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## **WARM DATA: CONTEXTUAL RESEARCH AND THE EVOLUTION OF SCIENCE**

Science, the systemized pursuit of knowledge, is at the center of the post-trust, post-truth, postmodern, meltdown of public faith. Funding, research, and bias have together formed a toxic triad that has exposed the limits of science as it is woven into cultural epistemology, and the need to continue exploration into its potential. In this era, it is nearly impossible to get through a day without contributing to the destruction of our world. By lunchtime most people have participated in: increasing disruption of the ecology, the increase of the wealth gap, the demise of social justice, and the vengeful division between cultures. Breakfast cereals are filled with chemical pesticides and sugars that are known to be toxic both to our bodies and to the soil used by agricultural companies. How has it come to this? And how can new patterns of interaction in our societies be supported? Centuries of law, politics and science have developed to form social deference to authorized institutions in the interest of collective safety. But that safety has been contaminated, along with the social trust in the institutions that are supposed to provide truth and justice. How can science evolve to contribute to a greater trustworthiness of our socio-economic institutions? Collectively and individually we currently face the ruin of ecology, economy, cultural stability, and the health of society if we do not meet complex situations with due respect.

Globally, nationally and personally there are crises which can be described as “complex.” Complexity is recognizable in situations which have characteristics of multiple variables in ever shifting contexts of interdependency. Some examples of complex living systems might include oceans, cities, families, economic systems, culture, the health of our own bodies, and the medical systems we expect to support them. In each of these systems listed, vitality is produced by multiple processes in contextual interaction. To study a jungle is to recognize that the jungle itself is not a isolated “thing” but instead exists in the interrelationship between soil, foliage, animals, weather patterns, bacteria and so on. The same contextual linkings can be found in all living systems;

approaching the system without an understanding of this holism will create short circuits in the complexity and countless unintended consequences.

“At present there is no existing science whose special interest is the combining of pieces of information. But I shall argue that the evolutionary process must depend upon such double increments of information.

Every evolutionary step is an addition of information to an already existing system. Because this is so, the combinations, harmonies, and discords between successive pieces and layers of information will present many problems of survival and determine many directions of change.”

G. Bateson *Mind & Nature*, 1979

The International Bateson Institute has taken up the task of generating relational information, calling it: Warm Data. With this developing methodology another species of information, beyond the limits of statistical data is emerging. Warm Data provides the information about systems' relational interdependence. This information offers contextual understanding of complex systems. Warm Data presents another order of exploration in the process of discerning solutions according to vital, contextual interrelationships. “Warm Data” can be defined as information about the interrelationships that integrate a complex system.

### WHY WARM DATA?

Though statistical data is useful, it is also limited due to the common practice of decontextualizing the focus of inquiry. To study something is usually to pull it out of context and study it in isolation. Rarely is the study re-contextualized to examine the complexity of its larger scope of relationships. Warm Data bypasses this limitation inherent to statistical analysis by centering itself within a transcontextual research methodology, bringing not only context, but multiple contexts into the inquiry process.

In order to interface with any complex system without disrupting the cohesion of the interdependencies that give it integrity, one must look at the spread of relationships that make the system robust. The sole use of analytic methods focused on parsing statistical (cold) data will often point to conclusions that disregard the complexity of the situation at hand. Moreover, information that does not take into account the full scope of interrelationality in a system is likely to inspire misguided decision making, thereby producing additional destructive patterns in an effort to remedy the issue.

Warm Data provides cross sector information because it is the outcome of a research methodology premised upon the transcontextuality inherent in any system. The complexity of this sort of inquiry is daunting. For example, if one is to study the ways in which food impacts our lives, a multifaceted study of ecology, culture, agriculture, economy, cross-generational communication, and media must take place. This transcontextual platform provides a wider contextual framework for further inquiry into what forms and constitutes certain international contemporary issues such as eating disorders, starvation, and other health problems associated with diet. Warm Data is generated through a Batesonian<sup>1</sup> approach of examining interrelating processes in a given system.

### *EPISTEMOLOGY*

A majority of current scientific research tools and methodologies pull “subjects” from their contexts to derive detailed specialized, quantifiable information. To support the specialized science a priority of science in the future might be to develop ways to utilize information derived from both detail and interdependency. However, the cultural habit of decontextualizing information, or, reductionism, is the standardized, authorized, and empirical norm.

An evolution in science is needed to mandate, and deliver another form of information, one that is less likely to be fault ridden by hidden contextual consequences. But, it will require a significant shift in epistemology to begin to perceive the interrelationality in addition to the parts and wholes of any given system. A shift in the way information is derived will in turn inform the actions we take to protect society and ecology.

