a democratic kind of organizing style that was lateral, that was very much akin to the way that women organized in rural black churches. This is much more complicated than any media [reporting] could ever capture. (Mark Rudd)

**Direct Action**

Direct action and civil disobedience are necessary strategies for social justice to make progress in North America according to the participants.

I think you need people who are willing to die on the sword...you need people who are willing to put themselves out there. (Susan Magsamen)

I always supported civil disobedience and was supportive of the idea of building social movements but it’s definitely moved up in importance in my mind...almost something that is crucial and necessary, almost a survival imperative. (Alex Speers-Roesch)

Both Danielle and Cameron have been involved in direct action in recent years and commented on the shift in media reporting on those events.

I spent all summer in Montréal and, regardless of what the media said, they were really effective in what they were doing[daily street protests spring/summer 2012] and it wasn't just students. Some people were more radical but they rallied pretty much every day for months and essentially they got what they wanted [rollback of planned University tuition hikes] from their government. (Danielle Prins)

Historically, [direct action] has been and continues to be, one of the most effective ways to garner support; recognizing that it can also can be very divisive, particularly in today’s frame from the media of how direct action is viewed. (Cameron Gray)

John Muir (founder of the Sierra Club) would have totally supported direct action to support what he cared about (Karen K)
The Sierra Club in the United States altered strategies for change by endorsing direct action in January 2013. My attempts to interview someone at the Canadian Sierra Club failed, in part, I think, because they were scrambling to decide whether to follow their American counterparts and endorse direct action as tactical option.

**Revolution/Rebellion**

The idea of revolution was a difficult and contentious issue. Some of the participants recognized that revolutions can be extremely destabilizing and violent, with long and uncertain recovery periods.

If Chris Hedges is saying that open rebellion is the only way to wrest those institutions back, I'm not sure I fully agree with that. I don't know what open rebellion means. Does that mean violent overthrow, in which case history again doesn't suggest that the results of those kinds of actions are necessarily good ones. (Joel Bakan)

I think that Chris Hedges maybe right about open rebellion; [however], it's not clear to me that the changes would be necessarily for the better ultimately. (Susan Linn)

Karen K pointed out how people can find themselves backed into a corner such that, the choices available to stop or challenge injustice become quite limited.

It [open rebellion worked] in Cochabamba [Brazil 2000]. In that country it was mass open revolt and it went on for days...the water war...when you get down to it, water is life and everybody could see that and you couldn't collect rainwater. It was a crime. It really is wrong but it's the ultimate corporate ownership of our world and that was a sign of it (Karen K).

**Marc:** At what point does the badger (Harper) start to go crazy?

**Bob Purdy.** Well, the badger...the badger’s already almost there. And how far is the badger willing to go, are they willing to pull the trigger? Because that's what they're going to have to do, if it comes down to that. First Nations are willing to pull the trigger and is the government willing to pull the trigger? They'll have to kill every First Nations member out therein order to get this [pipeline] project to go through. That's what I see. Are they prepared to do that? I don't know. I’m sure hoping not. If they are, then that's a different world than I ever envisioned.

Violence erupted in mid-October in New Brunswick, Canada, as 100 riot police on horseback with tear gas and tasers clashed with protesters trying to stop fracking and pipeline construction on their land. Six police cars were burned and 40 people were arrested (Walberg 2013). Both Mark Rudd (who has experience in blowing up things) and Danielle Prins agreed that this particular route is usually unsuccessful, as well as unsustainable for the reasons they discussed.
Civil disobedience and direct action, on the other hand, many agree is a viable, often necessary and appropriate tactic, when situated within a strategic plan.

Civil disobedience [is necessary]...There are [other] ways more radical groups [engage in by] blowing things up and all that stuff...eco-terrorism roots...It is not my thing. [However], I totally understand how people get to that, because I feel that immense frustration too. (Danielle Prins)

In my own history, I moved from being a young organizer, being steeped in the tradition of the organizing method and then moving towards self-expression, thinking the self-expression was going to build a movement. The self-expression is only self-expression. It is kind of narcissistic to believe that, because I believe something, that just the example of my acting on it is going to influence people enough that they will take action. (Mark Rudd)

**AIEd Awareness/Information/Education**

We should teach Stanley Milgram’s experiments in grade 5. (Joel Bakan)

The participants themselves, by virtue of taking part in the research project, were endorsing awareness-building and information-sharing as a strategy, by participating in a project that aimed to generate information on the brain sciences and social justice. Thus, it came as no surprise that the majority of participants felt it was important to raise awareness, provide information and educate as an important aspect of social change, all of which should begin in childhood.

Education is very powerful. (Sharna Olfman)

I advocate studying how movements were built. (Mark Rudd)

People become awakened, have epiphanies...I see it with new activists. Something turns them, they became aware, they’re no longer sheep. (Karen K)

Within that general endorsement were the caveats of: Avoiding a litany of endless negative facts without providing positives and solutions to each:

Any time I strike awareness about something, I always like to pad it with a solution, a positive solution for change to cushion that fear aspect. I know that this is probably going to freak you out because you’d never heard it before but, guess what, it’s okay. (Danielle Prins)

Constantly trying to take what we know and apply it in practice:

A lot of the work that I’ve done in the last 10 years has been to really look at ways to bridge that subliminal space between everything we know and what gets applied, which in my mind, is still incremental and not anywhere near as much as we know that could be applied. (Susan Magsamen)

Recognize when further information is debilitating and the time to act has arrived:
You know, honestly, I'm beyond needing facts about the environment. I just know fossil fuels can’t be in our future, it’s just deep within my core. Fuck it, I don't need more facts. (Michael K)

Lastly, the importance of children’s education:

Early learning is...a total public health issue. (Susan Magsamen)

We need to create curricula so that children are being educated about what's really going on in the world, so they can be activated as citizens. (Joel Bakan)

**Multiple Strategies/Tactics – Multiple Connected Groups**

Participants recognized the necessity of multiple strategies and the forging of links among disparate social justice groups to achieve social change. They certainly had preferences about which strategies/tactics might be their first choice or personal area of expertise. An overriding central strategy, one that includes disparate groups, will be examined in the discussion section.

There is a need for a diversity of tactics within any type of effective social movement and, recognizing that, I ultimately came to realize that one person cannot necessarily perform that diversity themselves, but needs to make a space and allow for other people to be involved. (Cameron Gray)

Again, the need for connection:

We are all sort of operating at these different pods...This group is trying to save the watershed, this group is trying to deal with children's media, this group is trying...So, it's disparate and lonely and it feels like political parties of the Left are no longer that reliable. (Joel Bakan)

Kat Dodds specifically talked about the interconnection of social justice groups including crossing borders and “going global” on core issues like that of oil pipelines:

The deeper connections which are being made across borders, across sectors [are necessary]. I think the oil pipelines are very symbolic because of the way they travel across these borders. So I think the [pipeline] battle is really significant. (Kat Dodds)

Joel Bakan expresses one of the central battlegrounds of capital versus labour and the possibility that a reinvigorated labour movement might help centralize resistance.

I still think that the labour movement, which is becoming much more pluralistic in its politics and democratic...I think the labour movement is key, I think that political parties are key and that's why I keep coming back to these kinds of meta-structural organizations because I believe it is through those kinds of organizations that you start to get coalition building going on. (Joel Bakan)
**VEMs – Values, Ethics and Morals**

VEM—values, ethics and morals—was a concept that permeated the interviews. It was anchored here in strategies and tactics as participants grappled with deciding where the lines might be drawn in the utilization of strategies, including those related to the brain sciences and concerns for children. It is worth remembering that VEM is essential to human flourishing. Likewise, the lack of VEMs (or distorted, manipulated and destructive VEMs) is problematic.

One of the challenges we face is how to navigate work that involves persuasion in an ethical way. (Susan Linn)

What we often say to people is ‘look, persuasion is not coercion. We’re not trying to be deliberately coercive but, if we believe in what we are saying and we have the facts to back us up, persuasion is actually a moral duty.’ (Patrick Reinsborough)

One of the challenges in social justice movements is to engage in the world, inform and persuade in as ethical a manner as possible, while the opposition has no such restrictions:

There are no ethical research principles that marketers have to abide by when doing marketing work with youngsters. (Tim Kasser)

The other piece that I think is important to focus on, is within social justice and not-for-profit work; inherently because of the nature of it being a very values and ethics-driven profession, we subscribe to a perfect-only mentality. (Cameron Gray)

Marketers actually have no ethical guidelines when working with adults either and, considering the power of advertising and the brain sciences, this must be an area of concern. Participants were concerned when these fuzzy lines of VEMs were crossed by social justice organizations.

Some of the scare tactics that I’ve seen NGOs using...that's not morally right. We shouldn’t be terrifying people but, on the other hand, does it work? (Danielle Prins)

Danielle Prins made it clear that one difficulty for activists is trying to exercise restraint and not reinforce the very values they are fighting against.

Tim Kasser, in particular, has done a lot of work on value systems and concluded that the current battle between social justice and CIP is basically a struggle for one value system over another—materialistic (extrinsic) versus humanistic (intrinsic).

When I look at that panoply of different options, which people have articulated [for social justice/social change], I see them as almost always about trying to switch from a values system focused on materialism to the value system focused on intrinsic values. (Tim Kasser)
In a new twist on values, marketers have begun to target groups belonging to different value systems in very different ways, as a tactic to gain their trust (more on this in Technology).

[Marketers look at] what sorts of argument or perspectives are more persuasive to people, based on how they’re segmented, based on their values. (Alex Speers-Roesch)

As Kat Dodds noted, children need to be encouraged to arrive at their values through experience and choice, rather than having them dictated from the top down.

Instead of teaching them [children] a moral right and wrong, teaching them that they have a moral obligation to inquire and decide around their own behavior, around their own choices. (Kat Dodds)

Celine Trojand’s comments have far-reaching ramifications for changing people’s behaviour by inquiring how they came to know what they know (their epistemology), rather than a focus on evidence and facts.

One skill that I'm really good at now, which I never used to be before, is asking people the ‘why’ question and drilling down and getting them to a point where they're actually looking at their values and how and why they got those values. (Celine Trojand)

Mark Rudd and Cameron Gray talked about the importance of VEMs in the current struggle between power and social justice and how, strategically, VEMs can motivate specific behaviours.

Most people want to avoid confrontation and they want to live their lives outside of the question of power. They're not turned on by power but, for brief periods of time, people may become so motivated around moral issues that they get off their asses and do something. That could happen again, it's happened in the past. (Mark Rudd)

The ethical line comes down to whether it’s hurting or empowering people and I know, in some ways that’s a bit of a subjective comment...but there is a difference between the work that [corporations] are doing [e.g., promoting fossil fuel consumption] and the work that an NGO is doing, even if they're potentially employing the same tactics. (Cameron Gray)

Other participants talked about how VEMs play an integral role in social justice movements, by their very nature, because of their fight for what is alleged to be ‘right.’ At the same time, Tim Kasser pointed out that one of the pitfalls of social justice movements is the disconnect between the values they advocate and their actions or behaviours.

I'm extremely critical of civil society and activist organizations that have adopted certain kinds of argumentative structures that, in my mind, activate
and encourage very wrong values, the opposite values from what need to be incurred. (Tim Kasser)

**VEMs and the Brain Sciences**

The participants were keenly aware that the brain sciences inform a whole new level of ethical issues, thus complicating decisions around which strategies to use and how.

The other thing is that brain sciences techniques, discovery, treatment and therapeutics is only escalating. So we're going to have to really look at a lot of things even more rapidly and see what goes too far, what's not acceptable. Cloning is probably a good example of what goes too far. (Susan Magsamen)

**Marc:** Are there any ethical issues integrating what we know about brain science into strategies?

**Patrick Reinsborough:** There definitely are.

**Marc:** Do you think social justice and social change should utilize whatever they can from the brain sciences?

**Susan Magsamen:** I actually think that social change groups do use that information...they're just not as good at it as the opposition but there's also some ethical issues there. I think there's the whole sort of neuro-ethics piece of this which will be debated forever. What's the boundary, what goes too far, where are you overstepping; performance-enhancing drugs certainly fall into that category.

**Children**

Three of the participants—Susan Linn, Susan Magsamen and Sharna Olfman—had significant expertise with children and childhood development. The participants in general agreed that children were, indeed, a segment of society that was not well understood and thus not really contested, by social justice. To begin with, we must envision what “contesting” childhood in its present form looks like and how to engage in this process within a set of values ethics and morals. Meanwhile, CIP is free to act, unconstrained by VEMs concerns and utilizing understandings of children and childhood development acquired from their extensive resources. Certainly, the brain sciences has some impact here, as we now know the importance of early childhood on worldview and beliefs and how those constructs are acquired.

If you look at the literature, if you really want to have the greatest impact on a person, starting young is a really good place to start. (Susan Magsamen)

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42 “Children” is used here as an inclusive term for persons between 0 – 12. Further delineations and extensions are: early childhood: babies 0 – 1; toddlers 1 – 3; young children 4 – 7; middle childhood (tweens) 8 – 12; youth 12 – 17; young adults 18 – 25.
People who come up against the entrenched worldview aspect [conclude that] ‘we’re not going to be able to shift people's beliefs, so let's get them while they're young’. It's certainly a major institutional power strategy... [And] it’s certainly an area that we need to be able to contest. (Patrick Reinsborough)

Clearly, the participants believed in the importance of early childhood and yet they acknowledged the reluctance of social justice movements to influence children to their cause.

I very rarely would, in any of the organizations that I have worked for, put that great an emphasis on how to reach out to that young of an individual... (Cameron Gray)

Susan Linn takes the issue even further when she suggested that children do not count enough in the minds of activists.

The left activists [and progressives] don't really understand children or think about children. That's a huge problem, because they don't understand how the shaping of children's minds is going to influence their issue...I mean, the activists have adopted the prevailing attitude about children in this country, which is, basically, that they don't really matter. (Susan Linn)

Susan Linn was not saying that children should be the ones to save the world. However, she and Joel Bakan were trying to impress upon progressives that there is a direct connection between how children are treated and educated in a culture (how their minds are wired by experience) and “issues of serious social activism and social criticism” (Joel Bakan). Allowing the corporate wolf into children’s public (i.e. classrooms) and private (i.e. homes) spaces, as a societal norm, is problematic in our time.

There’s the whole question of how ethical it is to push an adult agenda on the young. (Karen K)

We often get requests to speak at schools or to youth in different contexts and we don’t normally have a lot of capacity to respond. (Alex Speers-Roesch)

Some of the participants seemed understandably unsure about what “contesting” children and childhood means for social justice. On the one hand, as participants allude to above, it might mean communicating adult-like problems (problems adults created) to children in order to shape their behaviour in a progressive activist/environmentalist direction. On the other hand, considering that “all marketing to children is deceptive” (Susan Linn), it might be better to focus on a massive coordinated response to protect children from corporations whose essential motive is to reap profit from child consumers.

I'm not so sure about giving up on adults and just focusing on children. (Alex Speers-Roesch)
You know it's great to be focusing on kids, but the reality is...if you're serious enough about the timeline of change, you can't avoid full-on confrontations with certain institutional power holders that are not just in the way—they are directly trying to capture transformation. (Patrick Reinsborough)

To summarize, the two issues discussed by the participants were 1) the cruelty of children’s treatment at the hands of the corporate ‘wolf’ and 2) how and at what level does social justice intervene. Susan Linn, Sharna Olfman and other participants would argue that these are not separate issues: that the battle for social justice has to attack the institutional powers that are driving the abusive attack on childhood. To do this is not “to abandon my peers” (Celine Trojand); it is to become more aware of and responsive to the critical role childhood plays in social justice battles and to “provide the most nurturing environment that we can for children and families” (Susan Linn). Susan Linn also emphasized how corporations, by utilizing the brain sciences, have greater power to control children’s minds.

Where I am now is probably even more deeply horrified about what is happening to kids and more worried about the corporate takeover of everything and...the brain science has only heightened that. (Susan Linn)

**Young Adults 18 to 20 and Millennials(~under 35/born 1980 onwards)**

I see a real difference in that young adult generation...the issues they often care about and talk about, the emphasis on media and technology, kind of freaks me out. (Danielle Prins)

The specific interest in this small subgroup was driven by my spouse’s PhD research (Hill 2013). Her thesis, *Deconstructing the Children’s Culture Industry*, strongly indicated that this age group, born in the early 1990s, had been inundated with commercial and corporate messaging at a level never before seen in human history. Her research showed that the majority of the young adults she interviewed did not seem to be aware of the true nature of the corporation and advertisements, and their impact on their lives. The participants in my study provided significant confirmation of this finding.

