



Article

Four Futures of Reality

José Ramos^{1,2,*}

¹University of the Sunshine Coast, Australia

²Journal of Futures Studies, Taiwan

Abstract

This article examines the futures of the public sphere and shared reality as a commons, examining the forces that have led to an epistemological crisis. Using a commons perspective, actor network theory and causal layered analysis, dimensions of the epistemological crisis are explored and reframed, providing four scenarios with accompanying metaphors: the gladiatorial pit, the re-education camp, the boarding school, and the permaculture garden. The article concludes with a call to action to integrate universalist and pluralist sciences and knowledges.

Keywords

Epistemology, Pluralism, Universalism, Ideation, Relativity, Science, Dogma, Causal Layered Analysis, Actor Network Theory, Public Sphere, Commons, Internet

Introduction

Today we are seeing a tectonic shift in how our notions of truth and reality are mediated. Led by the new digital titans of Silicon Valley, Google, Facebook, Twitter and other mediators of thought, we have been eased into a new consumer friendly regime of reality making. In parallel with this is the unfathomable depths of the internet, from credible new media companies such as Vice News, to conspiracy spawning blogs and sites such as InfoWars, Russian troll farms, China's Great Firewall, the crypto-world and of course the 4chan and 8chan forums where new identities, attachments and hatreds bubble from the collective unconscious. The Internet is the modern-day Trojan horse for an army of new agents that have unleashed an epistemological crisis: fake news, conspiracy theories, electoral manipulation, surveillance and deepening polarization between different communities of thought.

Aims and Approach

The aim of this paper is to understand our current epistemological crisis, its relationship with the internet, and to address how a shared sense of reality and the public sphere as a commons can be protected and generated. The paper is an exercise in sense-making. The issues related to epistemological fracturing are complex. This paper intends to provide useful framings that point toward pathways for change.

Theoretically this paper draws on the idea of the commons, as developed by Ostrom (1990), Bollier and Helfrich (2012, 2015) and Bauwens and Niaros (2017), as a normative foundation. It also draws on Jurgen Habermas' (1999) idea of the public sphere. Latour's (2005) actor network theory also informs the perspectives - as the ideas, ideologies, machines (e.g. internet bots), governments and people in the various examples we see in this internet-epistemological crisis is a combination of emergent and complex "assemblages". Methodologically the paper uses Inayatullah's (1998) Causal Layered Analysis (CLA) to analyse the subject and to provide reframing, from which several scenarios are developed to show possible futures which have implications for how we collectively respond.

* Corresponding author.

E-mail addresses: Jose@actionforesight.net (J. Ramos).

CLA Analysis and Roadmap

The following begins an analysis based on the CLA method. The analysis begins with looking at the Litany, these are the symptoms of the issue. The paper then moves to examining systemic causes and issues. Here the idea of “shared reality as a commons” and the public sphere is introduced. As well, the political economy of capitalism, oligarchy, post-normality, network dynamics and the human need for identity groupings/belonging are explored.

While many CLA papers proceed from Litany to Systemic Causes to Worldviews to Metaphors, this paper takes a small detour after Systemic Causes to explore the historical dynamics of the issue. This is important because our epistemological crisis needs to be understood in terms of the extractive logic of civilizational development. To address the crisis and open up a space for transformation requires how civilization itself plays a reality-making role.

The CLA analysis resumes by looking at the level of epistemology, in particular through the themes of Relativism and Ideation. Relativism concerns the spectrum from a belief in a unitary truth (universalism) to a belief in many truths (pluriversalism). Ideation, on the other hand, concerns how ideas are produced, the spectrum from science/experience to just opinion, beliefs or canonical traditions (e.g. ancient texts).

These themes generate four futures of reality making with attendant metaphors, which are explored through four scenario vignettes.

Litany/Symptoms

While the human tendency for tribalism has existed from our earliest beginnings, the internet creates the potential for new levels of “self-referentiality”, the ability to find people and their websites that support our existing ideas, viewpoints and biases, rather than disconfirm or challenge them. To this can be added the “filter bubble” phenomenon driven by the logic of media platforms, the algorithms used by companies like Google and Facebook which ensure that we mainly see that which we are looking for (consumer products), agree with (political preferences), or which simply lead us to more news and sources that confirm and strengthen existing ideas. Day by day we are led into echo chambers of agreement, unwittingly separated from those we would disagree with. While there is nothing wrong with this per se, as we have always sought community with people who share our views, the modern-day Internet supports ever greater self referential worlds often disconnected from empirical experience and driving incommensurability between different views. But how far will this go? Will people begin to inhabit incommensurable views of what is real and what is not? Will we lose any standard for how what is real is understood?

Today this seems to be the trend. The US president Donald Trump has been impeached based on what seems to be clear evidence. Yet the entirety of the US Republican party has decided to obfuscate, misdirect and provide “alternative” facts, rather than square with the testimonials of witnesses. Partisan politics have always carried some degree of ideological incommensurability, for example the divide during the Cold War. Today however the dynamics of self referentiality and the willingness of people to ensconce themselves into communities of thought have reached new levels.

In 2018 organizers ran their second Flat Earth International Conference.¹ Hundreds flocked from across the United States and even internationally, conveniently ignoring the curvature of the Earth from their airplane windows, to share their thoughts and theories on how the notion of a round earth is a conspiracy. Today one will meet “flat earthers” at random, who will mount impassioned arguments based on ideas from the world wide web. But this type of self referentiality is far from innocuous. In 2019, a mass killer struck a mosque in Christchurch. The Christchurch Killer was radicalised and came to believe that he was fighting for the future of a “white” race. He has been told there was a conspiracy to replace his culture. Following web sites that lionised and quoted people like Anders Breivik, in the echo chambers of the 4chan and 8chan communities, the plasticity of his brain was moulded toward a trajectory of hate and death. The killer ultimately took 51 lives in a Facebook streamed killing spree during mosque services, while his anonymous peers cowardly posted their support and admiration.² In his manifesto, the killer proudly bragged that he had no formal education and that he was “educated on the internet”. In this case the internet had become the university for the end of civilisation. It is the dark side of the global brain envisioned by HG Wells.

Once the corporate and state medias grip on the zeitgeist of modernity was finally broken by the internet, true freedom of thought and discussion flourished and the [o]verton window was not just shifted, but shattered. All possibility of expression and belief was open to be taught, discussed and spoken. This open and often anonymous discussion allowed for information, outside of the states and the corporation control, to be accessed often for the first time. The result is obvious. People are finding their way home. Finding their people, finding their traditions, seeing through the lies of history, the brainwashing of the institutions and they angry, they are energized and yes, against their degenerate societies, they are radicalized.³

Alongside the filter bubbles generated by the tech platforms is the logic of recommended content. YouTube has specific algorithms designed to recommend content to the user. Of course it is to YouTube and Google's advantage if people continue watching for as long as possible. That way people will watch more advertisements. To keep users watching Youtube, the algorithm recommends more sensational or extreme types of content. Thus stories have been told of young Muslim boys radicalized through the medium of YouTube, which during its apex was one of the main promotional channels for ISIS (Islamic State).⁴

Fake news outfits profiting from sensationalism emerged in the early 2010s, a type of "click bait capitalism". Then, there was a kind of perverse innocence to it. Such as the story of a woman suing Samsung for \$1.8 million dollars after her phone got stuck in her vagina.⁵ Ridiculous, sensational stories crafted to get maximum clicks and sell maximum advertisements blossomed within the new attention economy. But fake news has evolved into a more virulent form.

Fake news has now become weaponized as a tool for political manipulation. Enter Cambridge Analytica. With granular analysis of a media users personality based on their Facebook search and like history, fake news could be targeted with precision to the people most susceptible to it. People would spread it, as a virus. But this time the virus was truly virulent. It was used to destroy political reputations, tip elections in countries around the world, and was critical in Brexit, Trump and countless other elections.⁶ These "shadow ads" were done through a fuzzy trail of money, a mode of influence preferred by oligarchic, foreign and other moneyed influences that do not want to be known.

