Making Sense of Our Fraught Relationship with Nature

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This paper looks at the sometimes fraught relationship between humans and nature using the sensemaking framework introduced by Karl Weick in his 1995 book, Sensemaking in Organizations and the Paradoxes of Organizational Effectiveness framework discussed in an article by McCullough and Faught, 2014.

Martin Heidegger's (1977) thoughts on technology contained the insight that technology is a way to reveal hidden truths. Nature, with its varied species and complex ecologies; is itself, a form of technology or unveiling of the truth. Everything nature produces (reveals or unveils) fits with what it has produced before and what it will later produce. Nature has no consciousness, but it may have something better – harmony. Every species has a productive role in the ecology into which it is born (Norton, 1986). Presumably, even we humans had a productive role to play at first, or nature would not have produced us. Of course, I say that tongue-in-cheek, since nature does not have a mind nor intentions. We evolved in nature as did all the other species, it's just that we evolved a mind and quite an impressive one at that.

As far as we know, earth's natural technology (nature we call it) has produced no other species that processes symbols (has a language), is aware of its own existence, and can unveil truths by devising its own technology. What a marvelous attainment for nature, right? However, this marvelous species nature wrought, has proven to be problematic, that is, the human specie's brand of technology, sometimes disrupts the rest of nature; sometimes in a good way and sometimes not.

Did nature go astray when it produced a species with the capacity to destroy entire ecosystems and even upset the rhythms of the planet? In the short term, the answer appears to be yes, but in the long run, the problem will solve itself; for humans will either go extinct because of disharmony with the rest of nature or figure out how to live in harmony with nature. Nature did not make a mistake in producing humans, but it may take a while for that truth to be revealed – a truth that could result in great suffering for our species. The online satirical magazine, The Onion, lampooned the problem by saying that 2.3 billion people need to die and that perhaps after their deaths, the surviving humans will take the climate-change problem a little more seriously. (https://www.theonion.com/scientists-look-one-third-of-the-human-race-has-to-di-1819573235 found on July 2, 2018)

McCullough and Faught's (2014), Paradoxes of Effectiveness and Karl Weick's (1995) insight into the seven properties of sensemaking, can both be useful in this discussion of the relationship between the human species and the ecosystem that produced it. The basic premise of the Paradox of Effectiveness is that selfish disregard for context – whether on the part of individual humans or their collective manifestation-organizations, is the fundamental enemy of effectiveness or adaptability. This principle is terribly different from the one espoused by Adam Smith in his Wealth of Nations (1776). In capitalism,

selfish pursuit of one's own interests works out okay as long as there is a diversity of interests among the people involved. However, in the context of nature, selfish species will not survive.

This paper will go more deeply into Weick's notion of sensemaking and how we humans turn to the social process of sensemaking in the face of cosmological events, that is, those events we have not experienced before.

The cosmological challenge we humans face is our disharmony with nature. We can treat one another with disregard, commit acts of violence with seeming impunity, and generally act with diabolical selfishness; but this approach to living only works for a while and only within the ranks of our species. We cannot get away with such approaches in our relationship to other species, that is, to nature. Nature is the ultimate test of our sanity and so far, we are flunking that test.

The only way humans can survive long term, is to seek to understand and abide by the rules nature implicitly provides; that is, to stop living in disregard for our context. The only way we can understand and abide by nature's rules, is to collectively make sense of these rules.

The first property of sensemaking is that it is based in the identity of the person(s) attempting to understand the cosmological challenge. Increasingly, we humans have come to see ourselves as the species in charge of the planet's resource instead of just one of the many species that must live by the rules of nature.

The second property of sensemaking is that it is a retrospective process, which in this case means, we humans will need to look to our past successes at making sense of cosmological challenges. One example of that is how we stopped using aerosol sprays which put CFCs into the atmosphere and depleted the ozone layer. We solved that problem, beginning in the 1990s. see this link:
http://www.epa.gov/ozone/science/sc_fact.html

Another example is frequently burning Cuyahoga river in Cleveland, Ohio; which first caught fire in 1868, then famously in 1952 and at least eleven other times. That river is now teeming with fish.

The third property of sensemaking is that anyone trying to make sense of a cosmological challenge, will need to figure out how their actions have helped cause the challenge and are hurting attempts to meet the challenge. In this case, our success at producing technologies that work for the purpose we created them, have blinded us to their side effects. Feedback about those side effects is available, but as was stated in McCullough and Faught (2014), the article on the paradoxes of organizational effectiveness, we humans and our organizations often pay much more attention to positive feedback – what we have done right; than to negative feedback – what we are doing wrong.

What have we done right? We have figured out how to grow animals rapidly into food by feeding them grain, instead of grass. We have figured out how to grow grain by using pesticides and fertilizers. A lot of the grain we raise figures prominently in the depletion of the largest North American aquifer – The Ogallala Aquifer beneath eight states in the heart of the United States. These mono-crops are hard on the soil and the chemicals and fertilizers we use are great contributors to dead zones in the Gulf of Mexico.

It takes an estimated 2400 gallons of water to process a pound of beef from the cattle raised feeding them the grain that is hard on other parts of the ecosystem. If we used this land and water to raise food crops for humans, we could greatly reduce greenhouse emissions and water usage. So, yes, in the process of becoming adept at animal agriculture, we have become wasteful of resources that are in short supply. We pat ourselves on the back for becoming so good at animal agriculture, while ignoring how harmful these "successful" actions are to the environment.