They [young adults] have a much better understanding of climate change than I did when I was at that age but there's also, at the same time, an increased level of apathy and disinterest and...I don't know if it's necessarily... apathy or if it's actually disempowerment. (Cameron Gray)

Sharna Olfman described her encounter in the classroom with 18 – 20 year-olds, commenting on her difficulty reading their somewhat muted responses to her ideas. Additionally, Mark Rudd was dubious about young people and their ability to discern “reality” from fantasy in the media.
The larger group of Millennials (~35 and under, the cohort that followed generation X and was born after 1980) was depicted by Kat Dodds as a critically important constituency for social justice movements.

How do we actually take this very entrenched, self-absorbed generation and give them some sort of meaningful way to engage politically, civically; because, if we don't, we'll all just get old and die and that will be the end of it. (Kat Dodds)

Other participants indicated this was a very important generation for social justice to succeed with. Millennials, because of their tendency to equate social consciousness and civic responsibility with a narrow band of personal friends, tend to ignore issues impacting the larger society.

Brain Sciences As Strategy - “Magic Meme Wand”

Marc: Do you think there are any advantages to increasing utilization/integration of brain science into social justice, activist movements?

Susan Magsamen: Yes, and I actually think social change groups do use that information and they're just not as good at it as the opposition...there's also some ethical issues there.

There was a high level of consensus that the brain sciences needed to be integrated into social justice strategies in greater and more effective ways. What that would look like and how it could be made ethically sound were the two primary concerns. That it needs to be done, was clear.

I think you have to do it...(Kat Dodds)

You have to. (Danielle Prins)

Absolutely. (Tim Kasser)

Yes, it's a dog-eat-dog world...use it. (Michael K)

Many of the participants were quite knowledgeable about the brain sciences, much more so than I had expected. There was also an acute awareness that, in politics and economics, institutional power was integrating the brain sciences more deeply in its strategies than were social justice groups. Three reasons for this were suggested by participants: 1) the massive imbalance of resources between the groups; 2) a low standard of VEMs required by institutional power leading to the utilization of rather dubious, manipulative and coercive techniques; 3) the failure of social justice movements to fully realize the potential and necessity of employing the brain sciences in the battle for social change.
Activists don’t pay enough attention to what we know about the way psychology works, the way that the mind works and the way the brain and behaviour work. (Tim Kasser)

It seems another difficulty is centred around how, exactly, one might integrate the brain sciences operationally into strategies and tactics. Further, who is to be the translator, the consultant who might advise social justice groups in this area? This is closely followed by concerns about VEMs.

Well, no question, how to do that [operationally and ethically] is a whole other task. The brain sciences are involved in authoritarianism, why shouldn’t they be involved in social change? (Alex Speers-Roesch)

Some participants were also concerned about the tendency for social justice movements or activists to “take shortcuts where there aren’t shortcuts” and to wait for someone to come up with “magic words, magic memes, catchlines and magic bullets” that will, all of a sudden, wake everybody up and energize social justice (Patrick Reinsborough). The reality of utilizing the brain sciences is somewhat more complicated:

From an application point of view, it's understanding the sensory systems for all they do and at different ages, because different sensory systems are more powerful at different ages and stages. So it depends on creating that cocktail of the perfect social advocacy. How do you put that together by issue in a way that is extremely powerful? (Susan Magsamen)

Again, Susan Magsamen points out the need for a highly knowledgeable and engaged practitioner of social justice, one who can integrate the brain sciences into the social justice strategies and tactics. At the same time, Alex Speers-Roesch talked about the moral dilemma in using tactics known to be effective in the science of persuasion and whether in the long run could hurt one’s cause:

I'm also leery, because a lot of techniques that we are talking about were developed to get consumers to do a classic behaviour that is often very different from what activists are trying to get people to do...I worry if, by always engaging people in this sort of manipulative or subliminal way, you reduce your ability to engage with them in other ways. (Alex Speers-Roesch)

This important point (utilizing corporate tactics taken from the brain sciences) arose with other participants. Tim Kasser was wary of the values that could be reinforced by utilizing ‘brain science’ techniques. As well, Joel Bakan agreed that such techniques cross some lines that are problematic and can turn counterproductive.
Use Corporate Tactics? (All Hands on Deck)

Generally, the participants felt that adopting corporate-style advertising, media, manipulation, coercion/fear and neuromarketing techniques was problematic. They recognized that sometimes the line between acceptable and not acceptable was somewhat vague. The participants varied as to how flexible that line could be, feeling it depended on the desperation of the circumstance.

My gut reaction is that I think it’s problematic...it just starts to feel to me a little bit creepy when we start to use techniques, subliminal messaging and so on and so forth. It's a slippery slope. (Sharna Olfman)

The morality of using some of this can seem like a barrier or it’s unethical or it’s distasteful. It seems disingenuous. It doesn’t stop the other side at all so why the heck do we get caught up in it? I don't know...but it's an awkward kind of resistance. (Karen K)

I was reminded about the importance of VEMs and how they influence so many decisions within the area of social justice strategy, for better and for worse. It makes decision-making very difficult:

I don't think that the question is how much [of those corporate tactics should social justice adopt]. The question is what parts of it. So, that's a really hard question. (Susan Linn)

Yes, which parts are both effective and ethical, keeping the strategy from devolving into a negative? It is probably wise to remember that the other side is doing everything it can with greater resources.

So my answer to that is, I think playing to emotions, playing to people's beliefs, giving them a narrative that works for them, is really important for social justice work. Also the deconstructionist in me also says it’s very dangerous, because that's exactly what the other side is doing too. (Kat Dodds)

I don't think any NGO is ever going to have the kind of funding that will allow them to do that kind of research or to control people to that extent. (Tim Kasser)

The environmental movement (and other large civil society organizations) were cited by a number of respondents as examples of relatively well-funded movements that “import corporate” methods (advertising/media techniques primarily). Participants felt that, from a practical standpoint (setting ethics aside), this probably does not work, especially in the long-term. They believed that the values inherent in these are the same values that promote consumption, consumerism and the endless-growth economic model. Therefore, the very
“environment” that is to be saved becomes increasingly discounted and devalued. Second, the opposing camp, in this case the energy sector, simply ramps up a counterattack (environmental group use fear, the energy sector uses more fear/coercion/manipulation) and back and forth it goes. The ability to move civil society towards specific views has of late generally been determined by whoever has the biggest bank account—and we know who that is. Selling a bar of soap or a smartphone or the free market itself is open to cynical and manipulative techniques. Selling, or at least allowing civil society to embrace sociality, connection and empathy for other human beings is unlikely to succeed if fear and coercion are the chosen methods.

I’m intentionally using the word ‘selling,’ because you are still trying to convince someone to bring someone on side, but the reality is our strength and a lot of nonprofits have forgotten that over the past few years. (Cameron Gray)

The only way back to restorative health, I believe, is through the environment, through connection. (Bob Purdy)

Fear

Fear gets a special mention because it is an emotion that has an extraordinarily powerful impact on human behaviour. “Fear” as Frank Herbert so eloquently put it in his famous novel Dune, “is the mind killer” (Dune 1965). Over the past 30 years, media have induced fear in various ways, often for nefarious purposes. Fear, in general, affects people by shaping their predispositional positions on authoritarianism. It makes us more easily persuaded and directed by those whom we perceive as authorities. And, of course, it also restricts and restrains creative thinking, critical thinking and innovation.

We are paralyzed by fear right now. (Sharna Olfman)

From what I see, fear makes people not believe [in corporate malevolence, ACD, etc.], especially people around my age [early 20s] who don't want to hear about it [global warming effects], don't want to be aware of it because they're really scared. (Danielle Prins)

When you look at marketing, so much of it is based on fear and that’s an emotional terrain where activists have to be fighting because what industry is doing is propagating fears that serve its purposes and repressing fears that don't. (Joel Bakan)

Joel Bakan pointed out something that I also referred to in the second chapter on cultures and risk: risk is socially selected, not based on the actual threats that might exist. In the context that Joel Bakan is referring to, the social selection is created by corporations to serve a specific purpose usually one that benefits themselves. For example, child safety, which is manipulated
to sell unnecessary products and also promotes a high level of unnecessary fear, is a ubiquitous “threat,” while real threats like corporate media, ACD and junk food diets are, for the most part, ignored.

**A Note on NGOs (nongovernmental organizations/large nonprofits)**

In the last 10 years, the nonprofit sector overall is being [forced] to present results in the same kind of way as [the profit sector is] and that's really damaging for movement building. Real change does take years and years and years and years and years. (Kat Dodds)

Participants had a general distrust of NGOs, although that might be too strong a word. Disappointment in the effectiveness of NGOs is probably a more accurate term. Kat Dodds was not alone in mentioning the corporatization of parts of the nonprofit and social justice sector. Joel Bakan referenced *Protest Inc.: The Corporatization of Activism* (Dauvergne and LeBaron 2014), which argues that, political and socioeconomic changes are enhancing the power of business to actually corporatize activism, including a worldwide crackdown on dissent, a strengthening of consumerism, a privatization of daily life and a shifting of activism into business-style institutions. This, in effect, leaves the grassroots activists with an important role in pushing the anti-corporate mantra. Alex Speers-Roesch was the only participant from a large nonprofit, namely Greenpeace; he contended that Greenpeace has tried to alter course somewhat, by involving and connecting with small grassroots groups, believing this is the best way to effect real change.

I do feel there's often a criticism of the ways that Greenpeace or other NGOs go about activism and the tactics [used] or the way that the activism is done, or how the campaign is run. I do have some sympathy [with those concerns] and I think there's some effort to address that within Greenpeace and so, more resources are going just to support other people's activities and be supportive of training or supporting other people’s events to basically support the building of a broader movement. (Alex Speers-Roesch)

This idea of a broader movement seems to be gaining in popularity in activist and social-justice circles.

**Brain Sciences**

Beliefs, Behaviours, Attitudes
Conscious versus Unconscious
Choice, Intention and Free Will
Integration (brain sciences) by CIP
[Brain Science] has the potential for being very helpful now. (Susan Magsamen)

Questions on the topic of the brain sciences allowed me to delve into the participants’ understanding and opinion with regard to their own experience and knowledge base. There was a consensus among the participants that the brain sciences can be utilized to further social justice goals and, to some degree, brain sciences must be integrated into those goals. Inquiring how this might be done led to some interesting responses.

There needs to be the middleman, if you will or middle woman, the translator, the consultant whose job it is to take that brain science and help the activists to figure out how to use it. (Tim Kasser)

Yeah, it's anything goes but then it's assimilating or integrating these different techniques, beliefs and understandings about how to work...If there are new tools to use and people can understand their value...It's remembering to use them and [knowing] how. (Michael K)

I've spent a lot of time trying to understand the language of neuroscience, the language of cognitive science...what these things mean and how do they work. They're all very different languages and then you try to take that out to a general public that has a less knowledgable base, it's very hard to figure out how they fit together. (Patrick Reinsborough)

**Beliefs, Behaviours, Attitudes**

Belief, as discussed previously, does not have to be connected to reality, evidence or other aspects of the physical world apprehended through creative and critical thinking. Regardless of how one acquires beliefs (constructive, destructive, protective), changing them remains difficult. Belief is a problem in social justice, because status-quo institutions, in general, do not need to change beliefs (and, when they do, they have the power to accomplish this). For some of the participants, social justice was perceived to be about shifting consciousness and beliefs in order to alter behaviours.

On one level, yes, there is an overlap...between what we have to do and what marketers do. What an advertiser will never do, they will never make you challenge one of your cherished beliefs in order to sell you a product. That's a horrible way to sell you a product because it's very difficult to change people's cherished beliefs. On the other hand, social movements need to shift the cherished beliefs of a critical mass of society and that’s different. (Patrick Reinsborough)

Belief was perceived to be particularly destructive in many ways:

There’s a whole sector of crazy people who think all these things [e.g. ACD] are supposed to happen because they are part of the [plan] and to me that's
the example of narrative beliefs synthesizing circumstances to become weirdly dangerous self-fulfilling prophecies that are terrifying. (Kat Dodds)

He [unnamed source] works in northern defense at the Prime Minister’s Stephen Harper, Canada office. According to him, every single person in his department believes in climate change. The national northern defense wing of the PMO is a really important department because...the ice is melting and it’s going to open up the North and make it vulnerable to attack. Instead of being like, okay we should deal with this climate change thing, they’re like, well, we better be ready for when all the ice is gone and we have to defend our shore. (Celine Trojand)

Susan Linn pointed out that maintaining one’s belief is much easier than shifting or adopting another point of view:

I think the truth is much harder than belief but I don’t know that we don’t seek the truth—some people anyway.

The Seven Dwarves

The seven CEOs (the seven dwarves) of big tobacco who perjured themselves in a grand jury testimony in 1994, have always held a certain fascination for me. They are in part, why I pursued a deeper understanding of beliefs and behaviour. The question I considered and asked was: “Are these intelligent men believers or liars when they say nicotine is not addictive, nor does it cause cancer.” Although even small lies are problematic, this was an astounding “academy award-winning performance.” Psychopaths can tell lies and fake emotions exceedingly well, enough to fool almost anybody and probably even some types of detectors (Porter and Brinke 2011). So, the question was posed in a way that the participants were given a choice: “Were these CEOs believing their own rhetoric or lying (probably at a level of sub-criminal psychopathy)?”

I bet they did [believe]...We will do mental gymnastics until we somehow, in our minds, justify what we’re doing and convince ourselves very effectively that we’re doing good work. (Celine Trojand)

I have to believe that most of them know...But, there probably were some of them who believe it or delude themselves...People can bend over backwards to believe the things that they feel they need to believe, in order to do their job or to fill whatever role they think is expected of them. (Alex Speers-Roesch)

I found it interesting that the participants generally felt that the CEOs exhibited a mix of behaviours. Some CEOs did believe what they were saying, outrageous as it was; others were out-and-out lying. One other important element was the “manufacture of doubt,” whereby
companies of “scientists” produce extensive junk science on behalf of the corporate client to plant a seed of doubt, however nebulous (Michaels 2008).

A little bit of doubt goes a long way. (Kat Dodds)

Sharna Olfman opined that the seven dwarves did, in fact, believe what they were saying, because to imagine them lying, as one might observe with a psychopath, was too depressing to imagine:

Probably all of those seven dwarves had children or grandchildren and how do they sleep at night? I don't know...On some level, I hope that they really believe their own spin, because that's a little less frightening than to imagine they are that capable of engaging in such horrific behaviour.

Susan Linn’s response led to this final point:

I'm guessing that it's probably a mixture. Does that matter?

**Conscious Versus Unconscious**

I posed the following question to the participants as a means of eliciting their thoughts on conscious versus unconscious processing: “Do you think human behavior is generally driven by conscious choice or by the culturally, evolutionarily, experientially conditioned unconscious mind?” This was the first question asked under the brain science section. Participants were in general agreement that the unconscious has more of an impact on our beliefs and behaviours than is generally understood.

My understanding is that hardly any of it is driven by conscious choice. I may be wrong but that's my understanding of where we are now...We are not even aware of huge amount of things that go into the decisions we make and in our responses. So, part of what we need to strive for is to be more conscious. (Susan Linn)

The unconscious shapes a lot more of people's decision-making then I feel comfortable acknowledging and that many of us would probably like, but that's just reality and different groups have to decide what to do about it. (Patrick Reinsborough)

I bet it's 80 percent to 90 percent unconscious and the rest deliberate. (Celine Trojand)

Participants’ opinions varied as to how much of behaviour is conscious and deliberate. No one really argued that conscious deliberation did not occur and was not helpful.

I think that both of those systems are present in a human and both of them are active. Sometimes one is more active in a particular time than the other, but they're both there...There are times when our behavior is very conscious and intentional. (Tim Kasser)
I think there is a blend. (Kat Dodds)

Cameron Gray illustrated how not only are risks socially driven and selected but so is knowledge in general: what we choose to prioritize in terms of knowing and therefore, believing and acting upon, is socially driven.