Systemic Causes

Is a "shared reality" a commons?

A "commons" signifies something which we mutually depend on for our survival and wellbeing (Bauwens & Ramos, 2018). We are accustomed to thinking about commons as "things", the health of our oceans, access to water, a safe climate. As argued by the Nobel Prize winning economist, Elenor Ostrom (1990), because we are mutually implicated into many commons, we engage in the governance of them. If we manage to govern them well so that these commons are maintained and nurtured, we survive and prosper as a result. If we do not, then we do not survive, or our lives are degraded. Commons thus also imply activity, the act of 'commoning'. The last 30 years have seen the idea of the commons applied to many things, oceans, cities, even knowledge on the internet (Bollier & Helfrich, 2012). But "shared reality" as a commons is a less conventional idea.

Commons also move from implicit to explicit (Bauwens & Ramos, 2018). Implicit commons are ones mutually needed for survival and wellbeing, but they are taken for granted until they are threatened or destroyed. Air pollution and climate are two examples of commons that have moved from implicit to explicit. It is not until we understood the impact of lead poisoning and other airborne industrial pollutants as a critical threat to our health, that we began to regulate air pollution. It is not until we understand that the future viability of civilisation is bound up with a safe climate that we will move toward collective planetary governance of our atmosphere. These have moved from implicit to explicit commons.

In this context we risk losing one of our most fundamental "commons", a shared sense of reality and truth that allows us to solve problems together. In our contemporary era "shared reality as a commons" has been implicit - taken for granted and invisible. But when "what is real", this shared regime of truth, is threatened, the stakes also become real. To deal with climate change we require more than a global scientific consensus on what it is and how to tackle it; we require a political consensus and will built on shared and widespread understanding. Climate

denialism, alternative facts and mis-information is as much a threat as the CO₂ going into the atmosphere - because we cannot effectively tackle climate change when the world's largest economy is run by a political party that largely chooses to deny the reality of it. Public health is also a commons, and the anti-vaxx movement which encourages people to forgo vaccinations for their children, is a threat to public health. If the anti-vaxx movement were to have its way, eradicated diseases like polio, measles, small pox and other viruses would again ravish our societies.

The public sphere

German Philosopher Jurgen Habermas discussed the challenge of generating a society-wide conversation - what he called the "public sphere" (Habermas, 1999). For him, the public sphere referred to a shared conversation that enabled a society to address its challenges. From time immemorial there have been competing worldviews. Therefore, this does not necessarily imply agreement on issues, but the systems and processes required for people within a society to generate shared meaning that allows them to live together and solve *the problems they commonly share*. Part of the public sphere includes the knowledge and learning required to have intelligent public conversations and make wise decisions.

We can think of a "shared reality" and public sphere *somewhat* interchangeably. The German's learned the hard way through the Nazi experience what happens when a society loses its ability to have debate, coherence and when a public sphere is replaced by the propaganda of a particular party. Likewise in other socialist countries (the Soviet Union, People's Republic of China) an open public sphere was replaced by an authoritarian party propaganda machine, and we have seen many of the problems this created with the initial emergence of the coronavirus (Covid-19) in Wuhan, where authorities tried to suppress information rather than transparently report information. The public sphere is a type of commons, in that the ability to engage in mutually intelligible conversations with fellow citizens, to address common issues of concern, is something we mutually depend on for survival and wellbeing. Without it, co-thinking and co-learning, let alone respond to fast developing problems, is lost and subsequently a society's wellbeing is degraded. Analogous to the German experience with the Nazi takeover, in our era of fake news and alternative facts, filter bubbles and self referentiality, the public sphere has shifted from an implicit commons which had been taken for granted and has been harder to see, to an explicit commons that we have now identified needs to be cared for and nurtured for our mutual survival.

Today we see an epistemological fracturing, a rupture of a public sphere. We see the stoking of ethnic hatred and the fracturing of a common sense of humanity. We see social polarisation across the political spectrum typified by an internet mediated shouting match between worldviews and ideologies rather than dialog. We also see a flight from expertise, science and the development and uptake of pseudo scientific theories (many conspiracy theories), in particular at a time when scientific understanding (climate science) is critical to human survival.

The political economy of capitalism

Capitalism, and its drive for profit, creates social externalities. In the 20th century we got used to basic forms of capitalist externalities: toxic waste dumped near a community without proper safeguards, mine tailings destroying waterways, speculative investment making housing unaffordable, injuries and deaths at work, and a number of other adverse effects driven by the perverse incentive of short term shareholder profit. Using his Global Systems Theory, William Robinson (2004) argues that during the latter 20th century capitalism shifted from an extensive mode into intensive mode. Extensive capitalism is a movement of geographic reach, as capitalism began to be introduced into and dominate peripheries in Southeast Asia, Latin America, Africa, Central Asia, and with the conversion of formerly socialist countries (Russia, China, Vietnam, etc). Intensive capitalism, on the other hand, is its movement into the life world, mind-space and relationships of people.

Intensive capitalism commodifies people attention spans, imaginations and their relationships, now mediated by online systems. Facebook commodifies human relationship, by profiting from the free content and free exchange people make on their platform, and selling this relational data to third parties. This means that if fake news drives clicks and is profitable, we will get more of it.⁷ If paranoid and conspiratorial white supremacist rantings make money, we will get more of this. If more extreme content on YouTube drives profits, then it will continue, and the extremist views that emerge. If maintaining filter bubbles means that people stay on a platform, then the algorithms will be designed to keep us in self-referential worldview communities – driving polarization. This is all to say that

the consequence of intensive capitalism, the commodification of our subjective life worlds, represents a whole new order of social externalities. These new externalities include radicalization, the ensconce-ment into extreme self-referential ideation, the fracturing of the public sphere, children addicted to screens and games,⁸ and a litany of other problems, driven by perverse incentives (short term profit).

The commodification of personal data can be seen as an extension of this movement of intensive capitalism. Online personal data is the artefact of a person's experience, and lies somewhere in-between the physical world of electrons and data processing centers, and the inner world of a person's values, aspirations, desires, fears etc. The purpose of the data-as-commodity, however, is specifically to influence the inner dimension of a person, to get them to watch more, buy something, think something or fear something – it is part of intensive capitalism.

The network age and accelerated ideational evolution

The internet formed the basis of a scale shift, a “space-time compression”. Ideas were no longer confined to paper and print, and no longer limited by space, whether nation, city, town. Any idea anywhere could be transmitted instantaneously and picked up by any other person with the right technology. The scale shift brought by the internet amplifies the rise and fall of ideas. It allows “trans local” tribes to form across space and time, a new logic of association understood through a new sociological lens and ethnography (Arquilla & Ronfeldt, 1999; Castells, 1997; Karatani, 2014). Foresight tribes (Ramos, 2016) may include those that subscribe to a particular image of the future, whether it's the singularity, trans-humanism, or extinction rebellion, but as well other more pernicious attractors - such as followers of ISIS or white supremacists. Accelerated ideational evolution cannot be seen as all bad, as it allows ideas that may have merit to be made visible, seen globally and chosen, and these may be ideas that humans need for survival in the 21st century. This is the basis for cosmopolitanism – the ability for diverse localities to generate for each other the ideas, innovations and solutions that are needed for our wellbeing (Ramos, 2017). But these can also be the ideas of al-Qaeda, Anders Breivik and the Christchurch mass murderer. Thus the ante, the stakes, are raised. What ideas will win in this accelerated evolutionary petri-dish that is Earth in the 21st century?