The fourth property of sensemaking is that it is a social process. If we are to successfully make sense of this human-nature cosmological challenge (and use that knowledge to save ourselves), we will need to take advantage of one of the greatest skills our species has – our enormous capacity as social beings, to our advantage. Those who perform science that informs us of the problem, must be effective at communicating this knowledge to the rest of us and those who make policy decisions in public or private roles, must use this knowledge in the making of decisions.

> *Recent reconstructions of Northern Hemisphere temperatures and climate forcing over the past 1000 years allow the warming of the 20th century to be placed within a historical context and various mechanisms of climate change to be tested. Comparisons*

of observations with simulations from an energy balance climate model indicate that as much as 41 to 64% of preanthropogenic (pre-1850) decadal-scale temperature variations was due to changes in solar irradiance and volcanism. Removal of the forced response from reconstructed temperature time series yields residuals that show similar variability to those of control runs of coupled models, thereby lending support to the models' value as estimates of low-frequency variability in the climate system. Removal of all forcing except greenhouse gases from the ;1000-year time series results in a residual with a very large late-20th-century warming that closely agrees with the response predicted from greenhouse gas forcing. The combination of a unique level of temperature increase in the late 20th century and improved constraints on the role of natural variability provides further evidence that the greenhouse effect has already established itself above the level of natural variability in the climate system. A 21st-century global warming projection far exceeds the natural variability of the past 1000 years and is greater than the best estimate of global temperature change for the last interglacial. (Crowley, 2010)

Notice how carefully this article abstract conveys the science inside the article. What is perhaps most interesting is that the message is delivered in the language of science, but the public may not respond to this language as much as they might a more sensationalized account. Scientists will need to figure out how to be more compelling in their attempts to get people to take this issue seriously, without abandoning the inherently conservative language necessary in scientific reporting.

The fifth property of sensemaking is that it is ongoing, which is to say, any course correction will have to be done while we are still moving. We will not be able to shut down our elaborate machines of production - with all their beneficial products and detrimental by-products – to make fixes. We will have to do it with them still running. This means the changes will likely be gradual. We can only hope they are not so gradual they come too late. One of the paradoxes of effectiveness (from the paradox article) is that we can become more concerned with how well our current processes are working in our existing situation than with making them more adaptable to what we can predict will be our future situation. We must seek to nudge our processes in the direction of adaptability without undermining their current effectiveness.

The Union of Concerned Scientists: Science for a healthy planet and safer world (UCS), was founded by scientists and students at MIT in 1969. The Vietnam War was raging and the Cuyahoga River in Cleveland had caught fire, again. In their website "about" statement, it says:

Appalled at how the U.S. government was misusing science, the UCS founders drafted a statement calling for scientific research to be directed away from military technologies and toward solving pressing environmental and social problems.

It is this sort of commitment to a more activist role for scientists, that will help we as a species to stay abreast of the changes happening to our planet so that we may be able to make adjustments before it is too late.

The sixth property of sensemaking is that it relies on cues. As was stated in the paradox article, it is essential we look for signs of our disharmony with nature, no matter how painful it may be, and for ways of moving our species back to a position of harmony with nature. We can learn from trees, from rivers, from the air, from mountains, and from all the other species. There are cues everywhere in nature, but we will have to come to understand them as such, before we can begin to use their information to correct our actions.

Janine Benyus has authored books on how humans can learn from nature to create technologies informed by nature. A website she co-created: https://asknature.org/, allows visitors to insert keywords to search for information on how a particular problem might be solved through nature-inspired solutions. For example, I typed in carbon sequestering and it yielded a link to an explanation of what a tech company is doing to create carbon sequestering concrete, which might actually allow future buildings made of this concrete to mimic trees by removing CO2 from the atmosphere. The concrete does not act like a tree after it is set, but it does while it is being made. Perhaps someday, someone could create a type of living concrete, that actually sucks carbon out of the atmosphere, the way plants do. For more on

Benyus's (2002) work, her most important book is entitled Biomimicry: Innovation Inspired by Nature, 2002. Her work continues through the Biomimicry Institute, which she founded. Another, more recent publication on this topic is that of Jay Harmon, entitled: The Shark's Paintbrush: Biomimicry and How Nature Is Inspiring Innovation, published in 2013 (Harmon, 2013).

Finally, the seventh property of sensemaking is that it will require plausible solutions. Our course correction will not be easy, nor will it be painless. However, there must surely be ways of getting ourselves back in harmony with nature without destroying the quality of the lives we have created by being out of harmony for this long stretch of our history.

Referring back to the paradoxes article: when our organizations (corporations, government agencies, non-governmental organizations) act in selfish manners, those values tend to cascade down upon all other institutions and even to we individual members of our species. The result is selfishness at the top of our social structures and selfishness at the bottom. One would only need to look at civilizations that have collapsed due to their disregard for feedback from nature, such as Easter Island, to see that such an approach is doomed.

Jarred Diamond, in his book, Collapse, explains why some civilizations fail; identifying five factors: climate change, hostile neighbors, failed relationships with trading partners, environmental problems and failure to adapt to environmental issues. As you can see, three of these have to do with the natural environment and the other two to do with the failure of relationships with other entities that might have helped the society adapt to the environmental problems.

But this organizational course correction is certainly doable, after all, organizations are ultimately under the direction of individuals. So, it is to these individuals we must look for our salvation - in the form of astute decisions.

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