I think it’s much more unconscious, our decision-making process, in that we’re in an age where we can have the empirical data for just about anything we want but, it’s a matter of which data we prioritize, which we choose and that is something that is socially driven. (Cameron Gray)

**Choice, Intention and Free Will**

This is an area of the brain sciences that can be, and often is, difficult to navigate, including for many of those advocating for social justice and social change. The realization that all our choices might not be as free as we previously understood, can, at first blush, strike those working for social change as rather disheartening or demotivating. During the course of the interviews, I began to tone down slightly the questioning around the topic of free will as I realized how cumbersome and complicated it can become. However, the participants, in large part, displayed an understanding of the limitations of human decision-making and choice-taking. At the same time, many of them expressed no doubt that change and choice-making were possible and did, indeed, occur.

**Marc:** How much of human behavior and decision-making would you classify as freely chosen or a function of free will?

**Susan Linn:** A lot less than most people think. There is an element of it but it's less than what people think.

**Michael K:** I think, honestly, we don't have a lot of choice in our life but, the ones that you do [choose] can make a big difference.

**Sharna Olfman:** Even if we’re raised in the most perfect cultural soil we would not have absolute free will but, we would have more free will than we would in a less optimal culture.

There was a general acceptance of the idea that we “make choices, but not in conditions of our own choosing,” meaning that we do not choose our parents/childhood, our political/economic system, our culture and so on. These conditions largely influence or even restrict the choices that we are able to make. Free will may exist or indeed may not; regardless, it is undeniable that the millions and millions of moments of experience prior to each choice, many millions of which we do not choose, must be carefully considered.
We don't choose what kind of economic class we are born into or religion, whether we're a minority in a majority culture—we don't choose any of that. We don't choose whether we’re being governed by corporations, Stalin, Hitler, benevolent dictators or democratic systems. We don't choose that. So, all of that is going to radically constrain and shape our choices. (Joel Bakan)

As much as I'd love to say that everything we do is free, it's not. Everything is influenced by...our environment and the people who come into our lives, the structures...(Danielle Prins)

Establishing proper conditions, especially during childhood, was a central focus for many participants:

**Sharna Olfman:** When we are raised to be hamsters on a treadmill and feel that we are forever in the state of want and need, that robs us of free will.

**Marc:** If our choices and worldview are constrained generally, from elements beyond our control, thereby influencing who we are and who we become, how do we initiate change?

**Susan Linn:** We provide the most nurturing environment that we can for children and families.

**Kat Dodds:** When I think about the activists I admire, I don't really think they have any choice. They just feel like this is the right thing to do and then, at the same time, the point is being true to those feelings of social obligation as personal obligation.

Those activists to whom Kat Dodds alludes here, generally trace their activism back to childhood. This brings up the interesting question: did they really “choose” to become activists?

Here is one idea about how we might deal with the question of free will:

If we were more aware of how little choice we have, how would that affect the way to change community or make change? I guess I could just go back to those tactics of creating those unconscious choices and then people will change if I orchestrate them all effectively...(Michael K)

Sharna Olfman eloquently answered the question, “Who has free will?”

An individual who has the cognitive capacity to be able to analyze a situation and make an independent judgment about that situation. [An individual] who is raised not to obey, but raised according to certain universally valid values and who applies those values whenever they need to make a judgment, as opposed to someone who has been taught what is right and wrong in ways that aren’t tied to human values. But not only did they have that cognitive ability...they’re also sufficiently emotionally alive to care, to care about saying ‘no’ when everyone is saying ‘yes’ or, to say ‘yes’ when everyone is saying ‘no.’ [Individuals] who care enough about others, about the world around them, to exercise their capacity for free will. So, you have to have the
cognitive ability to make a judgment and you have to have the emotional health to care. (Sharna Olfman)

This particular answer was important and revealing because, in actuality, Sharna defined the parameters within which free will can be extended or expanded upon to promote human flourishing—one must be able to think critically/cognitively, have a sense of VEMs and be emotionally intact with an ability to care about others. These abilities are presumably developed during the stage of growth and development. As Susan Magsamen pointed out, humans are capable of strong convictions; they can engage in morally sound behaviours despite encountering opposition.

Think about adults who make choices all the time, about things they believe that go against what others want them to do. I think that's a great part of the human spirit to have that ability. Can you break it? Yes. But I think it's hard to break. (Susan Magsamen)

Integration (Brain Sciences) by Corporate Institutional Power

Participants were well aware of the penchant of institutional powers for using the latest discoveries from the brain sciences.

Marc: Does the Corporation utilize findings in the brain sciences more effectively than does social justice?

Karen K: I would guarantee it.

Susan Linn: The corporate takeover of everything and the knowledge of brain science and the power of technology to invade and persuade, that and the way that the new technology is undermining...the thinking, that the tyranny is around people's thinking—that's the possibility that, there is less freedom of thought. (Susan Linn)

Patrick Reinsborough: I think you can see...a mounting sophistication and escalation by power holders on how to bring issues, manipulate information, particularly to use the power of narrative to not really legitimize their agenda, but to attack their opponents in more sophisticated ways.

Susan Magsamen: Consumer products companies are using Harvard's research to create the most addictive chip that you could possibly eat, so you can just eat the whole bag and now, that's a common [phenomenon].

According to several participants, the brain sciences were perceived to be a potent weapon in the wrong hands.

Marc: Corporate power is also using information from the brain sciences in terms of manipulating human behavior.

Susan Magsamen: For good and evil.
**Human Flourishing—Common Cause**

We can be a remarkably peaceful species and we can be mean, nasty and aggressive. We can be independently-minded and we can be social...
Evolution created an organism in humans that has lots of potential, many of which are in contradiction with each other and so, to me...the question, as an activist is: ‘Okay which of those am I going to encourage, which of those am I trying to bring to the fore, which of those potential mindsets.’ (Tim Kasser)

Tim Kasser goes on to say that people tend to prefer intrinsic value systems (goal-seeking and satisfaction are driven and achieved through personal growth, meaningful connections with others, caring, sense of community and so on, as opposed to extrinsic values driven by external primarily materialistic forces). Intrinsic values promotes human flourishing; however, civil society seems to be somewhat “out of touch” with those very positive growth oriented values.

What we really should be thinking about is what do children need and [what does] the earth need to flourish in the 21st century. (Susan Linn)

**Environment**

Early Childhood/Prenatal
Culture, Community, Relationships
Technology: Big Data (Analytics and Value-based Market Segmentation)

The role of environments, the fifth category, was a very interesting aspect of participants’ responses. It deals most with childhood environments, including the participants early experiences, but also touches on culture.

The most at risk to it [consumer culture] are children and high-needs families who are drinking the Kool-Aid and think this is what it means to be successful. Kids are...just born into it and I think they're most at risk. (Susan Magsamen)

“Drinking the Kool-Aid” is a figure of speech that refers to the 1978 Jonestown cult massacre, where over 900 people (some forced) ingested a cyanide laced drink and died. To “drink the Kool-Aid” is to believe in something that is harmful and ultimately destructive, yet seems “normal” in the prevailing environment. Susan Magsamen was saying that consumption and materialism or, the destructive extrinsic value system described by Kasser, has been normalized for most children in North America.

**Early Childhood/Prenatal**

The brain sciences have highlighted the deterministic power of early childhood environments and experience on future beliefs, worldviews, health and wellbeing. Participants
evinced a deep understanding, as well as a need to know more, concerning the importance of early childhood and its impact on worldview, personality and optimism.

I think the area of understanding how worldviews form [is] absolutely mission-critical, essential. (Patrick Reinsborough)

Early childhood is a very crucial time. (Karen K)

Family connections are really critical. (Susan Magsamen)

Sharna and Tim confirmed the difference that early attachment can make in a child’s life and subsequently on the world around them.

One parent who makes the decision to raise her children in ways that reflect our understanding of the formation of attachment and...one parent who makes the decision to keep her children as sheltered as possible from media influences and make sure that her children are playing outdoors and playing creatively. That one parent is making a powerful difference. (Sharna Olfman)

We know, from attachment research [that] the attachment style is formed in the first year-and-a-half to two years of life and [thereafter] is going to largely persist. (Tim Kasser)

Within North American culture, to do what’s best for children, to stop them from becoming brainwashed by a steady diet of “Kool-Aid,” is an ongoing struggle.

Just the socio-economics of America...I mean you are just producing children who are broken or potentially broken. (Karen K)

It’s increasingly difficult to even preserve those first few years of life and children's values and children's nervous systems, when all aspects of development are in rapid formation...that’s a problem. (Sharna Olfman)

The capacity for some children to survive difficult early environments and become well-adjusted adults was discussed by Kat Dodds and Karen K:

I think the start people have in life is really important; [however,] I've seen too many people overcome real shit and I've seen people with every opportunity fuck it all up. So, that's just observing around me, that's not a scientific analysis. (Kat Dodds)

You could [improve childhood outcomes] both ways. You could try to change the culture. You can also try to figure out why some children come through the maelstrom and are reasonably adjusted. (Karen K)

Participants’ Childhoods

Many participants could trace their activism back to childhood.

I was radicalized at a very young age...“well, we have this great strategy, it’s called mutually-assured destruction”...that's insane. So, I grew up with the sense that something is deeply wrong in the world. It has been a struggle all
my life. I started identifying as a revolutionary when I was about 11 and, you know, I haven’t been terribly effective. (Patrick Reinsborough)

I was told to deeply question everything from a very early age, which is probably why I’m the way I am now...My father was a conscientious objector during World War II and spent those years in an internment camp in Kanasakis...He was fascinated by the brain sciences and by psychology. He was curious to the end of his life and was always willing to question establishments. (Kat Dodds)

My own experience was that I was the child of immigrants and, being a child of immigrants, I was not fully integrated into American life. I did not identify as a hundred-percent complete American because there was always us and them and so, being somewhat of an outsider, I could be more critical. (Mark Rudd)

My parents were very much activists, so, those kinds of things were present from a very young age...It’s just always been present for me. (Alex Speers-Roesch)

My parents grew up in southern Ontario, smuggling draft dodgers across the border at Windsor...They moved out west [where] I learned politics on the back of a tractor from draft dodgers and back-to-the-landers and farmers and Mennonites. So, I always had this sense of social justice and that some people were marginalized in the world. (Celine Trojand)

Questioning, critical thinking and progressive parents were all factors that contributed to these five participants becoming activists. The struggle of being an activist that Patrick, in particular, articulated applied to other participants as well; furthermore, these struggles and difficulties were reported to be intensifying in the 21st century. Karen K also talked to me about the difficulty of carrying on her activism in the present, after a lifetime of social justice causes.

I got my [social justice] conviction as a child, about how I think about animals and about the world and it was clear from about [age] nine. (Karen K)

A lot of it [activist social justice tendencies] is childhood...My dad is an Anglican priest and my mom an occupational therapist, so both [were] very involved socially within their community. Their work was something that impacted us and [our] family values were very much rooted in social justice. (Cameron Gray)

Then there are those who just seemed to land in social justice work as an inevitable professional direction, as did Tim Kasser. As a psychology professor, he made a point of deconstructing American Corporate Capitalism (ACC) and other related areas areas of vital interest to activism and social justice.
When I started this 20 years ago, I was just some psychology person who was going to be a professor and had no real thought of engaging with activists. (Tim Kasser)

Culture, Community, Relationships

Culture, in the participants’ eyes, was seen to be vitally important to human flourishing and the future of humanity. However, cultures in toto were thought to be under increasing pressure by the modern corporate world.

So, if you think about how culture is disseminated; oftentimes, through storytelling, parents tell their children stories and embedded in those stories are the beliefs, histories, rituals and the values of that culture. So, who is the storyteller, global storyteller? Disney and other media are the storytellers and so, increasingly, we have a corporate culture that’s very problematic. (Sharna Olfman)

Another way of [thinking about authoritarianism] is that it controls the norms and is kind of a cultural hegemony and a hegemony can occur where people don’t experience it as authoritarian. I think that's one of the sneakiest things about ACC [American Corporate Capitalism]. (Tim Kasser)

The participants pointed out that we naturally (unconsciously) internalize our culture and whatever messages and norms predominate in that culture were believed to predominate in many of us. Again, we drink the Kool-Aid because there does not seem to be anything else to drink. However, some of the participants believed that noncorporate culture exists, has sway in the world and can expand.

Culture for children starts in their homes and then it builds. International corporations have reach; Disney and the consumer products companies, media, because it's ubiquitous, but cultures are still very powerful. Individual cultures, country cultures, family cultures, communities, neighborhoods are still very powerful, the most powerful in a child's sphere of influence. (Susan Magsamen)

As the amount of energy that goes into conditioning our children to be consumers starts to be taken away...there's really an opportunity for people to create more humane cultures. (Patrick Reinsborough)

Participants believed culture and community to be significant areas of conflict and argued that social justice could eventually overcome CIP:

They're probably not as smart as you and me and they have immediate goals and they get people to buy a lot, but that's easy. I actually think that I'll put my money with the Ella Joe Bakers of the world, because that’s community. (Mark Rudd)
We are an organization that is committed to fundamental, transformational changes in the dominant culture. (Patrick Reinsborough)

**Connected (Cooperative, Collective, Reality-Based, Constructive)**

Throughout the interviews, directly and indirectly, participants endorsed the importance of being social, of being able to think beyond unenlightened self-interest in order to connect and cooperate:

Fear can be a behaviour-motivating factor. It doesn't work very well for sustained behaviour changes and certain ideas and I think it's because we are actually equally driven by pleasure, by feelings of connection. (Kat Dodds)

If you've got a bully who is trying to control you, how do you deal with that situation? So, one way is to resist it, most people don't have the courage to resist a bully...I think the answer lies in cooperation [within social justice]. (Bob Purdy)

Mark Rudd described American culture as “a culture of complete and total individualism.” To shake off the culture of individualism is to understand that:

we are really all in this together...The idea of corporations controlling or trying to control land use, a.k.a these pipelines, is both symbolic and really an insult to the fact [that they have no right to it]. It is this notion that they have the right to own anything, which has not been legally decided. (Kat Dodds)

My life literally depended on sharing things and I understood that really young. (Celine Trojand)

One other important “connection” mentioned by various participants was our connection to nature and how this connection has been severed for many people by the double whammy of digital technology and corporate power.

What's happened, especially in today's society, is we have become so insulated from the natural world that we become disconnected and, the turnaround, the turning point, is going to come when we start connecting. (Bob Purdy)

I think part of it is that they[civil society] are not thinking and they're cut off from nature. It's not personal, it's not meaningful to them, but part of it is fear, abject terror...How can you even begin to think about something that is that terrifying—that the world as we know it is going to potentially come to an end, if not in your lifetime, then in your children's lifetime or your grandchildren's lifetime. (Sharna Olfman)

**Technology – Big Data (Analytics and Values-Based Market Segmentation)**

Brain science technologies and digital and computer technologies have clearly arrived in the marketing and academic worlds through “big data,” analytics (e.g., values-based market
segmentation) and, likely, other systems and processes that we have no idea about. Until recently, the National Security Agency’s high level of surveillance and data-gathering on unknowing American and global citizens was completely unknown.

Certainly scary are the advances in technology in terms of both marketing, public relations and surveillance. (Susan Linn)

Fighting, oftentimes, is a kind of David-versus-Goliath struggle of community organizing versus the public relations wing of a multinational corporation. (Patrick Reinsborough)

Marc: Snowden revealed that the NSA...[is illegally gathering data on citizens on a large scale]

Alex Speers-Roesch: They [the NSA] are listening to us right now.

The participants were well aware of the double-edged sword of technological “advancements.”

The intrusiveness of advertising as a first wave of technologies...mounting a wave of a psychological arms race of controlling coercion and then a lot of those [more advanced] techniques...get rolled out in more militarized ways in terms of traditional information warfare. (Patrick Reinsborough)

Target [corporation] uses data and analytics to discern when women are pregnant and then hit them with a barrage of advertisements convincing them that Target is the place to go for all your baby needs. They recognize that there are a couple of stages in folks’ lives, where their patterns change, like when they're super young, getting married and, it's sort of like this window of opportunity for messages and stories and marketing to re-set a lot of those patterns. (Celine Trojand)

I’m all for using that data and those analytics to reverse this tailspin that we’ve gone down culturally, feeding into fear and inadequacy. (Kat Dodds)

Greenpeace just started to incorporate or tried to incorporate VBS, values-based audience[market] segmentation...It’s a very specific audience segmentation based on marketing techniques and advertising techniques developed by advertising firms and companies that were trying to get people to consume more. So, it’s an experiment within the organization to see how it can be used and if it can be used for good. (Alex Speers-Roesch)

Whether or not VBMS can be used for good, reminds me of the reticence of some of the participants to utilize corporate tactics, especially when it comes to advertising and marketing techniques that indirectly promote the materialistic values that social justice activists oppose.