Thus with the stakes raised, the capitalist political economy with its drive for short term profit now works against the forces of our survival. It makes hate profitable,⁹ creates social polarisation and amplifies conspiracy theories, pseudo science and disinformation. The scale shift and opening up of epistemological space, new ways of knowing, can have beneficial effects. It can mean global peace-faring communities practicing meditation and charity. The ability of new potent and useful ideas to spread and connect allows an acceleration of social evolution. But the benefits of this evolutionary process are hamstrung by the dynamics of capitalism, which subordinate this social evolution to the logic of capital. This is surveillance capitalism (Zuboff, 2015). In non-authoritarian states social institutions struggle to regulate the internet, a consequence of both capitalism and the oligarchic nature of the political economy.

Oligarchy

Oligarchy is a type of political system or arrangement where a small minority of people, with great material wealth, use their wealth to defend it through various strategies. It is a sad truth that today we are living in a new age of oligarchs. In one decade, from 2009 to 2019, the number of billionaires quadrupled from 793 billionaires to 2,153 billionaires.¹⁰ The tax rate for a billionaire is effectively lower than that of an average worker in the US; while the richest 1/10th of a percent owns as much wealth as the bottom 80%.¹¹ Martin Gilens and Benjamin Page (2016) conducted a study to find out which groups exert influence over public policy: citizens; economic elites; interest groups, (whether mass-based or business-oriented). Their findings suggested that economic elites and business interests have substantial influence on policy, while citizens and mass-based interest groups have had little or no influence over the past 30 years. Winters (2011) came to the conclusion that most nations in the world today are some form of Oligarchy. Even the 39th President of the United States Jimmy Carter described the US as an Oligarchy.

This system of inequality expands through a process Winters (2011) calls “wealth defense”. Wealth defense is the process by which oligarchs defend, maintain and extend their wealth. There are two main types of wealth defense used by the super rich, property defense and income defense. Property defense is the process of defending claims to property. Income defense is the process of avoiding taxation and other threats to an oligarch's income. The more

extreme the disparity between an oligarch and ordinary people in wealth, the more effort and resources are needed to defend such wealth. As inequality increases, the power of oligarchs also increases, and their need to influence political outcomes, as billionaires have more at stake and more to lose in a democratic election. To defend their wealth they need to be able to influence elections and this means influencing social media. With the Internet and social media as the new way in which thought and “reality” is mediated, and the vast data that social media platforms like Facebook scoop up from the public, the drive toward wealth defence includes influencing people’s voting behaviour through targeted shadow ads and fake news. It can be difficult to follow the dark trails of monied influence, however a recent study concluded that a quarter of all tweets on climate change were generated by bots (automated), amplifying denialist messages. We can only speculate what oligarchic influences are part of this actor network.¹²

The existential terror of the post normal world

When people begin to learn about global futures, they can experience a range of things. Most often it will begin with cognitive overwhelm. People will also feel different emotions, excitement, alarm, despair, fear, even terror. Ultimately people must reconcile who they are with a new context - this can mean existential transformation, a new sense of self. This can happen if people feel a sense of hope and if they can see avenues of change, and can get involved and experience a sense of agency in creating change. However many don’t see avenues for hope, and instead of existential transformation there is psychic numbing, extreme fear and paranoia, and reactionary (back to the past) movements (Hicks, 2002).

The present era may be terrifying for different types of people for different reasons. The post colonial context may be unsettling to those who strongly identify as “white”. They may see the rise of China, India and Africa and an equalisation of power as a threat. The US Republican Party and tea party’s bizarre reaction to the Obama presidency is instructive. It was the first time the election of a US president was not dependent on a “white” majority, and it was clearly a threat to many, not just politically, but symbolically. For the middle class worker, the idea of automation and artificial intelligence sounds like a harbinger of lost jobs. For anyone who studies the implications of climate change, it is deeply unsettling. Many aspects of contemporary life may simply be too difficult to be fully grasped or even partially accepted. Post Normal Times (PNT) posits a new era where strange and counter-intuitive events emerge from the soup of complexity, chaos and contradictions (Sardar & Sweeney, 2016). For the futurist, PNT is a framework or language to make sense of a changing world, with unexpected surprises. For the average person without the benefit or privilege of a futurist framework, it may seem overwhelming, shocking or just terrifying, as suggested by Toffler (1984) over three decades ago.

In this context terror is therefore perhaps the corollary of self-delusion. If today people are suffering from existential terror of many types - is the flight into dis-information, conspiracy theories and ethnocentrism, an effort to deal with the existential terror of the post normal world? Does believing a conspiracy theory provide some temporary respite to the psychologically disturbed, or is it a consequence of being repeatedly deceived by state institutions and the media (Merlan, 2019)? Much like a person going through trauma may deal with their challenges with alcohol or drugs. The drugs help to deal with the symptoms of the problem in the short term, while making things worse in the long term. Is the popular flight into authoritarian power and personalities (Trump, Modi, Bolsonaro, etc.) and the media fakery they represent, a grasp for a sense of safety and the certainty of the past in an unsettling world?

Belonging and tribalism

New behavioural research has also begun to paint a picture as to why humans have a tendency toward tribalism, or in-group/out-group bias. Eberhardt (2019) shows how the human brain will respond differently to the faces of people we are acculturated to, as opposed to the faces of people in an ethnic group a person does not belong to. In general people can differentiate the faces of their in-group, with corresponding high brain activity, while with people who are physically dissimilar, faces are less differentiated with lower brain activity, suggesting the overlay of category patterns for out-groups. In addition, she shows how similar category patterns are developed in children by micro-behaviours of parents (how a parent responds and generates an out-group category pattern, even when subtle).

In the context of all of the issues mentioned, the self referential and data targeted character of today’s internet

amplifies, indeed multiples the possibilities for generating tribalism, in-group/out-group thinking, and the production of an enemy, an “other”. While this is not the determined trajectory of the Internet, as Rifkin (2009) argued the internet also creates an “empathic civilisation”, this new wave of neo-authoritarians have become adept at sowing fear in order to mobilise an imagined (exclusive) community, and driving division. Thus one of our biggest challenges is to reconceptualize the whole of the human family as the “tribe” we belong to, as well as belonging to the family of all living beings.

Historical Dimensions

Civilizations have both risen and fallen through many periods of history, and there are a variety of conceptions for the processes and mechanisms that underlie this (Galtung & Inayatullah, 1997). Whitaker (2010) reviewed 3,000 years of ecological crises in Europe, Japan and China, and how societies/civilisations overcome these types of crises. He argued that elites in class- and state-based competitive polities almost always systematically over-reach their natural resource base and over time create ‘degradative political economies’, not as an exception but as a rule.

The classes more closely tied to actual production periodically revolt and create transformative social movements, which have historically taken a religious-spiritual form.

Thompson (1985) also identified the tendency for civilizations to destroy and pollute their resource base across Babylonian, Greek, Roman and European and now Planetary civilization, where a civilization’s core growth comes at the expense of its peripheries, and where the overshoot ultimately undermines the viability of the core civilization itself. Thompson pointed toward a commons framework as a solution, an arrangement he termed *enantiomorphic*, an awareness of the deep inter-dependence of all people and life. Homer-Dixon’s (2010) detailed analysis of energy use within Roman civilization also came to a convergent view: growth dynamics were early on based on large “energy returns on investment” (the amount of energy needed to exploit new energy sources), but diminished over time as social and ecological externalities mounted up. The Roman empire was extractive in a pre-fossil fuel sense, through the exploitation of slaves, forests and lands opened up for farming.