The Scientific Revolution of the 1600’s brought us the scientific method, and the bounty of mechanistic thinking. It brought us the notions of induction, and empiricism, it brought us the notions of hard evidence and quantitative measurement alongside the idea of objectivity. To be fair, all of these have been enormously useful; skyscrapers and airplanes, computers and EKG machines are all manifestations of this form of scientific research and development. But not all studies are served by the empirical and inductive quantitative method. There are some forms of understanding that resist measurement,

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<sup>1</sup> A theoretical ontological toolset including, but not limited to, schisogenesis, abduction, double bind, and the six criteria of mind as listed in Gregory Bateson’s seminal text *Mind and Nature*.

that elude objectivity, and that are dangerously outside of the reach of criteria that is great for building rockets, and not useful at all for raising children, or understanding the ramifications of culture on climate change. Reductionism, or the habit of isolating information from its context(s), has been good to us, and it has been deadly.

### *INTERDEPENDENCY*

If there is a concerted effort and demand on the part of both the culture and science community we may witness a shift in scientific practices to include another form of research to deliver information that includes the interdependency within complex systems. But this is not an easy shift. The habits of studying things through silo-ed disciplines is deeply entrenched into culture.

In the mid 1950's the beginnings of a new way of understanding systems emerged in the beginnings of "cybernetics". Cybernetics offered the tools to look at how the "parts" of systems came together. But, this tool was not easy to bring into the fold of scientific notions of isolating objective truth. The logic of causality and "effect" within the study of complex living systems defies the confines of existing methodologies. Interrelationships whose combined processes create the conditions for a particular consequence, such as an addiction, or economic wealth gap, or racism are impossible to quantify without distortion.

### *OBSERVING THE OBSERVER*

It takes a team of people to study in this way. It also takes an open declaration of "outcome" . This form of scientific research will produce only unforeseen "deliverables". As such, current funding strategies for research are silo-ed as the solutions they put out calls for. While acute triage is obviously necessary to meet emergency situations of life and death, poverty and war, the larger systemic questions are also imperative, and need support.

Facts, derived in terms of complexity are not hermetic. The observer matters, and the teams of observers matter. Since data are always derived through the particular lens of the researchers, descriptions of their filters of perception are vital information not to be sterilized out of findings.

As we currently witness the melting of trust in science, politics, law, medicine, and economics it is clear that this era will require a reclaiming of trust-

worthiness. Lamenting the postmodern condition of multiple relative truths and impossible clarity is only partially useful toward the regaining of trustworthiness. Beyond the cynicism that the postmodern dilemma delivers is the actual, factual need for better questions, and more rigorous inquiry into complexity.

### *PATTERN*

What is the pattern that connects? This question, famously put forth by Gregory Bateson (father of the article author), draws the inquirer and researcher to another level of description. It is an invitation to reach behind the perceived separations of knowledge to get to the contextual knitting together of definitively inseparable processes.

To more effectively meet these challenges studies authorized to generate understanding of contextual systemic data is required. The information generated makes a difference not only in scientific research, but also in the contextual influences considered in decision making. Here are five criteria toward a contextual scientific approach.

1. Systemic description: Illustrate processes of interdependency.
2. Looking for pattern: Comparisons of findings from one context with findings of similar patterns in other contexts, to generate hybrid information, (Warm Data\*).
3. Deliverable results: Scientific research premised upon the complexity of a system in relation to its environment will produce paradox and inconsistency, by necessity. In order to keep the complexity intact results should feature these dilemmas without resolving them.
4. Holism & reductionism: Information derived by zooming in on detail is as important as the information derived by zooming out to study context. These two forms of information are not alike. One is relational and overlapping, the other is isolated and linear.
5. Cultural epistemological responsibility: Science and culture are deeply entwined. Development of inquiry that includes multiple generations, cultures, and sectors is useful to keep observers' frames relevant.

### **THE DELIVERY OF WARM DATA**

Just as the methodology for generating Warm Data is characterized by transcontextual research, the end product and delivery of this information

will be characterized by multiple description (though all aspects of warm data involve both transcontextual research and multiple description to some degree). One need look no further than one's own hand for an illustration of how multiple description can increase the scope of understanding within a system and between systems of understanding. What is a hand? Is a hand the thing at the end of your arm? A violinist has ongoing learning and memory located in her hands. A sculptor has another sort of learning and information storage present in his hands. A person using sign language uses his hands to create symbols and metaphor. In this sense, the contexts that the hand exists within, (anatomy, music, memory, language, cognition) each provide a realm of relational data to be explored. This is just one simple example of the possibility of transcontextual research. Warm Data is the delivery of these multiple descriptions, usually in a form that permits and even encourages the subjectivity of the observer within which it is possible to make meta connections.

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