Then again, maybe it is “all hands on deck.”
Values-based Market Segmentation (VBMS)

VBMS involves identifying and stratifying your target market into value-based segments, then approaching each segment with a fine-tuned sales pitch based on those values:

[VBMS] is also about what segment you fall in, what sort of arguments or things motivate you or, what perspectives are more persuasive to people based on how they’re segmented, based on their values. Personally, I am skeptical. (Alex Speers-Roesch)

The Obama administration did some interesting work in the last election related to big data, understanding data and patterns and constituencies and being able to target what motivates different people to act. (Susan Magsamen)

This seems to me a very clever way of bypassing the values war (Veme war). You get to keep your values, whether good, bad or indifferent, but you are still manipulated/coerced by high-powered advertising techniques that gain even greater power by tweaking your value system. Celine points out why:

Stephen Taylor. He's the executive director of the National Citizens Coalition, which is the scariest third-party [free market/conservative] group ever. They do all the anti-Palestinian, very sensational kind of propaganda ads and stuff like that. They are terrifying. I mean, he reads all the same stuff I do. He can sit down and talk about brain science and the latest information on how people make decisions based on values or moral foundations.(Celine Trojand)

There is a much more focused understanding of audience and market segmentation and one of the challenges that we often face is that, particularly in the United States, a lot of the basic intellectual concepts necessary for human liberation and transformation have been removed from the political discourse quite deliberately. (Patrick Reinsborough)

These participants were pointing out that, not only is institutional power doing a good job of setting the VEM bar extremely low and materialistic, but also such authorities are increasingly manipulating any value system in highly technical ways.

Discussion

This section is preceded by a short introduction, followed by a summation of each major category and finally the results in toto, formed into a kind of preliminary map of social justice. As I read over the results, myriad connections to the first two chapters emerged and concepts that I presented there are woven throughout the results.

First, some observations about the participants themselves. Considering the differences in age and gender, the cohesiveness of the participant cohort is formidable. Although there are
some relatively minor differences in opinion (e.g., degree of unconscious control, social media efficacy), the results form a fairly uniform worldview and indicate that, activism, in general, does have the potential to unify. However, the disjointedness of social justice movements was pointed out as a problem in need of a solution. Although there were underlying hints of despair and desperation at times (a rational response to the current situation), there was no indication that any participant was “burned-out” or willing to “give up.” If so, it did not come across in the interviews. There was a sense of urgency that contributed to the “time squeezed” aspect that many participants displayed. I think this is primarily due to the current and impending effects of ACD and, secondarily, the ongoing loss of ground to CIP. Time is short.

Four concepts come through strongly and, in some cases, quite surprisingly. Although there was some expectation, from what I actually knew about the participants, that the “free market” ideology and the corporation would be identified as the “problem,” the degree of consensus and strong language used to confirm this was comforting. The “steamroller” of neoliberal authoritarian economics is widely known and increasingly becoming part of any social justice strategy. The frequent references to the power of story, narrative and myth, were a complete surprise. This is actually a positive and important trend, one that balances the overwhelming evidence and facts with more constructive and understandable stories. Participants acknowledged that “truth” alone would not win the battle but must be part of the social-justice equation anyway. The brain sciences themselves are recognized as vitally important and as already utilized by the other side. Most importantly, there is a need for some individual or group to assist in integrating the brain sciences more fully with social justice tactics. It is possible that participants’ hope for the brain sciences was driven partly by the simple fact that nothing else has worked to this point. Finally, VEMs, were again frequent and possibly the most important aspect of the research. The participants believed in society, in people choosing cooperation and fairness over individuality and greed, given the right environment.

**Corporate Institutional Power and Winning/Losing**

The participants all, to some extent, agreed that the core struggle is not primarily against governments or crooked individuals, although these remain accountable. Rather, it is against corporate power itself and its attendant ideology. These sentiments were reinforced by the language participants used to describe CIP—“Corporate society,” “elites” (as a pejorative), “sociopaths,” “oligarchs,” “changing the rules,” “failed capitalism,” “evil,” “greed,” “barbarian”—
all described a brick wall of authoritarian power, immovable and unchanging. Many other activists are also aware of the common impediments to social change, including Adbusters magazine (which started the Occupy movement):

The other tactic we noticed working on the streets of Istanbul and São Paulo is that protesters are finally not just targeting sites and symbols of government power but corporate shops, signs, logos and ATMs. This heralds a strategic awakening among protesters about what really drives our current global system, that it’s not so much the governments but the transnational megacorporations with their private armies of lawyers and lobbyists that actually call the policy shots and get governments to dance to their tune. *The lesson for the future is obvious: redirect your rage!* (Adbusters tactical communiqué, August 2013)

Put simply, the task is to redirect your rage against transnational megacorporations and take back the political and economic institutions that have been stolen from us. Apple Corporation made $10 billion in profit in the first quarter of 2014 to stack on their enormous pile of cash which currently (23 April 2014) stands at $150 billion—how can they not rig the game in their favour? Exxon Corporation spent $42.5 billion in 2013 seeking more fossil fuels to burn and hasten our collective demise. The most powerful institution of our time has the values, ethics and morals of the psychopath and colossal power over cultures, institutions and civil society (Bakan 2004). The corporation is not our friend and will not restrain itself of its own. One must think that at least some of those at the top are secretly hoping that somebody forces them to stop. However, CIP is, at times, not that smart, pushing ACD to insurmountable levels that will in turn destroy it. It is pushing income inequality to levels at which more and more people will come to hate them and believe them to be completely unethical and immoral, possibly culminating in a social movement driven by moral outrage. The “strategic awakening” of targeting the root cause (CIP) is even now becoming part of a new mythology—the meta-meme that needs to spread throughout social justice movements and into civil society. The participants were all involved, to some degree, in pushing forward that process of awakening through narrative and myth.

The participants were well aware that this is a pivotal moment in human history; human beings and culture itself stand precariously gazing over the edge, at a place we have never been. This is, in part, what drives the activists narrowing focus on the corporate state, as it should be. Their level of commitment, optimism and perseverance—“I’m just not going to give up, I can’t”— in the face of what seem overwhelming odds, should give us all hope. It should also
remind us of the importance of environments and early childhood as most of these participants became activists at a young age.

The battles are great—this is one of the greatest in our short 200,000 years of evolutionary history. The participants are probably right: the current struggle is long and things may get worse before they get better...“but, on the other hand, there will be big changes.” We are going to have to muster all we know about brains, minds, consciousness, culture and the power of narrative to succeed. One thing remains clear: “It’s not over yet.”

**Strategies and Tactics**

The strategies and tactics discussed here are not yet a result of an integration of the brain sciences (chapter five). However, some of the strategy and tactics here are reinforced, supported and may be extended, utilizing the brain sciences. By “strategy,” I am referring to a conceptual plan that most effectively uses available resources for a desired outcome. The desired outcome or goal is to wake up civil society, depower CIP and retake control of institutions and cultures in time to save us from extinction. Strategies to do that will begin to be discussed here. Tactics, then, are the action element driven by the strategy and can further evolve as circumstances arise and opportunities present themselves.

The necessity for a unified strategy among activists (regardless of their particular focus e.g., childhood, the environment, poverty, animal welfare) or something approaching that ideal, is driven by three factors. First, as Susan Magsamen pointed out and other participants alluded to, CIP is the Goliath in this David-and-Goliath battle, with exponentially more power and firepower. There is, therefore, a need to “out-strategize” it with fewer resources, as David did. Second, “underdog strategies are hard” (Gladwell 2013:32) and often difficult and taxing to carry out, so it is important to have as many people and groups participating in unison as possible. Third, participants pointed out, the “story” disseminated by the hypercapitalist state is quite simple and direct; even more importantly, it is global—individual greed is good, consumption is equated with happiness. Knocking the corporate dragon off the mountains of gold and regaining control of key institutions, poses the activists’ greatest challenge. The difficulties of achieving a common global strategy for social justice are significant. Some participants preferred to attack institutional power itself, as opposed to individual corporations or individual plutocrats. Others preferred not to divide the battle into an us-versus-them scenario. Currently, many activists are targeting specific neoliberal plutocrats (e.g., Glenn Greenwald’s attack on the infamous Koch brothers) and specific corporate transgressors, thus
making it predominantly an us-versus-them battle. These seem to be more tactical decisions to me and multiple tactics are needed. Whether or not they are strongly or weakly reinforced by an overall strategic mandate and, in what ways they are most effectively carried out, remains to be seen. Regardless, they are not insurmountable differences.

Myth, as we know, is not a lie. In its best forms, it represents the essential morality and science of a culture or society at a given point in time. Myth is a type of elemental story that overtly or even covertly, tells us something about who we are and how we can advance our personal growth. Sometimes, old myths, built on old moralities and ancient science, refuse to die and become a tool for manipulation and dominance. Much of this nonsense is even ingrained in cultures as “common sense,” such as hitting children, degrading women and, ‘more is better’ and ‘my genes made me do it.’ The participants made it crystal-clear that there is a need not only to utilize narrative but also to clarify it, telling the story and reinforcing the memes (and vemes) that represent the developing mythology of our time. Mythology, as a narrative/story/idea, is one important strategic aspect with multiple “tactical” possibilities and applications in the battleground of social justice.

Some, not all, of the participants looked quite favourably upon online digital and social media. It should be noted, however, that all participants felt technology played a role in social movements by enhancing the ability to share narratives among millions of people almost instantaneously. The use of digital media/social media was also closely connected with utilizing more appealing messages, simple to understand with catchy graphics and visuals. Again, this is a tactical application of narrative and some participants felt that electronic media had certain limitations and caveats. Tim Kasser, for example, felt that, at times the utilization of digital media reinforced the status quo, sometimes inadvertently. This touches upon my argument at the beginning of the thesis regarding how digital and electronic media seem to favour CIP goals and behaviours. Marshall McLuhan’s (1964) famed adage, “the medium is the message,” was meant to convey the difficulty of using a digital medium without being influenced by it in ways beyond the content. In the case of young children, McLuhan’s concerns are particularly insightful. Exposing baby and toddler brains to digital screen media wires the mind in specific ways that interfere negatively with child development; some content is worse than others, but it is the medium itself that is problematic. Joshua Meyrowitz (1985) demonstrated the powerful effects of the electronic media environment on behaviour: “Electronic media affect us, then, not primarily through their content, but by changing the ‘situational geography’ of social life”
Meyrowitz was somewhat ambivalent about the positive and negative effects of electronic media, at both individual and cultural levels. However, he argued that ignoring the effects altogether was a serious mistake. Finally, Nicholas Carr (2010) connected the perils of exposing oneself and one’s brain to an environment infused with electronic media. Environmental change, therefore, does not just change our behaviour based on the new situation. It rewrites the mind itself and affects future behaviours, regardless of the situation. We note in chapter one that, the brain has not changed in 50,000 years; yet, the mind has evolved culturally, re-deploying its resources in ways largely determined by environmental circumstance. Carr concluded that we are experiencing a loss of self and an inability to connect to other people: what it is to be human and to flourish wanes as we languish in “the shallows.” The environment is both the situationual circumstance that enables and empowers some behaviours and the means of wiring the mind to behave and believe within certain parameters regardless of the situation.

The findings contained clear hopeful messages. Of course, CIP knows all about this messaging power and demonstrated that clearly in the 2013 British Columbia provincial election that Cameron Gray referred to. The only message presented by the “status quo” (neo)Liberals was “debt-free BC.” The underlying proviso is that the only way to become debt-free is to allow fracking and pipelines, as well as exporting oil and coal to China from new superports and buttressing other corporate “freedoms” that create jobs. It is worth mentioning that there is a grain of truth to this neoliberal ‘story’ and that small grain of truth (jobs will be created) is all that is needed for it to become a sticky meme. As Joel Bakan describes, hegemonic systems of power often exploit what we now know are inherent tendencies of the human mind:

If you go back and read Gramsci on the notion of hegemony, what he’ll say is that these ideas work, dominant ideas work, when they have a grain of truth to them. (Joel Bakan)

Unfortunately, one of those “tendencies of minds” is not to be truth seeking, to be swayed by repetition and belief-centred realism. Truth, as we know, is mostly irrelevant and certainly uncomfortable. The deeper truth in this case is that BC gets a small amount of money and a few jobs, while the corporation extracts the bulk of the wealth, externalizing all the costs that it possibly can. For example, the fallout of environmental degradation hammers the last spike in ACD, leaving civil society once again with the bill.

Institutions count. Institutional control is worth fighting for. That is the message both from my investigation of institutions, culture and risk and, from the research. Wrestling back institutional power (political and economic) from the control of the wealthy few is necessary in
order for social change and social justice to move ahead. Not only do current institutions convince us to be fearful of risks that are in fact minimal and to ignore risks (such as ACD) that are maximal, they also manipulate an increasing tendency to be “easily led.” This tendency harks back to my discussion of cultural evolution and the switch from CE 1 – Imitate\textsuperscript{Innovate} to CE 2 – Copy\textsuperscript{Follow} whereby, culturally, we are drifting towards thinking less and copying more. The participants pointed out the necessity of a Vemes-inspired inclusive social movement to regain institutional control and shift civil society and global culture in a direction that promotes human flourishing. Some participants argued that organizing civil society depends on face-to-face communication with some additional integration of social networking. Mark Rudd cited Marshall Ganz, who has a PhD in organizing and was regarded as the epitome of a master organizer:

So, in my experience in organizing, it was also all within narrative. And so we kind of knew that narrative stories mattered. And they mattered to the heart. And they weren’t the whole story. The whole story, so to speak. The strategy mattered, structure mattered but, narrative mattered, the motivation, the courage. (Ganz 2013)

In this segment, Ganz was connecting the concept of narrative with the organizing process. A good story is not all that is needed for successful organizing; however, it is a necessary component that provides for the activation of vemes (moral outrage) driving motivation and the courage to act. This connects to the idea of social movements being ignited by collective moral outrage over ongoing injustice, a theme that was repeated throughout the interviews.

The only effective tool for change will come through movements such as those that stand in direct opposition to state power and seek through the sheer force of numbers and civil disobedience to discredit and weaken the corporate state. (Hedges 2011)

The participants are, broadly speaking, in support of the civil disobedience suggested by Hedges above. Direct action and civil disobedience appeared frequently in the interviews and were seen as necessities for achieving social justice in institutionally corrupted systems. The entrenched systems influencing and co-opting institutions and those plutocrats and oligarchs at the top, respond to nothing less than extreme pressure. Part of CIP’s inability to change might be attributed to the level of sub-criminal psychopathy at the top but, I think it relates even more to the concept of “belief-centred realism” presented in chapter one. Deeply-held beliefs about the efficacy of neoclassical economics bolstered by obscene wealth and extensive power are almost impossible to deal with rationally and ethically. It is highly likely that the majority of plutocrats
and oligarchs will not change their beliefs, certainly not based on critical thinking and evidence. Likewise, it is a virtual certainty that the disembodied psychopathic nature of the modern transnational corporation will not change easily. At this point, there seems no alternative but to utilize direct action, as much as possible, to slow the corporate takeover of everything and attempt to wake up civil society. Tactical direct action needs to be informed in large part by an overarching strategy in the larger battle for social justice. Revolution/rebellion, although recognized as a last resort, yields the least certain outcomes and the most violence. It is unclear whether even rebellion would work against the massive arsenals and cash stockpiles of the corporate state. A badger backed into a corner becomes extremely violent and unpredictable.

Although participants expressed their conviction that awareness, information and education (AIEd) are absolutely necessary for social justice, this can be a double-edged sword. As Michael K pointed out, there is already enough information on ACD: it is time to act. Too much AIEd can not only be debilitating and distracting but also, in the wrong hands (CIP), exceedingly destructive. Universities are a good example of too much information contributing very little, considering their vaunted position within North American society. Many, if not most universities, have already “pimped” themselves out to the corporation forming a “military–industrial–academic complex” (Giroux 2007). This brings up a strategic question of whether or not to attack the university directly, remain focused on the root cause (CIP) or, do both. On the other hand, too little AIEd is debilitating and, in the wrong hands, extremely damaging. As someone who has been a teacher over the years (early childhood education, elementary/high school, adult education), I realize the importance of education. But, I also recognize its limitations and institutional constraints. Going back to the first two chapters of this dissertation, early childhood and our lived experiences (educational and otherwise) are critically important and have to be part of any social justice strategy. I will get back to this in the “children” subcategory.