Epistemological crisis in the civilizational shift

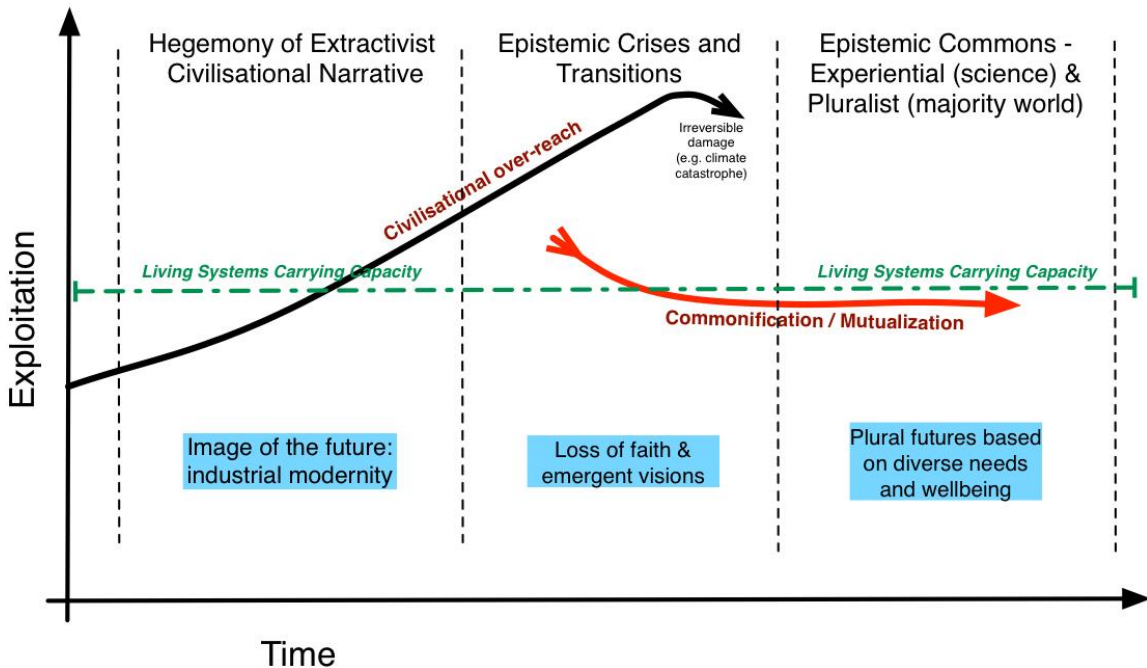


Fig. 1: (Diagram 1) From an extractive episteme to an epistemic commons. Source author

Diagram 1 attempts to depict the movement from an extractive mode of civilization, to a generative mode based on the logic of resource mutualization and the commons. The extractive dynamics of a civilization ultimately generate a civilizational crisis, and a number of related dynamics also emerge. As a civilization over-reaches its living systems carrying capacity (both bio-physical and social), a more grassroots and plural movement of actors and organizations provide solutions through the logic of mutualization and commoning (Bauwens & Ramos, 2018). Of central concern for this paper is how, during this process, an epistemological crises unfolds and can be resolved.

As the consequences of a civilization's impact becomes more clear, the image of the future that helped to animate the extant civilization may begin to lose power (Polak, 1961). Images of the future may become dystopian, and narratives that are civilization-contradicting emerge and serve to unravel the core belief and logics that have wedded people to the old system (Polak & Boulding, 1973). A creative minority from a variety of perspectives can also produce new seed visions that attempt to offer solutions amidst crisis (Galtung, 1997). Some of these may be "fantasy" visions and solutions that reiterate the core logic of empire without addressing its contradictions, giving people a false sense of hope. Others may be delusions or projections based on the existential crises of the Post Normal World. Some visions and solutions, however, are based on a square reading of limits of their civilization's contradictions and invite new pathways that are outside of the epistemological orbit of empire (Boulding, 1978).

What civilizational cycle are we in now? Over the last 400 years the logic of extraction and exploitation was super charged through the development of capitalism in Europe, driving Western colonialism first through a mercantile phase and then an industrial phase. Galtung (1971) discussed this dynamic as "core – periphery", whereby elites in the core/powerful nations co-op and synchronize their interests with elites in peripheral nations/regions, thereby enabling a model of multi-state extraction and accumulation. This mode of exploitation in turn could only be maintained through some sort of subversion of meaning and ideological hoodwinking. In Europe and the US the idea of racial superiority developed and was promulgated, through popular means as well as through anthropology, which helped to justify, indeed legitimize exploitation and genocide on a massive scale over hundreds of years (Inayatullah, 1997). The protestant notion of chosenness (of the industrious and wealthy) was another version of this – justifying a disregard for the needs of the poor or misfortunate, those too lazy to help themselves (Weber, 2008). Marx identified these sorts of ideas as a "super-structure" that helped to prop up capitalist exploitation (McNaughton, 2005). Likewise, Gramsci used the term "hegemony" to describe the reigning discourses that justify exploitation and obscure the possibility of an alternative (socialist) system (Hansen, 1997).

One of the contradictions that emerged from the enlightenment was that Western liberal societies took a pluralist position with respect to religion. "Freedom of belief" is one of the foundations of modern Western liberalism. At the same time, these liberalist societies came to be driven by a scientific universalist epistemology. There could be many versions of God or the divine, but there could only be one version of gravity. This partitioning, in some places official (USA/France) and in other places unofficial (UK), was arguably hard won. The reformation in Europe was one of the bloodiest periods in its history, fought over whether different versions of God and church were acceptable (Protestants) or whether there could be only one standard God (Catholics). Over time affiliation to a religion gave way to allegiance to a state, as the modern nation developed and a sense of nationhood usurped religion as primary. Modern European states would become liberalist and pluralist with regard to religion, but would demand a new type of loyalty from citizens. As Braudel (1993) would argue, the coupling of science, technology and industry would become a critical success formula for European states to compete with each other in commerce, empire and warfare. Statehood, citizenship and science were bound together. Loyalty to a state by implication meant loyalty to a scientific-industrial epistemology – a new type of hegemony.

An ecology of knowledges?

Today we can see a capitalist political economy with its cost externalities (especially the social externalities wrought by the internet) as fundamentally complicit in a wider breakdown of meaning, inhibiting a sense of shared understanding that allows us to solve problems together. Intensive capitalism (Robinson, 2004) is a movement into the mindspace of populations – ideal systems and platforms for "manufacturing consent", the ability to manage the boundaries of reality for whole populations (Herman & Chomsky, 2010). The global capitalist political economy can take on many forms. In Russia it is a cabal of oligarchs, in the US it is the commodification of people's data, relationships and attention spans by corporations, and in China it is a tightening of control by the state, preserving the privilege of the party and its princelings. Each finds its own way of manufacturing consent, shaping reality and

protecting the interests of its most powerful.

Against this are movements and visions for a sustainable and just world that embody “global cognitive justice” (Santos, 2007) – the experiences and the needs of the majority world (as opposed to the powerful or privileged) - foundational in a necessary epistemological re-constitution of the world. But we straddle a tension. We both need science, especially in its most counter hegemonic forms (climate science, evolutionary biology, health and diet), and we need to move beyond the hegemony of state-corporate industrial science, complicit in numerous contemporary social pathologies (Beck, 1999). What is needed is an epistemological groundwork that is both pluralist and scientific, which represents a multitude of knowledge systems based on what is contextually relevant and effective, rather than abstract and universal. We need to move toward an understanding of knowledge interdependencies, rather than a knowledge factionalism, where people can see themselves as part of ecologies of knowledges and a “knowledge democracy” (Rowell & Hong, 2017).

This subversion of critical and emancipatory awareness by elite interests rests on two factors: first, a denial or obfuscation of science/practical experience, where untested dogma, belief or mis-information can prevail against the empirically evident; and secondly, the monopolization of “legitimate” knowledge into a unitary system – universalism. Outside of sanctioned knowledge, no other is allowed or legitimate. The first factor, between universalism and pluralism, is here called the dimension of *Relativity*. The second factor, between science/practical experience and belief /dogma, is here called the dimension of *Ideation*. These dimensions also offer the opportunity for epistemological re-constitution and transformation.

Epistemological Dimensions

Implicit in Causal Layered Analysis (Inayatullah, 1998) as a method is the proposition that the epistemological dimension of an issue, the worldview, discourses, narratives at work, play a fundamental role in the production of a problem. This is similar to Donella Meadows (1999) argument that the most potent place to intervene in a system was to change the core “paradigm”. CLA provides a method for doing this. In order to explore this epistemological crisis more deeply, and create space for change, two key epistemological dimensions are proposed and explored: *Ideation* and *Relativity*.

Ideation concerns how something, some idea, comes to be held as true. Is this through an empirical-verificatory process, or through insight, personal experience, hearsay or just the internet? At one extreme is the Christchurch mass murderer, who delighted in snubbing formal education, proudly proclaiming “I was educated by the internet”. This is the extreme end of ideation by internet repetition and echo-chamber. At the other end of the spectrum are the natural sciences and the scientific processes used within various domains of science, as well as expert knowledge outside of science, based on mastery (e.g. meditation, elite sports, law, etc). In science, to be true, something has to go through a rigorous process of testing (Popper, 2002). Einstein’s general theory of relativity, despite being over 100 years old is still being tested, challenged and verified. For expertise, a person must demonstrate skill, knowledge and ability. Another way to summarize this dimension is whether truth is to be found through deep experience, versus someone or a group with an opinion or belief or “theory” (not based on either social or natural sciences or experience). In diagram 1 this dimension is explored. (Note that numbers signify position in a spectrum and therefore skip).

Table 1: Spectrum analysis of Ideation. Table by author

1 - Natural science	Rigorous verifactory processes - scientific method(s)
2 - Expert knowledge	Burden of proof is on expert to demonstrate effectiveness / knowledge (e.g Legal profession and trades)
2 – Academic Journals	Institutional knowledge production - double blind peer review process
3 - Some journalistic institutions (NYT, Guardian, Washington Post, etc)	Some newspapers, legacy of an enlightenment era devotion to facts, as well as a “fourth estate” role as a check and balance
5 - Wikipedia	Consensus participatory production of knowledge with non-expert sub-editors

6 - Other “journalistic” institutions (Fox News)	Sensational journalism with an obvious bias aimed at energizing a base
7 - Facebook	Anyone with an idea can post almost whatever they want, contracted moderators end up with PTSD
9 - Neo-NAZIs and Daesh / ISIS	Ideological movements with strong communities that make gaping exceptions to scientific experience (e.g WWII Nazi “science” - scientific knowledge cannot include Jewish knowledge)
10 - The Crazies / Breveik / Jihadists / conspiracy peddlers (info wars)	Production of ideas dissociated from experience, largely projections of emotionally disturbed people

By contrast, *Relativity* concerns whether what is true is considered to be plural or singular, between universalism and pluralism. For universalism the core assumption is that there is one knowledge based on one truth, regardless of perspective and culture. Truth cannot be local, what is true is true regardless of any given context. Gravity for example is a constant on any given part of the planet, and on any other planet. In philosophy of science different schools of epistemology have carried this forward: positivism, post positivism and critical realism for example (Crotty, 1998). Examples of universalist epistemologies also include the Catholic Church, and other Hebraic religions, though challenged centuries ago by the scientific revolution, resisted the possibility of an alternative truth. More recently universalism in social science has been challenged by the post-modern and post structural movements (Denzin & Lincoln, 2003). Western scientific universalism, such as through colonial era anthropology and sociology, were critiqued as providing the ideological justifications for colonialism - white supremacy applied (Inayatullah, 1997). Western led universalism in effect saw one civilisation’s narrative imposed on the rest of the world for its own ends. Post-colonial theorists like Santos (2006), Escobar (2011), Shiva (2000), and many others called for decolonizing knowledge. The West’s cognitive hegemony with respect to development has wrecked dozens of countries and ecosystems, through neo-liberal structural adjustment, and the application of win/lose economic models (Bello, 2007). From this vantage point the dominance of the Western universalism can be seen as the destruction and subordination of the knowledges of the Global South, what Santos describes as “epistemicide” (Santos, 2014). Santos thus argues for an “Epistemology of the South” and “Knowledge Democracy”, while Escobar argues for pluriversalism - which can transcend the West’s hegemonic development paradigm. In the following diagram this dimension is explored. (Note that numbers signify position in a spectrum and therefore skip).

Table 2: Spectrum analysis of relativity. Source Author.

1 - One God, my God	Jesus camps, al-Qaeda, ISIS (Judaic religious fanaticism), Hindu ultra nationalists
2 - Washington consensus - neoliberal development - end of history	The belief there is a determined end point to human social development, and it looks like a shopping mall in Delaware
3 - Scientific universalism	Science the strongest foundation for the real, and we should not entertain the notion of other as-legitimate knowledges
5 - Constructivism	“Truth” or the real is co-produced by a community and communities of communities, including their geographic contexts and assemblages
6 - Post structuralism	The empirical and the epistemological are multiple and co-constituting
8 - Pluriverse	Many knowledge systems grounded in diverse lived / geographic contexts, knowledge democracy
10 - California new age, hippy solipsism	Belief <i>creates</i> reality, fad of quantum physics, the film <i>The Secret</i>

Four Futures of Reality

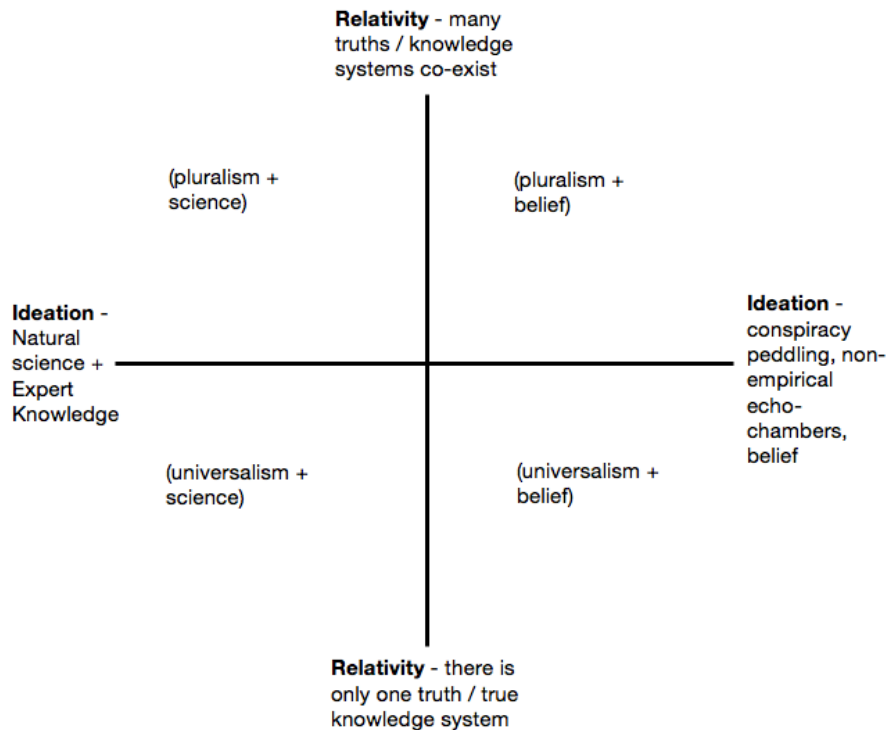


Fig. 2: (Diagram 2) Four Futures of Reality. Source Author

This analysis, using *Ideation* and *Relativity* as the two critical uncertainties, gives rise to four possible combinations. On the right hand side of the diagram, where experts and rigorous testing (scientific or otherwise) has no power, lie two combinations: Pluralism + belief and universalism + belief. On the left hand side lie two other combinations, universalism + science and pluralism + science. These four combinations are now used to explore the present and futures of reality, as four scenarios. Following the CLA method, each are presented with a metaphor.