The participants recommended a diversity of tactics and some type of overriding strategy with CIP at the core. Yes, connection and cooperation among the millions of small and large committed social justice groups are essential, as are common strategic elements. The labour movement was recognized as one movement that might make numerous connections among different groups. The question of an overall cohesive strategy remains. It relates to the need for a global cultural shift incorporating a Vemes and science-based mythology that promotes human flourishing. Strategy may arise as a response to the new mythology or, alternatively, a global
strategy could arise and drive the new mythology or global culture. The goal or outcome of that strategy does not seem to be in doubt; that is, the removal of CIP from its controlling position of cultures and institutions in society.

**VEMs**

Values, ethics and morals (VEMs) were ever-present in the content of the results. To clarify, CIP seems unconcerned with morality as it pertains to strategic and tactical moves for enhancing wealth and power. This puts pressure on social justice movements to refrain from strategies, tactics and targets that mimic the corporation’s strategies. The result is akin to fighting someone bigger and stronger with one hand tied behind your back. The temptation is to free the hand and fight back more capably. Yet, many participants expressed ethical unease about using corporate-style tactics, while others argued that doing so was counterproductive to long-term social change. Alternatively, some believed the ethical concerns were overblown and it was time to employ any and all tactics that work in an “all hands on deck” effort. The environmental movement is often mentioned as an example of a failed experiment in the utilization of corporate tactics, including fear. However, the ongoing debate about “usable” gray-area tactics remains salient and, especially with regard to the brain sciences, unresolved. The pace of change in the brain sciences and the corporate influence in that area will probably give CIP even more questionable tactics to use, leaving social justice stuck with that hand tied behind its back. What did seem resolved for the participants was the more general picture of what a value-based, ethical and moral society or culture should look like. The participants favoured a socially democratic society, one cognizant of the intrinsic values that human beings and other planetary inhabitants need to flourish.

The higher VEMs standards to which activists often hold themselves, were illustrated recently by Susan Linn’s nonprofit Campaign for a Commercial Free Childhood (CCFC). They were awarded a $290,000 settlement (which represents 90 percent of their 2013 budget) as part of a class-action lawsuit against Facebook (Linn and Golin 2014). Upon closer inspection, CCFC and other experts, realized that the settlement was worse than none at all, because it was “largely illusory and it will actually undermine future efforts to protect minors on Facebook.” CCFC refused the money, opposed the settlement and appealed to the court to negotiate a settlement that actually protected minors. This example also illustrates the financial power of megacorporations that are able to spend lavishly to block all change and continue doing business
as usual. No advocacy organization has ever refused a settlement like this, on behalf of children, to make clear ongoing corporate malfeasance.

The “confusion” about morality that CIP manipulates is nothing but a thinly veiled ignorance of what science understands about human well-being and human flourishing. Regardless of moral conundrums, 85 oligarchs holding wealth equal to that of 3.5 billion people, allowing unfettered corporate access to children and ramping up fossil-fuel burning is morally reprehensible. People’s lives become difficult and unrewarding and societies and cultures collapse. That is why hypercapitalism is wrong: it hurts us individually and collectively. The ‘better angels’ of our nature prod us toward the intrinsic values of personal growth, connection and trust. Together with our more recently developed abilities for critical thinking and rationality, they are key to human flourishing. Aggression, greed and selfishness are also ever-present in human cultures and play a part in humanity’s long march to modernity. But they obviously should no longer be the leaders of the band—we know better, now, how to interrupt such negative tendencies.

Most of the participants felt that progressives and the left have ill-understood the importance of childhood and this missed understanding means that childhood has been turned over to corporate power. Thus, on one hand there is CIP molding and influencing childhood over the past 25 years (unethical), while activists and social justice movements have remained largely passive (unethical). There are many reasons and excuses for this. For example, the often-repeated but nonsensical meme that young children can adapt and “become media literate” and, can therefore, navigate corporate advertising and brainwashing, remains very popular. The brain sciences have highlighted the importance of early childhood, making the last 25 years seem even more disastrous and ill-advised. The participants clearly want to engage more profoundly in the battle for children’s minds, while maintaining the focus on immediate change for adults. Ultimately, the culture must change in order for children’s minds to develop, free of the mind-numbing conformity of increasingly corporatized North American and global culture.

How do we motivate people based on where they’re at now to meaningfully engage, civically, around the social good...because that’s what it comes down to: whether you have any concept of the social good versus your own interests. (Kat Dodds)

Kat Dodds in particular, was adamant about the importance of conceptualizing and promoting the social good, while minimizing the self-interest meme propagated by CIP. The corporate ethos of individuality and narcissism has sunk deeply into the average citizen and thus, the
greater culture. As well, serious misunderstandings about the state of capitalism and the corporation are rampant (Hill 2013).

The participants fully endorsed utilizing the brain sciences as a strategy/tactic in the movement for social justice. What exactly this will look like, both practically and ethically, remains to be seen. Social-justice activists have already begun to use the brain sciences in some forms, according to Patrick Reinsborough and Susan Magsamen, but not to the extent possible and/or necessary.

**Brain Sciences**

The most pressing need emphasized by participants is for someone to take on the task of translating, integrating, assimilating and understanding the language of the brain sciences, in order to put it to the most effective possible use for social justice. Many of the participants assisted with this research project because of their hope that the brain sciences could benefit social justice in general and, possibly, their particular cause. The participants’ comments on belief, behaviours and attitudes reflected much of what is currently known in the brain sciences, as discussed in chapter one. Participants’ understanding that belief is not necessarily related to facts, evidence or what we know of reality in the natural world, derives in part from their recognition of these facts in their everyday struggles for social justice. Arguing with people about beliefs such as, “ACD is just a hoax,” “We can all be rich if we work hard enough,” “Children can be media savvy,” is to experience and understand some important features of the brain sciences. Celine Trojand’s example of a related belief phenomenon (quoted on page 151), illustrates the ability of governments to hold two diametrically opposing beliefs at the same time. The office of the Prime Minister of Canada and the Prime Minister, Stephen Harper, basically deny ACD. This type of inconsistency and subsequent rationalization (lies and subterfuge) reminds us of the inability of institutions to identify major risks while actively misleading the civil society to which they are supposedly accountable.

Although the participants varied in their beliefs about the degree to which the unconscious influences and directs human behaviour, there was general agreement with the ideas presented in chapter one that the unconscious is extremely powerful (and hidden) in much of our decision-making process. How to deal with that news in a positive and constructive way, so it does not become debilitating or demotivating, was a concern. The participants were not prepared to negate free will but conceded that, at times, free will is anything but “free.” There was general agreement that changing the conditions, environment and culture in which
people live, enables the unconscious, conscious and critical-thinking faculties of mind to make choices that are more consistent with human flourishing and, in a sense, more free. Improved conditions have positive effects on adults and have always been critically important for the young.

The difficulty will be—back to how this ties into the brain science—how do we motivate the younger generation, who is ever so eager to get involved...into thinking about what does it mean to have an affinity across generations, outside of the group I happen to be in with right now. (Kat Dodds)

The veme of social connection, of caring about people outside a narrow circle, was important to the participants. Not only does a person need the cognitive ability for critical thinking, for practicing science in the broad sense, in order to make independent “free” judgments, they must also have the emotional health (notably for others) to care about those choices and their impact on the wider world. This again refers to the veme war (cooperative, critical thinking, social and community) versus (individualistic, extractive, exploitive, ‘Ayn Randian,’ belief-based, self-interested).

Participants expressed a deep underlying concern that the mounting sophistication with which power holders “legitimize” their story through the brain sciences and other technologies, while minimizing and delegitimizing their opponents was increasingly obstructing solutions to current problems. Hence, there was general agreement that the brain sciences should be integrated into both strategies and tactics.

Environment

Some participants—especially Susan Linn, Joel Bakan, Susan Magsamen and Sharna Olfman, who have all published about and taught on the subject of childhood—reinforced the critical nature of early-childhood environments and environments in general, for human flourishing. Both Karen K (below) and Kat Dodds mentioned the “outliers” and wondered about the seeming elusive factors that allow some people to come through the maelstrom of dysfunctional environments intact.

Some people go through the worst life and come out winners and that’s the enigma; if we could package that, you know, the ones who rise through the crap and are made the stronger. If we could figure that one out, what's the magic...Because, they're all broken, affected and changed by their upbringing and then you’ve got these ones who survive and thrive. (Karen K)
The magic is in the mind and brain. The millions of moments of experience that make each individual mind unique (in human time), in combination with the evolutionarily developed brain (geologic time), makes us who we are. The critical component is early childhood and the environment that surrounds us. Yes, some people endure difficult environments and still succeed but the equation does not change. Something in the environment helped them flourish, along with whatever genetic complement they have. For those who seem to have a perfect environment and fail, most of the time something in the environment was enough of a detriment. Yes, the evolutionarily evolved brain and the genes play a role; but even that role is impacted by environmental circumstance (i.e. culture) which ultimately wires the mind. The brain sciences have confirmed that appropriate early childhood environment is critical to human flourishing. When the needs of young children are not met and they are exposed to harsh or deficient environments, the vast majority of children will suffer greatly as a result. Change the culture, change the environment and you change the world.

But what about those still scarred and recovering from less-than-ideal childhood environments? Millions valiantly try to navigate the world while battling fear, anxiety and depression-like symptoms. Diane Ackerman in *An Alchemy of Mind* (2005), talks about the prevalence of a certain brain neuropeptide (facilitating neuron communication), which soldiers can now be tested for. Higher levels of the neuropeptide make a person more resistant to PTSD (these are the soldiers selected for the difficult so-called “black ops” missions). Perhaps social justice movements should use the same tests for high-risk activities like civil disobedience and direct action. Maybe we should all have a booster shot of this neuropeptide or some other mind enhancer, while we rebuild environments and confront diverse global concerns. Maybe, as Susan Magsamen indicated was possible, we should chemically “wash” debilitating emotional fears out of the mind in an effort to become free and less malleable to the manipulations of institutional power. Changing environments and cultures is a necessity but change takes considerable time. The utilization of brain-altering pharmaceuticals (changing the environment of the brain) might be justifiable considering some participants’ argument for “all hands on deck.”

Many participants recalled their own childhoods as deeply connected to social justice concerns and attributed their current activism to those early experiences. Early experiences are incredibly powerful, as the mind wires itself in response to everything around it. Deeply embedded circuits, countless and complex, connect in an ever widening web. Worldviews,
levels of trust, empathy and cooperation with aggression, distrust and the total dysfunctionality of a psychopath all occur here, early and deep. The participants recognized that culture is the environment which impacts children and that North American culture has become increasingly corporatized. The struggle to retain family and community culture above and beyond purely economic and corporate culture is an important part of the social-justice agenda. The cultural conflict can be clarified by a values, ethics and morals venue. Are we connected and responsible for each other in a culture that bases decision-making on critical thinking and evidence? Or are we a culture of greed and selfishness, with a thinly-veiled disgust for sociality and community? Does the culture provide children with an environment suitable for human flourishing or not? The participants are deeply engaged in the effort to push global culture in a direction that encourages human well-being.

Breaking the cycle of belief in self-interest and consumption (hypercapitalism) as “freedom” lies at the heart of solving the global cultural malaise. The increasing power and technologies of the financial elite are making cultural change exceedingly difficult.

**Technology – Big Data/Thick Data**

The participants related concerns about how brain science technology may further empower the corporate state. But there are other technologies and the most powerful is big data: the gathering of large amounts of information from millions of people, thus opening up entirely new possibilities for manipulation, coercion, conformity, surveillance and control. Of course, the opposite is true: social justice movements could utilize these technologies to build stronger cultures and communities. As always, though, they have significantly less funding and greater ethical constraints compared to corporate power. The ideological “free” market is more willing to utilize these technologies in all-out information warfare designed to reduce civil society’s ability to choose anything but a corporate state of governance.

From various little clicks on someone’s computer you can more or less know what they are thinking and then the next step is you can predict what they are going to do, you can predict behavior. It’s very powerful stuff. That’s why the NSA does it. Because, from the data, they can more or less get inside your head, know what you’re thinking and then they can [make predictions about what and when] you’re actually going to do. I just bring this up because these things are endless. (Alex Speers-Roesch)

The technologies coming out of the brain sciences and big data are “endless.” Alex Speers-Roesch’s description of predictive technologies should alert us to how powerful big data can be.
Marketers and computational social science academics themselves differentiate between big data and thick data (Christakis 2012). Big data consists of huge amounts of numerical data. “Thick” data, a term taken from qualitative social-science research, describes a researcher’s efforts to extrapolate deeper human meaning and “stories” from data (see the methodology section). Big data and thick data work together to grasp human behaviour, thoughts, feelings and values. Big/thick data are directly related to the brain sciences through their ability to probe deeply into human beliefs, values and behaviours. In part, big/thick data technologies are an exponential “improvement” on individual human beings’ evolutionarily acquired ability for “social learning.” Social learning (“mindreading/empathy” and imitation) is the bedrock of human culture. It gives us the ability to predict other people’s actions and behaviours and attribute feelings or causes to that behaviour. For all its benefits, it also enabled us to become the aforementioned “Machiavellian primate”—a devious and self-interested manipulator extraordinaire. The utilization of the “social learning” skill set, magnified by the use of big/thick data can be a formidable technology for “good or evil.”

Values-based market segmentation (VBMS) is an example of big/thick data technology that seems, at best, problematic in the hands of CIP. VBMS might have some positive applications, if instituted by social justice movements or health departments or other government departments still interested in human well-being. Kat Dodds was adamant that big/thick data would be helpful in moving society and, in particular, the millennial cohort towards a greater sense of the social good. The ethical use of values-based market segmentation technologies is questionable in the same way as brain altering pharmaceuticals are. Can they be utilized while retaining the core values of social justice and human flourishing? Recall Bill McKibben’s earlier comment that, “of course we can splice genes, [but] can we not splice genes?” (italics added). We can manipulate people based on their value systems, but can we not manipulate people based on their value systems?

**Discussion Summary**

Both overtly and covertly, the participants indicated that we have entered a time when CIP is out of control and unable to restrain itself from contributing to its own demise (e.g., 30 years of blocking any positive movement on ACD). The participants have all been involved directly or indirectly with CIP, giving them an up-close and personal view of a very difficult situation, along with the sinking feeling of slowly but consistently losing ground. They spoke to me in the hopes of finding a new strategy and direction that might improve the odds for social
justice movements. They recommended developing a strategy cognizant of the corporate neoliberal threat and fully utilizing the power of narrative. They cited the development of diverse tactics including grassroots organizing, multiple connected groups, a coordinated response, clear common messaging and a retention of VEMs. The brain sciences should, even must, be integrated into both strategies and tactics and spread throughout social justice in the most effective manner possible. The brain sciences can liberate as well as enslave. That is both the promise and the peril of 21st century brain science technologies.

Social change itself is inevitable, although difficult circumstances such as ACD and income inequality have led, historically, to negative social change and cultural collapse. Even the historical tendency for “a Jubilee” of income redistribution to occur after financial collapse has disappeared. The participants were aware of the gravity of the situation and are, of course, concerned. The Mexican border town of Ciudad Juarez is a well-documented casualty of the “global economy’s new killing fields.” In Murder City, Charles Bowden (2010) found an astounding increase in violence in 2008, as the city collapsed and 2,660 people were killed. Violence crossed all segments of the population and no one was safe. Bowden largely attributed the collapse to economic policies related to globalization (CIP) and the futile, yet endless, American war on drugs.

The 1998 Chilean No-to-Pinochet plebiscite vote shows how a justifiably terrified civil society can overcome and defeat an entrenched dictatorship. The near-miraculous plebiscite win for the No side came about from a combination of simple “positive” media messaging, intense grassroots organizing and a surprising level of cooperation from opposition parties. These are all tactics that some participants have endorsed. The No campaign utilized its share of media time efficiently and productively, mixing in a healthy dose of hope with the slogan “joy is coming” alongside some of the realities of Pinochet’s reign. The No side’s 17 political opposition parties, one year prior to the plebiscite, received a number of consultant visits from American marketing giant GMMB, which self identifies as a “strategic communications firm.” The National Democratic Institute, an NGO from Washington, DC, seems to have been the official “client” for GMMB, which works for both corporate and progressive clients. It seems GMMB’s role was identifying priority neighbourhoods for organizers to canvas and running focus groups to determine the most appealing and positive message. The No side, in consultation with GMMB, decided on the slogan “joy is coming,” which became the primary tagline for all media. That decision was not easy. The 17 political parties hotly debated increasing the focus on positive
.messaging, while reducing the dark realities of Pinochet’s brutality on the people but eventually acquiesced. There was much more to the No side’s victory. Grassroots organizers, going door-to-door, made a brave and determined push to register 92 percent of eligible voters, many of whom were scared of reprisal. And bringing together the motley opposition of 17 squabbling political parties required an immense amount of work at the political level (Larraín, Pablo et al. dirs. 2013; Greer 2013).