Table 3: Layered Analysis with Four Scenarios for the Futures of Reality. Source Author

	Scenario 1: Pluralism + Belief	Scenario 2: Universalism + Belief	Scenario 3: Universalism + Science	Scenario 4: Pluralism + Science
Litany/ Symptoms	Cambridge Analytica Fisaco; Flat Earthers; Breveik; Christchurch; anti-vaxx movement	China Social Credit System; Russia kills its dissident journalists	Bill Maher/ Richard Dawkins myth debunking; anti-anti- vaxx movement; COVID-19 scientism	Complexity, Systems, Action research, Integral communities
Systemic Causes	Data as Commodity; Neo-liberal political economy; Culture Wars	Great Firewall of China; Media Monopoly/ Oligopoly (e.g. Russia)	Climate science advocacy; covid-19 pandemic science advocacy /anger/pushback	Cultural globalization; epistemological complexity; cosmo-local policy
Ways of Knowing	Libertarian; Capitalist	Ethno-Nationalist; Neo-Fascist	Empirical; Scientific	Pluriversal/ Knowledge Democracy
Metaphors	The gladiator pit	The re-education camp	The boarding school	The permaculture garden

Scenario 1: Pluralism + Belief



Fig. 3: (Metaphor) The Gladiator Pit

In this combination everyone/group holds their own special truths but there are no guidelines for who's ideas are worth more than any others; there is no rigour in how these perspectives and ideas are evaluated; and worse, it is the loudest, wealthiest and most ruthless that get their ideas out and accepted. Any truth is lost to the animal spirits of special interests. People are affiliated with groups with beliefs - and this identity and group drive overpowers reasonable evaluation. Those who shout the loudest and have the biggest echo chamber win, but in reality all lose, as the public sphere (a shared reality) is totally undermined. Ironically everyone thinks they are being "honest" while discrediting others. Shouting, intimidation, and manipulation are the way people learn to win and cope in this environment. This combination signposts a civilisational collapse, but it is indicative of the current trajectory of nations in the anglo-sphere (USA, UK, Australia) and other nations where under-regulated and over-capitalized media platforms exacerbate social and ideological fissures.

With no standard for truth and media increasingly controlled by unregulated corporate and monied and special interest, global political will on climate change never materialises. Climate deniers not only continue to hobble the legitimacy of climate action, without any functioning social norms or regulation from big tech they also become belligerently loud in relation to the issue of global warming. As a consequence, nations continue to bicker and disagree among themselves, and within themselves about the reality of it, and the world does not develop coordinated action based on a scientific consensus of the problem. Human civilisation is now hurling toward 3+ degrees Celsius warming by 2100, with increasing systemic breakdowns.

Polarization, based on this dynamic of which community screams the loudest, reaches a tipping point. It is not enough to debunk another's truth - vilification, demonisation, vitriol are the prevailing emotions and behaviour. Hate based actions and conflicts are amplified, the Christchurch massacre and similar events were only signposts of things far worse to come. In some cases we have all-out civil war. Like the gladiator pit, the most ruthless and skilful thrive, but anything more than litany truths dies of a thousand cuts.

Scenario 2: Universalism + Belief



Fig. 4: (Metaphor) The re-education camp

With universalism and non-expert belief brought together, we are taken back to an archaic world that at once rejects science but provides a unitary if artificial notion of reality. This is the McCarthyism of the 1950s in the US, where an ideological order or the “free world” against the forces of oppression pushed out or black listed any alternate knowledge system (e.g. socialism). Or how the Nazi’s cooked up the idea of Nazi science and rejected “Jewish science”. As a consequence, a society becomes stultified - just as in the US the hegemony of defending “free-world-capitalism” gave way to neoliberalism, with no re-integration of socialism. This can be seen in China today, as the Chinese government attempts to cultivate harmony within its great firewall, by eliminating dissenting voices, detaining dissidents, sending minority groups to re-education camps, and applying a social credit system that keeps tabs and controls what people think and do. This does satisfy the need for certainty in a post normal world, and can also provide an artificial identity to satisfy the need for belonging. Like a re-education camp people are indoctrinated or propagandised into beliefs that are particular but which create the illusion from within of being essential truths. And as we see with the Covid-19 pandemic, this scenario is xenophobic, as some states attempt to generate a narrative of blame projected on other nations based on conspiracies and fabrication.

Thus in this scenario the post normal world was too much existential terror for the average person, who relinquishes their own critical and free faculties for the promise of in-group safety and a sense of certainty. Future neo-fascist leaders (or those with such tendencies), such as today’s Trump, Bolsonaro, Orban, and Modi, know how to use this and cultivate the fear and prejudice that drives people into their arms. As their power grows, they are able to begin to target and eliminate oppositional voices, replacing them with their version of reality that they expect the nation at large to accept. A shared reality and artificial public sphere is recreated, but at great cost.

The irony is that as each nation and neo-fascist national leader cultivates their own particular type of universalism, a new type of relativism emerges as each nation inhabits its own self referential world more fully, and disengages from the “false” world of other nations. At a litany level this has the effect of creating cultural incommensurability between the peoples of different nations. The tail wags the dog as the false distinction between national worlds created by neo-fascist leaders generates belligerence and prejudice, that drives countries to war. Dark fantasy begets dark reality. The clever among them know it is not necessarily in their interest to go to war, but there are the indoctrinated and the fanatics, and the animal spirits of the people have been unleashed.

Scenario 3: Universalism + Science



Fig. 5: (Metaphor) The Boarding School

Universalist science defined the 19th and 20th centuries, with discoveries in physics, bio-medicine, biology and other disciplines that revolutionised our picture of the world. From the theory of evolution which established humans as one species rather than races, to discoveries in quantum level (sub-atomic) and astro (dark matter, dark energy, anti-matter) physics, science truly is the 800 pound gorilla of the truth-making world. While science itself does not propose any immutable “truth”, but rather all ideas are put forward as hypotheses subject to evaluation and verification; what matters is where people put their trust, the *institution* of science. In this scenario participatory knowledge, what we got used to with the internet, is a momentary historical movement or pendulum swing. People need to trust in something and science is the grand narrative that can survive the onslaught of fake news and wild grassroots spawned conspiracy theories. In this narrative science discovers the truth, which is singular, something we can all buy into. It is fundamentally hierarchical, as institutional knowledge is worth more than people’s knowledge. It is slow, as old ideas only change with a gradual paradigmatic revolution (Kuhn, 2012). But it is what people psychologically need. Like the old boarding school, the institution is primary, there is conformity, rules and there is a commitment to process.

There is a massive backlash against internet spawned crazy-making (dis-information), Trumpian non-sense during the coronavirus (Covid-19) pandemic, and the climate denialism that undermined climate action for decades. Over time the internet with its millions and billions of arm-chair theorists spouting whatever-opinionated-nonsense-that-comes-to-mind simply discredited itself. The internet becomes synonymous with a degraded, crudified version of reality, and only the institutions which continued to adhere to a scientific standard remained credible. For example as the climate crisis deepens, with increasing catastrophic events, sea level rises, mass melting, fires, drought, hurricanes, disrupted weather, people’s tolerance for counter-climate science conspiracies and alternative facts withers - deniers become pariahs, not just considered irresponsible, but morally reprehensible and criminally liable for spreading false knowledge. A global acceptance of science helps to address these challenges. New knowledge platforms emerge which provide some peer to peer knowledge dynamics but are closely moderated and any non-scientific discourse is punished.