Another important point is that Pinochet, like CIP, never felt threatened, never thought that the No side could possibly win. He underestimated the power of his own citizens to overcome fear. Speaking of fear, Gael García Bernal, an actor/director in the film NO (Larraín, Pablo et al. dirs. 2013), made some interesting observations about what he had learned from his experience in Chile while filming and re-creating the event. During interviews after the film’s premiere, he said there were important parallels between what happened in Chile and what is currently occurring in North American democracies. In both circumstances one could observe fear of registering to vote, fear of voting (and voting choice based on fear), as well as rampant misinformation about the voting process. We know that fear constricts the mind, intensifying authoritarian predispositions and pushing societies to endorse neoliberal and neoconservative governments. The need to address and reduce the fears of civil society, while maintaining hope and still providing a realistic picture no matter how bad, is necessary for critical thinking to flourish.

In my previous work (Brillinger 2010), I theorized that the “steamroller” of rising authoritarianism was surprisingly correlated with exponential gains in knowledge. I concluded that enough was known to prompt more action and that we were “in desperate need of rebels and heroes.” In the four years since, the “steamroller” (CIP) has become even more bloated and psychopathic, feeding off its increasing power. As Patrick Reinsborough said, “We have a truly dramatic problem.” This caused me to retreat slightly from thinking that we know enough and only need more action (although certainly, more action is necessary). I now think we also need an aggressive application of information and knowledge from the brain sciences to help direct that action successfully. The present research combines knowledge (specifically the brain sciences) with modern-day rebels and heroes in order to theorize new (or emphasize old) strategies for social justice, which I shall do in chapter five.

Are you saying that the means of control have been so perfected that people are completely either bamboozled or demoralized, to the extent that no resistance is possible? (Mark Rudd)
The means of control have not been perfected and many people are neither bamboozled nor demoralized. But, the increasing complexity of global issues and depth of control certainly make it easier to be deceived and to feel despair. In North America, a high proportion of civil society may not be demoralized, preferring intrinsic and progressive values. But they do not seem to have a clue about the nature of the corporation and plutocracy, or of our current trajectory for extreme climate disruption. On the other hand, increasing numbers of progressive-leaning citizens want change; yet, as Mark Rudd pointed out above, they are not organizing effectively. A recent example of this is the minimum wage debate in the United States in which the Senate failed to advance the bill raising the minimum wage to $10.10 from $7.25/hr. This is confusing to the 71 percent of minimum-wage workers, who also happen to be millennials, because 64 percent of young Republicans and 80 percent of young Democrats want to raise the abysmally low minimum wage (ourtime.org 2014). The subject line of the ourtime.org email was “the issue that all millennials agree on.” But a further issue that millennials need to agree on is the glaring fact that, CIP and the inverted totalitarianism that America has become, are what keeps the minimum wage low.

Regaining institutional control through the curbing of CIP should be the focus of social justice campaigns. This seems sensible and self-evident considering that we have alternatives and solutions to confront many current problems. It is institutional power that stands in the way, like a massive brick wall. The wall will have to come down. A clear, compelling narrative, appealing to both social justice groups and civil society, needs to be defined and told. It must emphasize the values of connection and cooperation, and reflect the intrinsic values that most human beings say they want to live by. The narrative could be the basis of a new global mythology.

The difficulty in realizing how deeply connected we all are, especially today, applies to all of us, adults and young. It is possible that, as more and more people realize how damaging and divisive CIP really is, the human “group mind” will rise up in protest. CIP has demonstrated over three decades that it actually loathes societies and cultures. CIP, knowingly or unknowingly (it hardly matters), has created increasingly toxic environments that hamper the abilities that humans have evolved over the eons, to be social, to create culture, to reduce aggression and violence. CIP has stolen institutions and destroyed culture, wielding its most powerful weapon—the corporation—like a giant sword, slashing connections of sociality and cooperation that are our birthright, burned down to our DNA. Cultural evolution enabled us to
alter our own environments. But, as Adorno (1990) and Meyerwitz (1985) pointed out, we failed to understand the environment’s effects on our own minds and behaviour, whether individually or in groups. This opened the door for a rampaging, dysfunctional meme, with an extractive, exploitive and individualistic worldview. The corporation and capitalism, from humble beginnings and early successes, slowly morphed into a CIP that behaves as though it hates humanity. Our need for positive attention, our caring about other people, our willingness to cooperate with others—all are viewed as distasteful or disgraceful.

Rachel Carson wrote a brilliant, foreboding book entitled *Silent Spring* (1962) that launched the environmental movement. Carson’s core argument was that our naturally-evolved biological makeup was incapable of surviving an environment poisoned by the human-made chemicals to which we have no natural defenses. Similarly, our culturally-evolved minds are equally incapable of surviving in an environment poisoned by the mind-made memes of fear, selfishness and disconnection, to which it seems we have no natural defenses. ACD and income inequality result from cultural evolution being sabotaged, creating ever more dysfunctional environments for the human mind. This rather startling idea remains difficult to understand on an intellectual level, no matter how much evidence is proffered. However, at a deeper, unconscious level, the cultural-evolutionary push for survival, in combination with the ‘better angels’ of our nature (and cognition), may well generate the moral outrage that fuels social movements.

CIP has unimaginable resources, few ethical constraints and a large chunk of civil society to back it in the race to collapse. Social justice has hopes and dreams for a society that is fair, interested in human well-being and promotes human flourishing. I think we have “Goliath” running scared though; he is bloated and not that smart. The demise of CIP is inevitable; it is just a matter of when the transition to a new order will occur and how messy it will be. How can more of us and civil society as a whole, follow the participants into the fray, become heroes and rebels and rebuild the world?
5. Brainstorming

Quick and continued evolution of the human mind is essential for the continued existence of our species (Herbert 2007).

Anything you can do to help to connect better, to empathize better, to look at social justice, I think any tool [is valid], and the brain is...the holy Grail. (Susan Magsamen)

The battle is for the Holy Grail, the human mind. It is ideological, psychological and neurological. The battleground is cultural evolution. We have changed our environments to such an extent that our minds are being wired in different ways, both good and bad. The brain itself has changed little but the human mind will continue to be shaped by environments and culture—the battle is over the direction in which our minds will evolve. CIP has the advantage and momentum, pushing us relentlessly towards individuality, extraction and exploitation. It is a metameme of “unenlightened selfishness” practically devoid of values, ethics and morality. Social justice movements attempt to slow this massive oil tanker as the ACD crisis looms on the horizon. These movements have the evidence and facts on their side; yet, that is not nearly enough. They have another powerful tool: a growing seed of moral outrage, an extremely powerful veme that cries out to be heard and replicated. We are living in the final stages of a global meme/veme conflict that is utilizing the advanced technologies of digital media, computers and brain science. The only viable strategy is to change minds and behaviours in a direction that promotes human flourishing. The battle is about building minds, synapse by synapse, web by web, belief by belief and behaviour by behaviour. It is a winnable struggle if we band together and create a very “sticky” veme, a global veme, a global culture and a global myth to connect us all. We can be magnificent, together.

Since the dawn of culture, cultural evolutionary processes have been driven relentlessly forward by Homo sapiens’ greatest gift, “social learning.” Then we drastically shifted the environment over the last 50 years and, it seems, destabilized the process. The “group mind” driven by a global cultural meme of greed and selfishness (“good and useful,” indeed, but only for the one percent) has shifted to a point where, even in democracies, we have become “easily led.” The “privatization of consciousness” (Mander 2012) is in full swing and, as the cautionary tales of Orwell and Huxley clearly expressed, one must beware of how the mind is wired. This is a problem unique to Homo sapiens. Shifting the “group mind” by revitalizing the three C’s of human progress—cooperation, culture and cognition—is one possible strategy.
Cooperation, Culture, Cognition and Childhood

Understanding ourselves, the world and our current situation is virtually impossible without utilizing the brain sciences in some form. Similarly, solutions must be informed by our understanding. This thesis has hopefully exposed many minds to a multitude of information, ideas, arguments and findings. It is now time to present an overall strategy utilizing the three C’s driving human evolutionary progress (Wilson 2007), to which I have added a fourth C, Childhood. I want to briefly introduce each, before bringing them together to show their synergistic potential for social justice strategy.

Cooperation

If there is a kind of heroism of this era, it’s how to re-engage socially without having the necessity for it to be somebody you know, somebody you have a vested interest in...can we actually feel that way about people a little bit more removed from our own circle? (Kat Dodds)

The “heroism of this era” will consist of cooperation among an ever-widening circle of people, groups and cultures, in order to confront constructively and effectively the current institutional/cultural malaise and rapidly approaching climate disruption.

In large part, a person’s “circumstance” (environment) determines the degree to which they can grasp and act upon their intrinsic value systems including cooperation and collaboration. Cooperation includes the necessity for seemingly disparate social-justice groups to collaborate (Hawken 2007). Collaboration also means utilizing varied tactics derived from and driven by a common overall strategy.

Cooperation among social justice groups has already begun. For example, the humanitariancoalition.ca is a relatively new cooperative collaboration of five large Canadian humanitarian aid groups: Plan Canada, Oxfam Canada, Oxfam Québec, Save the Children and Care. This cooperative model (within countries) is already a global phenomenon and is now connecting countries and actors through the Emergency Appeals Alliance (EAA).

Cognition

The brain sciences have revealed that cognition, conscious thinking, is not the citadel of rationality and accurate memory that we thought it was. Our thinking is influenced and directed by early environments, emotions, the current environment and the unconscious. This does not mean that the human ability for rationality and reasoning, for sustained effort are not important. It just means that they are not sufficient. In order for cognition to achieve its full potential, we
must first use the brain sciences to understand its limitations and strengths. We must think long and hard about our own thinking, using another trait unique to Homo sapiens—metacognition. Second, we must develop the conditions, the environments, in which cognition and all that underlies it work best to promote human well-being and flourishing.

**Culture**

All cultures do not pursue and achieve human well-being and human flourishing equally. Out of natural environments cultures arose, institutions formed and environments changed. Culture is the environment in which minds develop and, over time, evolve. As pointed out earlier, Homo sapiens have altered the environment to such a degree that significant effects on cultures and institutions have occurred. The drift in the cultural evolutionary process that I discussed earlier, from CE 1 – Imitate to CE 2 – Copy, has provided a window for CIP to utilize the shifting environmental landscape (i.e., mediated, hypercapitalist) to create a global culture based on a lack of caring for the planet and its inhabitants. The utilization and integration of science and technology by corporate capitalism over the past 30 years has shifted institutions, cultures and minds. What the corporation has been successful in doing, with its vast power and technology, is to relentlessly press a very specific story about who we are and how we should act. Unfortunately, corporate “mythology” is ubiquitous globally and contributes to a dysfunctional culture based on greed and selfishness, exploitation and extraction. Advocates for social justice and social change are trying to tell a different story, one more connected to reality, evidence and an understanding of how humanity might flourish. It is a story for the 99 percent: a mythology that allows the ‘better angels’ of our nature fuller expression in and integration with cognition. It is in the best interest of all living entities that a new global culture develops, one that will encourage human flourishing—and an easily transferred and replicated meme will be necessary. The narrative has to be mythic in size and scope to activate the archetypes of hope and struggle among other deep-rooted unconscious yearnings in the human brain. Not only do we have to take back culture, we have to shift the cultural evolutionary process away from thoughtless copiers and followers toward creative critical thinkers.

**Childhood**

When you’re born and given more of an attachment type of parenting, when you have this wonderful experience of the outdoors, early childhood educational opportunities to develop your imagination, to create, to express...these are the kids who are going to grow up and whose values are
going to be such that they're not going to be tied to a television set, they're not going to be tied to reality TV, their own lives will be too interesting. They’re going to want to do the right thing because they have a deeply developed capacity for empathy because they care about their fellow human beings, because they care about the natural world and that they won’t have to be persuaded. I know that sounds a little Pollyannaish, but I believe that. (Sharna Olfman)

If you want to positively change the world over time, childhood is the place to begin. Cultural evolution has changed the way the brain utilizes its resources and this process will likely continue; but environments are the long-term key to promoting human flourishing. Clearly, the more we apply what we know about childhood development, the better off we will all be. Any new global culture must understand the importance of early childhood, not to save us in the present but to make the future worth living. To understand the troubling treatment of children in today’s world is to understand the need for more extensive pressure on CIP to whom childhood is just another market to exploit. The understanding that children’s minds are especially malleable is dangerous knowledge in the hands of the corporations who market to them. They have at least a 20 to 30 year head start in molding children’s minds to believe and behave accordingly. They have been too successful. Even some of the powerful can see now that they have sown the seeds of their own demise and they are seeking ways to maintain the status quo while not destroying the planet. They will fail. Only massive change will save the planet. And only an improved treatment of children, broadly implemented throughout the global cultural milieu, will build a world worth living in.

**Strategy**

The ecological crisis is a game-changing moment in the history of human civilization on the planet. (Patrick Reinsborough)

The ecological crisis, ACD, is an opportunity to shift cultural evolution and the “group mind” in a positive direction. The burgeoning ethos of cruelty is also an opportunity for change. Major crises can lead to major transformations.

Strategy consists of deploying those concepts that most effectively utilize resources towards a given outcome. The resources available include thousands of social justice groups, a large percentage of civil society and, at least some—hopefully many—of the one percent. Those in positions of power, who are still capable of conscious decision-making, evidence-weighing and moral thinking are an important resource. The massive changes needed mean even
the one percent must wake up. The main strategy that I am proposing is the relentless repetition of a veme complex that is the polar opposite of the CIP meme complex of individuality, extraction and exploitation. The veme for the 21st century should comprise many things already discussed: intrinsic values, ecology, diversity, science as a method, enlightened self-interest and a deep-rooted sense of sociality. Every story, narrative, article, website, discussion and confrontation comes down to a question of caring. Show us how you care about society, how you care about all of us. Prove it. Not by that CIP method of using faith, slogans, manipulated marketing techniques and meaningless percentages but by rational, reasonable and evidence-based means. Prove that you care about society, cultures and humanity. This veme of connection manifests into global culture and global mythology through repetition and replication in many minds. We can be extraordinary, together.

In America and the CIP, the attack on society and social connection has become a prominent feature.

As Chomsky reminds us, caring about other people is a dangerous idea in America today and signals the transformation of the United States from a struggling democracy to a full-fledged authoritarian state. (Giroux 2014) In the inverted totalitarian state that Chomsky and Giroux are warning us about, to care about other people, to be compassionate and connected is in itself radical, dangerous and activist. Part of my argument here is that all social justice and activist related groups embrace the hopeful and positive veme of connection, cooperation and caring because it is “dangerous” in our present circumstance. It is dangerous because it plants seeds of doubt about the stories neoliberalism tells, thereby revealing the cruelty and greed within. It is powerful because the vast majority of human beings at some level realize that their fulfilment, their happiness and their well-being is dependent upon connection, cooperation and caring with other human beings. We can be exuberant, together.

Connection is real, caring is real, sociality and creativity and the emotional exultation that we feel from those experiences are every human’s birthright burned down to the DNA and formed over millennia in the crucible of evolution and cultural evolutionary processes. Gary Olson’s *Empathy Imperilled: Capitalism, Culture and the Brain* (2013), makes a similar argument to what I have proposed here, with a specific focus on our common biological predisposition for empathy. We already know the strategy, everybody does; but those tendencies for connection, cooperation, powered by empathy are continuously squashed by capitalism and
dysfunctional cultures of greed, hyper-masculinity and militarism (Olson 2013). It is just a matter of activating what is already there with a very, very “sticky” veme.