The public sphere is returned in the guise of scientific discourse. However, there is a flattening of the human vision of reality. As Berman (1981), Thompson (1974), Santos (2006), Wilber (1998) and others have argued, science flattened reality into what is material or physical, and relegated other important discourses: psychology, spirituality, culture, even social science, to secondary domains of truth with less importance. The re-establishment of old science has come at a price. The role-out of mindfulness and meditation programs in K-12 is disparaged by “evidence-based” administrators. Culture studies are seen as substance-less education lacking provable foundations. The world went down a dead end and returned to the original point where it started to get lost.

Scenario 4: Pluralism + Science



Fig. 6: (Metaphor) The Permaculture Garden

The conjunction of pluralism and science means that there are a variety of knowledge systems that have unique processes to maintain rigour. Science remains important, but the notion of a unitary science fades and science is re-understood in the plural - sciences. While this had been the case with much of the social sciences, this pattern deepens considerably. Meditation as a science becomes prominent. Meta-disciplines like futures studies, systems, philosophy and epistemology become more important and prominent as people grapple with sense-making inherent epistemological complexity, and untangling the wicked systemic challenges we face. In this age of the “meta-sciences” knowledge is seen as an ecosystem of many interlocking knowledge systems, each with its contextual relevance. Action Research becomes more important, as the application of knowledge-in-practice becomes the basis for contextual relevance. As in the permaculture garden, it is understood that some plants are good in some conditions, soil types, and a garden needs to be planted with a variety of complementary species that help to regenerate them. Likewise, knowledge ecosystems are designed to be regenerative - based on what knowledge systems are complementary and a contextual fit for the people and geography, what Escobar describes as a “pluriverse”. All sciences are seen as fundamentally inter- and trans- disciplinary, with a network of connections across the web of knowledge.

In this future, many of the repressed or disowned knowledges are recovered. As Santos argues, the dominance of Western science had the effect of making invisible many of the existing knowledge systems people have relied on (local farming methods, indigenous medicine, local spiritual/shamanic knowledge, women’s knowledges, local building techniques, etc). The study of this fabricated invisibility he called the “sociology of absences”, how local or contextual (non-universal) knowledges were/are made to be invisible or irrelevant or retrograde (as belonging to the past and not the futures). As a solution he discussed the need to recover and re-validate an “epistemology of the global south”, and a process of “knowledge democracy”.

As Bud Hall and Rajesh Tandon write:

Knowledge democracy refers to an interrelationship of phenomena. First, it acknowledges the importance of the existence of multiple epistemologies or ways of knowing such as organic, spiritual and land-based systems, frameworks arising from our social movements, and the knowledge of the marginalized or excluded everywhere, or what is sometimes referred to as subaltern knowledge. Secondly it affirms that knowledge is both created and represented in multiple forms including text,

image, numbers, story, music, drama, poetry, ceremony, meditation and more. Third, and fundamental to our thinking about knowledge democracy is understanding that knowledge is a powerful tool for taking action to deepen democracy and to struggle for a fairer and healthier world. Knowledge democracy is about intentionally linking values of democracy and action to the process of using knowledge.¹³

Or as William Irwin Thomson might argue, this is an ideologically impure future (Thompson, 1985, p. 51). In this future, therefore, communities of knowledge strive to open space for plural knowledge systems to be known, interconnect, and build ecosystems of generative relationships. But many contradictions and tensions exist. Uncertainty prevails. But not all knowledges are accepted. Some can be considered weeds. Hate based communities, such as those calling for violent jihad, white supremacist, conspiracy theories, male or culturally chauvinistic stances that position one gender or culture as superior to the other, are seen as weeds to be rooted out. It is understood that the internet creates an accelerated environment for these weeds to germinate, grow and spread, so the strategies put in place to deal with this new environment is to accelerate companion planting of co-generative epistemologies that can crowd-out the invasive weeds, making them more difficult to establish. People do weeding regularly. As well, the meta-sciences that emerge play a similar role to a permaculture designer, intentionally creating conditions for a preferred ecosystem to grow. We use science but draw from different civilizations to ask different questions, not to challenge the nature of gravity.

Conclusion

This paper is an attempt to make sense of this slippery and complex domain of the evolving construction of reality, in particular how the internet in combination with structural dynamics (political economy) influence this. The scenarios are obviously reductive in their expression, providing ideal types that at once flatten the issue, but at the same time can help us to think with new dimensions and distinctions. Maps are not the territory, and they both reveal and conceal. To conclude I'd like to leave the reader with a few key ideas.

A shared sense of reality that allows us to solve our biggest problems together (climate change, pandemics, etc.) is fundamental to our survival and wellbeing, it is a commons. Science can help if it creates the basis for this, and if its counter hegemonic potentials are used. Unfortunately in the 19-20th centuries it has been used to justify exploitation. In the 21st century it can hopefully be a force for transformation. But even with science we will still need many knowledges to create the futures we desire. How we engage with this plurality, this ecology of knowledges, will be fundamental to our world. Will religions play a role as voices and visions for humanity and humility? Or will they be anti-science and chauvinistic (my God is better than your God)? Will the counter culture/new age movement drive greater use of meditation and healthy lifestyles? Or will it devolve into anti-vaxx conspiracies and crystals? How we create this ecology of knowledges will be fundamental. Ecologies can be both predatory and degradative or symbiotic and generative. Perhaps the biggest question is whether we can escape the vortex of the global neo-liberal political economy, where the construction of reality is based on the perverse incentives of short term profits and the political preservation of oligarchs and princelings. Our world and our future is calling for a transformation.

Acknowledgements

The author would like to thank the referees for their helpful feedback and suggestions, and co-editor Michael Nycyk for his support at many levels.

Notes

- 1- <https://www.denverpost.com/2018/11/15/denver-flat-earth-conference/>
- 2- https://en.wikipedia.org/wiki/Christchurch_mosque_shootings
- 3- https://www.ilfoglio.it/userUpload/The_Great_Replacementconvertito.pdf
- 4- <https://www.counterextremism.com/press/youtube%E2%80%99s-algorithms-are-radicalizing-youth-faster->

ever

- 5- <https://worldnewsdailyreport.com/woman-sues-samsung-for-1-8m-after-cell-phone-gets-stuck-inside-her-vagina/comment-page-1/>
- 6- <https://www.theguardian.com/news/series/cambridge-analytica-files>
- 7- <https://www.theguardian.com/australia-news/2019/dec/06/inside-the-hate-factory-how-facebook-fuels-far-right-profit>
- 8- <https://futurism.com/the-byte/lawsuit-fortnite-addictive-cocaine>
- 9- See: <https://www.theguardian.com/australia-news/2019/dec/06/inside-the-hate-factory-how-facebook-fuels-far-right-profit>
- 10- <https://www.axios.com/worlds-richest-and-poorest-countries-growth-trends-570972f9-4ded-4405-b16f-f8f7620d77f7.html>
- 11- <https://www.independent.co.uk/news/world/americas/us-billionaires-low-tax-rate-working-class-cost-a9148746.html>
- 12- See: <https://www.theguardian.com/technology/2020/feb/21/climate-tweets-twitter-bots-analysis>
- 13- Budd Hall and Rajesh Tandon (Retrieved Aug. 8, 2016, from <http://www.politicoofevidence.ca/349/>)

References

- Arquilla, J., & Ronfeldt, D. (1999). *The emergence of Noopolitik: Toward an American information strategy*. Santa Monica, CA: RAND Corporation.
- Bauwens, M., & Niaros, V. (2017). Value in the commons economy: Developments in open and contributory value accounting. *Heinrich Böll Stiftung, P2P Foundation*. Retrieved from <https://pdfs.semanticscholar.org/767d/71130daa1132af04a4b8cdcefd4d1174c646.pdf>
- Bauwens, M., & Ramos, J. (2018). Re-imagining the left through an ecology of the commons: towards a post-capitalist commons transition. *Global Discourse*, 8(2), 325-342. <https://doi.org/10.1080/23269995.2018.1461442>
- Beck, U. (1999). *World risk society*. Cambridge, UK: Polity Press.
- Bello, W. (2007). The Post-Washington dissensus: The unraveling of a development doctrine. *Global Policy Forum*. Retrieved from <https://www.globalpolicy.org/component/content/article/162/27977.html>
- Berman, M. (1981). *The reenchantment of the world*. Ithaca, NY: Cornell University Press.
- Bollier, D., & Helfrich, S. (Eds.). (2012). *The wealth of the commons: A world beyond market and state*. Amherst, MA: Levellers Press.
- Bollier, D., & Helfrich, S. (2015). *Patterns of commoning*. Amherst, MA: Commons Strategy Group and Off the Common Press.
- Boulding, E. (1978). Futuristics and the imaging capacity of the west. In M. Maruyama & A.M. Harkings (Eds.), *Cultures of the future* (pp. 7-31). The Hague, NL: Mouton.
- Braudel, F. (1993). *A history of civilisations*. New York: New York Penguin.
- Castells, M. (1997). *The power of identity*. Malden, MA: Blackwell.
- Crotty, M. (1998). *The foundations of social research*. London: SAGE.
- Denzin, N., & Lincoln, Y. (Eds.). (2003). *The landscape of qualitative research* (2nd ed.). London: SAGE Publications.
- Eberhardt, J. (2019). *Biased: The new science of race and inequality*. London: William Heinemann.
- Escobar, A. (2011). Sustainability: Design for the pluriverse. *Development*, 54(2), 137-140. <https://doi.org/10.1057/dev.2011.28>
- Galtung, J. (1971). A structural theory of imperialism. *Journal of Peace Research*, 8(3), 81-117. <https://doi.org/10.1177/002234337100800201>
- Galtung, J. (1997). Arnold Toynbee: Challenge and response. In J. Galtung & S. Inayatullah (Eds.), *Macrohistory and macrohistorians: Perspectives on individual, social and civilizational change* (pp. 120-127). Westport,

- CT: Praeger.
- Galtung, J., & Inayatullah, S. (1997). *Macrohistory and macrohistorians: Perspectives on individual, social and civilizational change*. Westport, CT: Praeger.
- Gilens, M., & Page, B. (2016). Testing theories of American politics: Elites, interest groups, and average citizens. *Perspectives on Politics*, 12(3), 564-581. <https://doi.org/10.1017/S1537592714001595>
- Habermas, J. (1999). *Moral consciousness and communicative action* (C. Lenhardt & S. Weber Nichol森, Trans.). Cambridge, MA: MIT Press.
- Hansen, M. (1997). Antonio Gramsci: Hegemony and the materialist conception of history. In J. Galtung & S. Inayatullah (Eds.), *Macrohistory and macrohistorians* (pp. 128-131). Westport, CT: Praeger.
- Herman, E. S., & Chomsky, N. (2010). *Manufacturing consent: The political economy of the mass media*. New York: Penguin Random House.
- Hicks, D. (2002). Teaching about global issues, the need for holistic learning. In *Lessons for the future: the missing dimension in education*. London, New York: Routledge Falmer.
- Homer-Dixon, T. (2010). *The upside of down: Catastrophe, creativity, and the renewal of civilization*. Washington DC: Island Press.
- Inayatullah, S. (1997). Herbert Spencer: Progress and evolution. In J. Galtung & S. Inayatullah (Eds.), *Macrohistory and macrohistorians* (pp.68-75). Westport, CT: Praeger.
- Inayatullah, S. (1998). Causal layered analysis: Post-Structuralism as method. *Futures*, 30(8), 815-829. [https://doi.org/10.1016/S0016-3287\(98\)00086-X](https://doi.org/10.1016/S0016-3287(98)00086-X)
- Karatani, K. (2014). *The structure of world history: From modes of production to modes of exchange*: Durham, NC: Duke University Press.
- Kuhn, T. S. (2012). *The structure of scientific revolutions*. Chicago: University of Chicago press.
- Latour, B. (2005). *Reassembling the social: An introduction to actor network theory*. Oxford: Oxford University Press.
- McNaughton, C. (2005). *The living spirit of the real: Hegelian Marxism and the reinvention of the emancipatory imagination*. (Doctoral dissertation, Monash University, Melbourne, Australia)
- Meadows, D. H. (1999). *Leverage points: Places to intervene in a system*. Hartland, VT: The Sustainability Institute. Retrieved from http://donellameadows.org/wp-content/userfiles/Leverage_Points.pdf
- Merlan, A. (2019). *Republic of lies: American conspiracy theorists and their surprising rise to power*. London: Random House Books.
- Ostrom, E. (1990). *Governing the Commons*. New York: Cambridge University Press.
- Polak, F. (1961). *The image of the future: Enlightening the past, orientating the present, forecasting the future*. New York: Sythoff.
- Polak, F., & Boulding, E. T. (1973). *The image of the future*. Amsterdam: Elsevier Scientific Publishing Company.
- Popper, K. (2002). *Popper: The logic of scientific discovery*. New York, NY: Routledge Classics.
- Ramos, J. (2016). Linking foresight and action: Toward a futures action research. L. Rowell, C. Bruce, J., Shosh & M. Riel (Eds.), *The palgrave international handbook of action research* (pp. 823-842). New York: Palgrave Macmillan.
- Ramos, J. (2017). Cosmo-localization and leadership for the future. *Journal of Futures Studies*, 21(4), 65-84. DOI: 10.6531/JFS.2017.21(4).A65 Retrieved from <https://jfsdigital.org/wp-content/uploads/2017/07/J5.pdf>
- Rifkin, J. (2009). *The empathic civilization: The race to global consciousness in a world in crisis*. New York: TarcherPerigee.
- Robinson, W. (2004). *A theory of global capitalism*. London: John Hopkins University Press
- Rowell, L., & Hong, E. (2017). Knowledge democracy and action research: Pathways for the twenty-first century. In L. Rowell, C. Bruce, J. Shosh, J. & M. Riel (Eds.), *The Palgrave international handbook of action research* (pp. 63-83). New York: Palgrave Macmillan.
- Santos, B. (2006). *The rise of the global left: The world social forum and beyond*. London: Zed Books.
- Santos, B. (Ed.). (2007). *Cognitive justice in a global world: Prudent knowledges for a decent life*. Maryland, MD: Lexington Books.

- Santos, B. (2014). *Epistemologies of the south: Justice against epistemicide*. Abingdon-on-Thames, UK: Routledge.
- Sardar, Z., & Sweeney, J. A. (2016). The three tomorrows of postnormal times. *Futures*, 75, 1-13.
- Shiva, V. (2000). *Tomorrow's biodiversity*. New York: Thames & Hudson.
- Thompson, W. I. (1974). *At the edge of history*. New York: Lindisfarne Press.
- Thompson, W. I. (1985). *Pacific shift*. New York: Random House.
- Toffler, A. (1984). *Future shock*. Bantam.
- Weber, M. (2008). *The Protestant ethic and the spirit of capitalism: With other writings on the rise of the west* (T. Parsons, Trans.). London, New York: Routledge.
- Whitaker, M. (2010). *Ecological Revolution: The Political Origins of Environmental Degradation and the Environmental Origins of Axial Religions: China, Japan, Europe*. Cologne, Germany: Lambert Academic Publishing.
- Wilber, K. (1998). *The marriage of sense and soul*. New York: Random House.
- Winters, J. A. (2011). *Oligarchy*. Wiley Online Library. <https://doi.org/10.1002/9781118474396.wbept0726>
Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781118474396.wbept0726>
- Zuboff, S. (2015). Big other: surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, 30(1), 75-89. <https://doi.org/10.1057/jit.2015.5>