The conceptual strategy that has just been discussed is primarily rooted in the second half of chapter one that dealt with evolution and cultural evolution, in conjunction with other aspects of the dissertation. Tactics might be considered to be rooted (with regard to the brain sciences) primarily in the first part of chapter one that dealt with the inner workings of brains, minds and consciousness: one idea being that memory and belief are, at the same time, malleable and resistant to change. Many of the marketing utilizations of the brain sciences, especially those related to CIP, relate to this area, like framing, taking the focus off evidence and appealing to other aspects of mind; repetitive simple message, introducing seeds of doubt, manipulating emotions like empathy. This is a generalized separation, however, one that might be useful when considering tactics.

Tactics are where the action is. Tactics are driven by the strategy. Many tactics have already been discussed at the end of the results chapter including: targeting CIP, grassroots organizing, direct action, clear simple messaging, social justice collaborations and civil society appeals through values. All of these can be initiated with considerations to the strategy and integration of the applicable brain science technologies into the process.

One other tactic I want to consider briefly is the effort to incorporate the one percent. In my personal battles with authoritarianism, including sub-criminal psychopaths, there have been times when it is clearly not worth trying for reform; there is no option but to disengage and walk away. The majority of the one percent, however, is not that damaged and, as Celine Trojand argued, it is worth the effort to engage them. However, the specifics of how that is done need to be considered carefully. Discussing or arguing over the evidence and facts has been shown to be particularly wasteful and useless. This is, in part, because of the fundamentalist faith (belief-centered realism) involved in “free market” worldviews. A more productive “street epistemological” approach, suggested by Peter Boghossian (2014), is to focus the conversation, actually a conversion, on how we came to know what we know and then slowly but surely move towards revising beliefs based upon critical thinking and rationality. Boghossians step-by-step how-to guide (A Manual For Creating Atheists) is a must-read for anybody taking Celine Trojand’s advice to engage in discussions with “free market” fundamentalists. It recognizes that, without a certain level of assistance from plutocrats in power, massive change will be doubly
difficult. Boghossian’s evidence-based, results-oriented approach to altering “faith-based belief” (belief-centered realism), should be incorporated into tactics generally.

“We change minds and behaviour” (GMMB.com) reads one of the introductory screens on the “strategic communication” advertising giant GMMB; and, prominent in the background are, of course, children. Yes, GMMB can change children’s (and adults’) minds and behaviour, whether for a mega brand (Visa) or a cause of democratic justice (Chile). GMMB, unlike most other corporate entities actually participates in social justice causes and may well understand that the “dilemma” deserves everybody’s attention. Regardless, they, and all of those with the power and technologies to change minds and behaviour, have a decision to make, one they need to make, and soon: are they interested in a future worth bequeathing to their children or the pan-cultural dystopia of corporate power, squalor and pollution? If the answer favours a future worth living, they need to promote social justice and social change with a new and passionate urgency. As with any corporate entity, oligarch or plutocrat, aware enough to want to avoid the ravages of ACD, they need to devote a significant portion of their resources and expertise towards one goal only—creating, pushing and replicating the veme of human connection and cooperation (demanding that CIP stop or change). They need to work on 1,000 different Chilean-like campaigns simultaneously, assisting social justice causes and driving institutional and cultural reconstruction. They need to lead cultural evolution in a direction that sustains human beings. The one percent must wake up.

Time to decide.

The university too, must decide. Will it continue to be a servant to CIP, creating addictive potato chips and ever more powerful marketing tools to keep hypercapitalism going? Selling out the society that created it must stop. Competing with each other, like so many rats fighting for crumbs, must cease. Surrendering intellectual property and powerful ideas to pharmaceutical, energy and technology companies uninterested in society, let alone in human flourishing, must cease. North American universities en masse must shake off the shackles, take a deep breath and wake up.

Time to decide.

Marc: I just had a thought of a whole university department, an interdisciplinary department, that all it works on is developing new strategies
for social justice and social change and they are linked in with the brain sciences and marketing/management but their overall purpose is radical change. They are not subsumed by the university, they are going to utilize the university for their own best interest [enlightened self-interest].

Susan Magsamen: That's a great idea and you know, you can be very cause-specific. You could pick different topics to try different techniques, like a learning laboratory. I mean that would be really interesting.

Marc: It's interesting that we don't have that, because, if there was ever a time that it was absolutely necessary, it's probably now.

Susan Magsamen: Well, invent it. You should do it. You should make a recommendation to start it.

Consider this thesis my recommendation, not just for one university, but for 10, 20, 100 universities with entire departments devoted to bringing about social change through social justice and the brain sciences. This is absolutely the time for “all hands on deck.” Time to save the world.

We can be magnificent, together.
6. Conclusion

The research confirms that social justice forces are engaged in a monumental battle with institutional power. The dark realities of anthropogenic climate disruption have introduced a new urgency to the battle for social justice on a global scale with the looming spectre of global collapse.

The brain sciences clearly demonstrate that democratic society is unprotected and unprepared to withstand the effects of an environment permeated by CIP ideologies. In the authoritarian worlds envisioned by Orwell, Huxley and Bradbury, the human mind is twisted to perceive what controls us, what destroys us, as benign or even as a saviour. It is indeed folly not to view these "stories" through the prism of the brain sciences.

Rachel Carson launched the environmental movement in 1962. In the 1970s, the Greenpeace founders (Hunter, McTaggert, the Stowes and many others), literally willing to “die by the sword,” intensified the battle for the environment and ecology. But, while winning some battles, activists began losing the war. That must change. I, in all humility, have presented a conceptual strategy for social justice and civil society forces to consider. That strategy is the result of integrating what activists have told me with what the brain sciences indicate about the human condition. However, strictly speaking, I consider myself neither an activist nor an academic; rather, I am a rebellious anti-authoritarian. Everything I have learned and done is driven by a distaste for the abuse of authority. I did not choose this path. My mind, like yours, was wired by early experiences. I am a later born, making it highly likely that I would take the rebellious and anti-authoritarian route to garner the attention that every human being deep down desires (Sulloway 1996; Bloom 2013). My sensitivity to emotional cues and my engagement with abusive authority, have been the two driving forces of my life. They have brought me my greatest successes and simultaneously caused my greatest pain. Those two major predispositions of mind, combined with random good luck (not the least of which is to be born in a time when new understandings of the human brain come fast and furious) and spurred by some gifted teachers and my own efforts, have resulted in this thesis. We cannot change ourselves completely, but we can wake up.

“You’re a capitalist!” responded a friend of mine when I told him that I had been “absolutely crucifying capitalism.” I might have been a capitalist in the 1970s and 1980s and I am most certainly “a beneficiary” of capitalism, even today. But no one in their right “mind” could endorse the current economic/capitalist system that’s hell-bent on destroying us all.
Howard Bloom argues in *The Genius of the Beast* (2013) that, not only can capitalism be fixed, it can become something extraordinary. In Bloom’s thorough and entertaining evolutionary tale, he argues that western civilization is the beast (and the beauty) and capitalism is its lifeblood. Both need a radical transformation primarily involving—and this should not come as a surprise by now—a new operational veme of cooperation, connection and “enlightened self-interest,” where capitalism enables human creativity and inventiveness to produce magnificent new ideas, products and concepts that will change the world and improve the well-being of all of us.

This changes nothing in the argument laid down here, other than to reinforce it. How does that transformation occur if that, indeed, is the way forward? The current version of capitalism and corporate power, with its unenlightened self-interest and disregard for society, will only change if those heroes and rebels I interviewed and many millions more, force change.

I have been deeply affected by this research and find myself speaking with the voices of the participants in conversation and arguments, saying what they said, arguing what they argued. This is, in large part, because of my immersion in the transcripts; but, more, because of the intelligence and relevance of what the participants said. They have changed me and I hope they have changed you. Patrick Reinsborough requested that I do my best to make the thesis readable and relevant to activists. I have done my best. I have never been a fine detail person, so I leave the details to others and take solace in the hope that I have made concepts sufficiently clear. Tim Kasser fully endorsed what I was doing but was somewhat dubious that I would find something shatteringly new and wonderful to solve all our problems. I think he was right about that, although I hope to have at least clarified and reinforced a certain direction for social change that needed reinforcement and research. The brain sciences have made the already well-founded argument about the importance of early childhood almost shockingly clear. Similarly, I have tried to make it shockingly clear how and where we stand at this moment in time and the critical importance of helping social justice shift us back toward a world where people care about each other, because there is no alternative.

Although the research participants are North American (Canadian and American), extrapolations to the global situation are reasonable. However, considering the insanity of the American experiment and the tendency of the current Canadian neo-conservative government to follow them, it might be encouraging to look globally, especially in northern Europe and pockets of the Global South for more encouraging signs of hope. At the risk of sounding too North American though, the battle will probably be won or lost here. Having said that, the twin
colossus of India and China, along with the various nation states and religious flashpoints around the world should not be underestimated in their ability to influence events.

Those activists fighting for social justice and social change have an alternate worldview, generally more grounded in realism-based beliefs. This worldview is more inclusive and democratic, recognizing the need for cooperation and diversity. This worldview is grounded in the values of fairness and equity found in northern European social democracies and in parts of a resurging South America; it is underpinned by the slow forward progression of humanity over the centuries. This worldview has been struggling, in part, because it has been vastly out-resourced by corporate power. It has also been struggling because of a misunderstanding of how we respond to evidence and facts. Science and technology seem to have given CIP the upper hand to increasingly control democratic governments. But we all know, it’s not over yet.

Marshal Ganz (in class): What did you take from...the classic story of David and Goliath? How does it begin? When does the action begin?

Student: Goliath is marching out and repeatedly challenging the Israelites. And no one comes out to challenge him.

Marshal Ganz: Right and so, that's just going on day after day. So then what, when does the action shift?

Student: When David shows up to bring the food to his brothers and hears this and says, “Why is no one doing anything to respond to this?”

Marshal Ganz: In other words, the first thing that happens here is injustice, need to act, commit, and then the action begins. Until that point, nothing is really happening...when the king says, “here, take my helmet, take my shield. Take my armor.” What does David do?

Student: He puts it on...

Marshal Ganz: Puts them on. See, David doesn't have it all figured out. That’s the point. He’s in action here. He doesn't have it all figured out. The king says, “well, are you going to fight power? Here, you need weaponry to fight power.” David actually takes them, he puts them on and then what happens?

He can't move. They’re too heavy, literally. He can't move. That’s when he has his moment of insight and he looks down at his feet and he sees these five stones there and says, wait a second, I'm not a soldier. I’m a shepherd. And that's when he says, “As a shepherd, I knew how to protect my flock from wolf and bear. And it wasn't with a sword, and it wasn't with a shield. It was with a stone and a sling.” Maybe Goliath's just another wolf, just another bear. What’s Goliath's reaction? Ho. Ho. Ho. Am I a dog? You send a boy with a stick...and in the middle of the third “Ho” a stone in the forehead...[and Goliath is defeated]...(Ganz 2013)
We must all realize we are living in a time of great global injustice, no matter how comfortable our own personal circumstances. People can then be moved to act, to commit to change, to challenge the injustice. The realization, the waking up of the global conscience to that injustice is a necessary step towards the action and commitment that Marshall Ganz references in the David and Goliath story. In order to overcome the anger and disillusionment that comes with awareness and to efficiently channel that energy, there needs to be a strategically effective social movement in place—to focus action in the right places and in the right ways. Just like David, unable to use the shield and the sword, we are in the middle of figuring out what kind of sling will work to defeat the giant. I hope to have contributed to that strategic endeavour by promoting the veme of caring, connection and cooperation.

It goes without saying that all of the participants I interviewed are heroes, deeply deserving of our respect and admiration. And, since we are all so good at copying, we should copy them. Albert Einstein, was another hero, who lived through a time when global collapse impended. He offers this succinct summation:

A human being is part of the whole called by us universe, a part limited in time and space. We experience ourselves, our thoughts and feelings as something separate from the rest. A kind of optical delusion of consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from the prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty...The true value of a human being is determined primarily by the measure and the sense in which they have obtained liberation from the self....We shall require a substantially new manner of thinking if humanity is to survive. (Albert Einstein 1954)

We are currently in the process of changing our minds, for the better, together.
We can be magnificent, together.
We can be exuberant, together.
We can save the world, together.
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Appendices

Appendix A: Contributors/Participants (in order of interviews)

Bob Purdy is founder of paddlefortheplanet.ca and has standup-paddleboarded more than 1,250 consecutive days raising funds for the David Suzuki Foundation. Continuously searching for more ways to “change the way I live on the planet,” Bob’s focus is clean air, clean water and clean food. Regarding social change: “Never in my wildest dreams did I think I would have to work this hard for change at my age.”

Danielle Prins is the Volunteer Organizer for the Greenpeace Kelowna (British Columbia) Local Group and a student at the University of British Columbia, Okanagan.

Michael K (pseudonym) is a Business Development Manager involved in the technology sector. With a background in corporate sales, Michael has valuable insights into marketing, persuasion and coercion. Environmental issues, especially ACD/climate change, are his priority.

Sharna Olman Ph.D., is a professor of developmental psychology, a psychologist in private practice and the editor of the Childhood In America book series for Praeger Publishers. Sharna has written and lectured widely on the subjects of children's mental health and parenting. She is a member of the Council of Human Development and a partner in the Alliance for Childhood. Her latest book is Drugging Our Children: How Profiteers are Pushing Antipsychotics on Our Youngest and What We Can Do to Stop It (with Brent Dean Robbins, Ph.D., 2012).

Karen K (pseudonym) is co-organizer of a documentary film festival and experienced activist.

Susan Linn is co-founder and director of The Campaign for a Commercial-Free Childhood (commercialfreechildhood.org) and a psychologist at Harvard Medical School. An award-winning producer, writer and puppeteer, she is the author of The Case for Make Believe: Saving Play in a Commercialized World, and Consuming Kids: The Hostile Takeover of Childhood and lectures internationally on reclaiming childhood from corporate marketers.

Susan Magsamen is the director of Interdisciplinary Partnerships at Johns Hopkins University School of Medicine, Brain Science Institute. She works on programs that bring evidence-based brain science knowledge and practice to a range of communities. Susan is an award-winning writer and advisor on family and children’s issues with a special interest in
creativity and learning. Her body of work has earned hundreds of national awards and recognition from child development experts and parenting associations.

**Joel Bakan** is a law professor at the University of British Columbia and author of *The Corporation: The Pathological Pursuit Of Profit And Power* (2004). “The Corporation,” in documentary form, became the most successful documentary film in Canadian history. His most recent publication is *Childhood under Siege: How Big Business Targets Children* (2011).

**Mark Rudd** was a cofounder of the SDS (Students for a Democratic Society) and the Weathermen. He spent a significant period of time on the FBI’s most wanted list, which forced him underground for seven years during the tumultuous 1960s and 1970s. This fascinating period he chronicles with eloquent candour in his book *Underground: My Life with the SDS and the Weathermen* (2009). He is still organizing after all these years at markrudd.com.

**Kat Dodds** combined her passions for social change and guerrilla marketing to create (hellocoolworld.com) in 2001. The driving force behind a wide range of marketing and social media campaigns at Hello Cool World, she is a frequent public speaker and workshop leader when not working on community media projects, PSAs, documentary films and health promotion campaigns. She was also central to the campaign and distribution of “The Corporation” documentary and is intrigued by the creative possibilities of data deployment.

**Cameron Gray** is an organizer with Leadnow.ca (an independent advocacy organization) based in Victoria, British Columbia, which works to support Canadian democracy. With a diverse background in children and youth work, environmental and social justice organizing and faith-based mobilization, Cam joined Leadnow in 2013 after finishing his studies at the University of Ottawa.

**Tim Kasser**, Ph.D., is professor of psychology at Knox College in Galesburg, Ill. He is the author of *The High Price of Materialism* and many academic articles and chapters. Tim is currently exploring value systems. His latest book, *Lucy in the Mind of Lennon* (2013), illustrates that activists/academics need to “mix it up” in order not to burn out.

**Celine Trojand** is an organizer at the DogwoodInitiative.org a British Columbia environmental and political action group. Celine began working for Dogwood in 2009 utilizing both her experience in sales and her devotion to building power in communities across British Columbia.

**Patrick Reinsborough** has been involved in campaigns for peace, the environment and social justice for over twenty years. He co-founded, in 2002, and currently co-directs the Center
for Story-based Strategy (formerly smartMeme). Patrick is a campaigner, communications strategist, facilitator and creative provocateur who has partnered with hundreds of high-impact organizations to frame issues, strengthen alliances and win critical campaigns. He was previously the Organizing Director of the Rainforest Action Network where he mobilized thousands of people to confront corporations that destroy the environment and violate human rights. Patrick was also a prominent organizer, strategist and media spokesperson for the U.S. wings of the global justice and anti-war movements, including helping to organize mass direct actions that shutdown the Seattle World Trade Organization meeting in 1999 and protested the U.S. invasion of Iraq in 2003.

Alex Speers-Roesch is an Assistant Climate & Energy Campaigner at Greenpeace, Toronto. Since graduating from the University of Toronto in the sciences, Alex has been at Greenpeace in related positions for about five years.
Appendix B: Consensus Statement

Consensus statement online: http://www.edge.org/documents/archive/edge327.html#cs

Edge conference in full: http://www.edge.org/3rd_culture/morality10/morality10_index.html

1) Morality is a natural phenomenon and a cultural phenomenon
Like language, sexuality, or music, morality emerges from the interaction of multiple psychological building blocks within each person, and from the interactions of many people within a society. These building blocks are the products of evolution, with natural selection playing a critical role. They are assembled into coherent moralities as individuals mature within a cultural context. The scientific study of morality therefore requires the combined efforts of the natural sciences, the social sciences, and the humanities.

2) Many of the psychological building blocks of morality are innate
The word “innate,” as we use it in the context of moral cognition, does not mean immutable, operational at birth or visible in every known culture. It means “organized in advance of experience,” although experience can revise that organization to produce variation within and across cultures.

Many of the building blocks of morality can be found, in some form, in other primates, including sympathy, friendship, hierarchical relationships, and coalition-building. Many of the building blocks of morality are visible in all human cultures, including sympathy, friendship, reciprocity, and the ability to represent others’ beliefs and intentions.

Some of the building blocks of morality become operational quite early in childhood, such as the capacity to respond with empathy to human suffering, to act altruistically and to punish those who harm others.

3) Moral judgments are often made intuitively, with little deliberation or conscious weighing of evidence and alternatives
Like judgments about the grammaticality of sentences, moral judgments are often experienced as occurring rapidly, effortlessly and automatically. They occur even when a person cannot articulate reasons for them.

4) Conscious moral reasoning plays multiple roles in our moral lives
People often apply moral principles and engage in moral reasoning. For example, people use reasoning to detect moral inconsistencies in others and in themselves or, when moral intuitions conflict or are absent. Moral reasoning often serves an argumentative function; it is often a preparation for social interaction and persuasion, rather than an open-minded search for the truth. In line with its persuasive function, moral reasoning can have important causal effects interpersonally. Reasons and arguments can establish new principles (e.g., racial equality, animal rights) and produce moral change in a society.

5) Moral judgments and values are often at odds with actual behavior
People often fail to live up to their consciously-endorsed values. One of the many reasons for the disconnect is that moral action often depends on self-control, which is a fluctuating and limited resource. Doing what is morally right, especially when contrary to selfish desires, often depends on an effortful inner struggle with an uncertain outcome.

6) Many areas of the brain are recruited for moral cognition, yet there is no “moral center” in the brain
Moral judgments depend on the operation of multiple neural systems that are distinct but that interact with one another, sometimes in a competitive fashion. Many of these systems play comparable roles in non-moral contexts. For example, there are systems that support the
implementation of cognitive control, the representation of mental states and the affective representation of value in both moral and non-moral contexts.

7) Morality varies across individuals and cultures
People within each culture vary in their moral judgments and behaviors. Some of this variation is due to heritable differences in temperament (for example, agreeableness or conscientiousness) or in morally-relevant capacities (such as one’s ability to take the perspective of others). Some of this difference is due to variations in childhood experiences; some is due to the roles and contexts influencing a person at the moment of judgment or action.

Morality varies across cultures in many ways, including the overall moral domain (what kinds of things get regulated), as well as specific moral norms, practices, values, and institutions. Moral virtues and values are strongly influenced by local and historical circumstances, such as the nature of economic activity, form of government, frequency of warfare and strength of institutions for dispute resolution.

8) Moral systems support human flourishing, to varying degrees
The emergence of morality allowed much larger groups of people to live together and reap the benefits of trust, trade, shared security, long term planning and a variety of other non-zero-sum interactions. Some moral systems do this better than others and therefore, it is possible to make some comparative judgments.

The existence of moral diversity as an empirical fact does not support an “anything-goes” version of moral relativism in which all moral systems must be judged to be equally good. We note, however, that moral evaluations across cultures must be made cautiously because there are multiple justifiable visions of flourishing and wellbeing, even within Western societies. Furthermore, because of the power of moral intuitions to influence reasoning, social scientists studying morality are at risk of being biased by their own culturally shaped values and desires.

Signed by:

Roy Baumeister, Florida State University
Paul Bloom, Yale University
Joshua Greene, Harvard University
Jonathan Haidt, University of Virginia
Sam Harris, Project Reason
Joshua Knobe, Yale University
David Pizarro, Cornell University

At the web address (top of page) there are many responses from various academics to the consensus statement, like the one below

ALISON GOPNIK
Professor of Psychology, University of California, Berkeley; Author, The Philosophical Baby.
We can agree that there are some innate building blocks for moral intuition and judgment. But surely one of the most dramatic and obvious features of our moral capacities, evident everywhere from democracy to feminism to gay marriage, is our capacity for change and even radical transformation with new experiences. Practices that once seemed self-evidently acceptable, such as slavery or the oppression of women, seem so no longer.
At the same time this transformation isn’t just random but seems to have a progressive quality. How do we get to new and better moral conceptions of the world, if the moral nativists are
right? The consensus statement, at least implicitly, suggests that the solution to this problem lies in a contrast between moral intuition and moral reasoning.

The implication is that change and revision are only possible through explicit moral reasoning, which operates on top of an innate evolved set of moral intuitions. But, arguably, even young children seem able to understand both that social practices can change and that such change should minimize harm. The situation is analogous to that of our ability to learn about the world.

There also, we might have thought that only self-conscious, explicit scientific reasoning allowed for change and progress. In fact, the developmental evidence suggests that, in both the cognitive and moral domains, we are capable of changing, revising and altering what we do and believe in the light of experience and this ability is as deeply evolved a part of our human nature as any.
Appendix C: Interview Script

This interview script is utilized as a guide only. Questions are separated into three interconnecting strands: 1. Power, control and resistance (history/strategies), 2. The brain sciences, 3. Brain science and social justice (an integration of the first two strands). The focus areas of individual interviews may vary.

1) Power, Control and Resistance

a) This is a three-part set up, but I’d like to get all three parts out before you respond.
   i) There are those who argue that the “battle” for social justice/change (global warming, income inequality i.e. poverty, etc.) have been lost in a slow coup d’état over the last 20 or 30 years.
   ii) This Coup d’état occurred as corporate industrialized states become more efficient and effective at manipulating civil society and concentrating both wealth and power at the top in the hands of plutocrats and oligarchs: the paradigms of power changed.
   iii) Further, in order to successfully alter this scenario social justice and social change activists must utilize new paradigms of resistance. Comments? Agree? Disagree?

b) Do you think the use of power and control (political/economic) have altered in the past 20 years? In your lifetime?

c) Describe the systems of power and control today. Do you feel they differ from past systems? If yes, explain; if no, why not?

d) Some would argue that authoritarianism (plutocrats, oligarchs, bully leaders) is rising at the expense of diversity and social justice. Would you? Probe: if yes, give example(s)

e) How would you describe the current balance between institutional power and social justice?

f) What types of resistance strategies might you recommend today? Have your strategies changed from what you might have recommended in the past? How & Why?

g) Has the nature of your work (or understanding of the world) changed over the past decade? Has it changed/affected you personally or professionally? Probe: what sorts of changes have you experienced? Do you think these changes have made you more or less effective in your professional capacities?

h) What is your level of confidence or hopefulness about social justice/social change i.e. that heroes and rebels can impact and even change global directions in the current environment? In the present, near future, or far future?
i) Institutional power uses manipulation techniques spread through the media (marketing/persuasion/Brainwashing). If given the opportunity, would you utilize the same techniques?

j) Powerful institutions that dominate today’s global culture are often accused of using advanced persuasion techniques and outright deception and lies. If so, what sorts of deceptions and which ones most concern you?

k) Do you think the people in power believe their own propaganda? (E.g. the seven dwarves: in 1994 seven CEOs of big tobacco testified under oath “nicotine is not addictive.”)

l) What are your current strategies for overcoming the arguments put forth by the powerful regarding, for instance, global warming, economic inequality, free markets?

2) The Brain Sciences – “Brain sciences” refers to the rapidly increasing interdisciplinary understanding (from neuroscience, biology, developmental science, social sciences etc.) of the human brain, mind, consciousness and their relationship to institutions, cultures, society and human behaviour.

a) Let's talk about brains, minds, consciousness and human behaviour.

b) Do you think human behaviour is generally driven by conscious choice or the culturally (experientially/evolutionarily) conditioned unconscious mind? Why?

c) Early childhood is critical in the development of minds and worldviews that subsequently become resistant to change. Does this information play any part in your strategies?

d) If it became clear that we do not choose our genes, environments or culture and that our minds (beliefs and behaviours) are constructed from birth from elements beyond our control, thereby influencing who and what we are, how do we initiate change?

e) How much of human behaviour and decision-making would you classify as freely chosen or a function of “free will”? Do you think we exert as much free will as we believe? Who has it?

f) If it became clear that we are largely driven by unconscious forces emanating from our culturally/environmentally conditioned minds (extensive circuitry prewired by millions upon millions of previous experiential moments) – what effect might this have on your activities?
It seems that institutional power has been utilizing findings from the brain sciences regarding human behaviour, i.e. marketing/framing/manipulation/deception techniques, more effectively than the social justice groups. What are your thoughts?

Institutional power seems to have the means to inculcate large swaths of civil society with beliefs that further strengthen the hegemony/wealth of the few. How do you explain this?

The dominant culture is arguably the dominant mechanism for inculcating belief behaviours, and values in children. Is there a global culture? Negative or positive?

3) **Brain Science and Social Justice**
   a) The brain sciences have provided both: 1. Practical techniques (for influencing/manipulating beliefs and behaviour i.e. neuromarketing techniques, colour, scripts, repetition, settings etc.) and; 2. Core knowledge, a deeper understanding regarding human belief and behavioral tendencies that impact human flourishing i.e., belief centered realism, unconscious, fear ramps up authoritarianism, ECE, evolution/genes: which is most useful and/or most important to understand/implement for social justice and social change to succeed?
   b) Do you think there are any advantages to integrating the brain sciences with social justice strategies and goals? What might those advantages be?
   c) Is there an ethical issue in utilizing knowledge gleaned from the brain sciences by institutional power? By social justice groups?
   d) Given similar resources as institutional power (i.e. media control and time, well-funded “think tanks,” etc.), would you employ similar tactics? Which ones and under what circumstances?
   e) Is it possible to maintain some type of moral compass when determining which tactics to use? How?
   f) Is there a boundary that delineates which mind-based manipulative tactics might be used and those that cannot be used? Or, is it just situational?
   g) Anything else you would care to add?

Question 1a was derived from the following quote from Chris Hedges:
We have undergone, as John Ralston Saul writes, a *coup d’état* in slow motion. And the coup is over. They won. We lost. The abject failure of activists to push corporate, industrialized states toward serious environmental reform, to thwart imperial adventurism or to build a humane policy toward the masses of the world’s poor stems from an inability to recognize the new realities of power. The paradigm of power has irrevocably altered and *so must the paradigm of resistance alter*. (Hedges 2010, emphasis added)

[Return to Methodology]
Appendix D: Request for Participation in a PhD Research Project: The Brain Sciences: Applications in Social Activism and Social Change

I am conducting research in partial fulfillment of a PhD Thesis in Interdisciplinary Studies at UBC Okanagan. The initial aim of this research is to explore to what extent social justice organizations are/are not utilizing current knowledge arising out of the brain sciences (as it relates to human beliefs and behaviours) in their pursuits of social change. Secondarily, this research is undertaken in an attempt to provide new tools and strategies for those attempting to mitigate the multiple global systems failure scenarios now unfolding around the world (i.e. global warming, economic inequality etc.)

You have been asked to participate because of your efforts and participation in social justice regarding the aforementioned concepts or related studies.

Your participation would consist of an interview, approximately 1 hour in length, at a time and site of your choosing (in person or via videoconference) within the timeline for the study (Jan 20 – Dec 31, 2013). The preliminary analysis of our interview will be provided for your comments, suggestions and clarification before final submission. Summary results, including any strategies, theories and practical applications will be sent to you directly upon completion. The final dissertation will be available as a public document.

Please contact me (or Dr. McPherson) via email or telephone for any additional information you may require prior to participation.

Please see the attached consent form for details. Return to Methodology

Marc Brillinger
PhD Candidate
Interdisciplinary PhD Program
Department of Graduate Studies
UBC Okanagan
250-212-2580
marc.brillinger@alumni.ubc.ca

Naomi M. McPherson, Ph.D.
Associate Professor Emerita, Anthropology
Community, Culture and Global Studies
Editor-in-Chief, Anthropologica, Journal of the Canadian Anthropology Society
Irving K. Barber School of Arts & Sciences
University of British Columbia Okanagan
Kelowna, B.C. Canada, V1V 1V7
1-250-807-9337
Naomi.McPherson@ubc.ca
Appendix E: Consent Form

The Brain Sciences: Applications in Social Activism and Social Change

Principal Investigator:
Naomi McPherson, Ph.D.
Associate Professor, Cultural Anthropology
Community, Culture and Global Studies
Irving K. Barber School of Arts & Sciences
Naomi.McPherson@ubc.ca
1-250-807-9337

Co-Investigator(s):
Marc Brillinger
Interdisciplinary PhD Program
Department of Graduate Studies
marc.brillinger@alumni.ubc.ca
1-250-212-2580

The co-investigator is conducting this research for use in a thesis and to satisfy the requirements for the degree of Doctor of Philosophy in Interdisciplinary Studies.

Sponsor: None
Purpose:
The initial aim of this research is to explore the extent to which social justice organizations are utilizing current knowledge arising out of brain sciences research (as this relates to human beliefs and behaviours) in their pursuits of social change. The “brain sciences” refers to the vast interdisciplinary effort currently underway exploring and unlocking many of the mysteries and intricacies of the human brain, mind, consciousness and their relationship to institutions, cultures and society. The research will concurrently seek to uncover novel “paradigms of resistance” that integrate current knowledge from the brain sciences with current social justice and activist strategies and goals. You have been invited to participate because of your efforts and expertise in social change movements. This research is undertaken in an attempt to provide new tools and strategies for those attempting to mitigate the multiple global systems failure scenarios now unfolding around the world (i.e. global warming, economic and political meltdowns/social injustices).

Study Procedures:
The co-investigator will be conducting an interview with you of approximately 1 hour at an agreed-upon time and place to be chosen by the interviewee. The interview will consist of a series of open-ended questions. Each interview will be audio taped in digital form. The interviews will be placed on a secure password-protected computer for use by the researcher and primary investigator only. Preliminary interpretation, analysis, concepts and themes will be presented to participants for their views, confirmations, and omissions.
Potential Risks: None

Potential Benefits:
The interviewee and/or the social justice organizations they represent may benefit from the results of the study. The results may provide alternate strategies for achieving their goals, or influence those goals directly. Results will be provided to participants via their email addresses recorded below.

Confidentiality:
All documents will be identified only by code number and kept in a password-protected computer. While the researchers will respect the confidentiality of the responses, we cannot guarantee that people in related fields will not recognize participants or organizations by the nature of their responses.

Participants may or may not, choose to be identified by name in reports, publications, and presentations of the completed study. The dissertation upon completion would be freely available as a public document (UBC Circle Information Repository).

Remuneration/Compensation: None

Contact for information about the study:
If you have any questions or desire further information with respect to this study, you may contact Naomi McPherson at 1-250-807-9337 (naomi.mcpherson@ubc.ca) or Marc Brillinger at 1-250-212-2580 (marc.brillinger@alumni.ubc.ca)

If you have any concerns about your rights as a research participant and/or your experiences while participating in this study you may contact the Research Subject Information Line in the UBC Office of Research Services at 1-877-822-8598 or the UBC Okanagan Research Services Office at 250-807-8832. Alternately, you may contact the office by email: RSIL@ubc.ca.

Consent:
Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time. Your signature on the following page indicates that you have received a copy of this consent form for your own records and indicates your consent to participate in this study.

Participant Signature Date

To allow identification by name in this study and other reports, publications, and presentations, check here: ☐

Printed Name

Email Address  (to receive interim and final results

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