

## Overcoming Misunderstandings between Cultural and Scientific Systems of Knowledge

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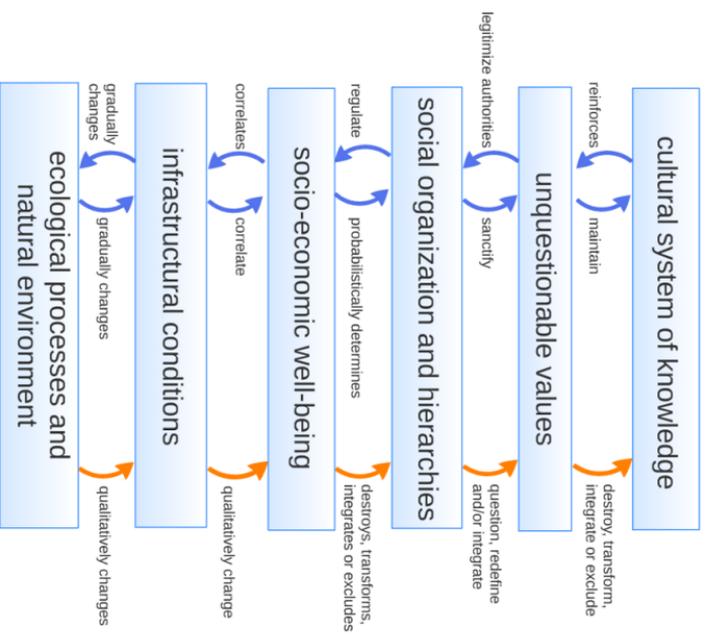
Cultural and scientific systems of knowledge meet where research is involved in the design of public strategies, spaces and policies. The successful implementation of progress and innovation is more likely to take place when the functions, characteristics and values of cultural systems of knowledge are properly understood, which calls for an approach that connects anthropology to systems thinking in the support of scientific findings for the following reasons.

First of all, the majority of systems science or design lacks social data. Thus, this paper is concerned with knowledge and its applicability to those involved in research. It is necessary to understand how scientific systems of knowledge may be more appreciated or even transformative to the local knowledge or behavior of the populations concerned in a research.

Secondly, Anthropology has long been known to be a social science with strong references to systems and their interactions. In this respect there are two paradigms that feature prominently for cultural systems: cultural materialism and cybernetics. The first explains cultural phenomena by means of what is known as infrastructural information, i.e. parameters such as resource density, population density, ecological data and technological advances amongst others.

The second paradigm of cybernetics was introduced to anthropology by Gregory Bateson, whose ideas were later taken up by anthropologists such as Roy Rappaport.

An appropriate combination of this and further knowledge is intended as follows: Each system of knowledge consist of elements which are communicated and some which should not be questioned because this poses a danger to the persistence of the system. These unquestionable elements are the ultimate purposes and values which guide the behaviour and thinking of people. If a perturbing element enters the range of the unquestionable, it will either be excluded or it will change the system of knowledge. Empirical data of infrastructural information correlate with a probable degree of hierarchies which in turn mirror hierarchies of values within a cultural system. The higher the number and density of people involved the higher the level of abstraction of values. Change in a system of knowledge is more probable when material pressure influences social pressure and thus transforms the involved systemic hierarchies by defining smaller subsystems. The aimed changes research intends to implement should take this into account.



quantitative changes

qualitative changes

**Processes of two interacting systems of knowledge**



A) Integration



B) Transformation 1: Symetrically



C) Transformation 2: Assymmetrically



D) Destruction and exclusion



The ways of interaction and change of cultural systems are basically three-fold: firstly, system A involves system B or vice versa; secondly, system A destroys system B or vice versa; or, thirdly, system A constitutes system B by opposition or vice versa. The third possibility effects change in two ways, as presented by Bateson, symmetrically and asymmetrically.

To conclude with respect to the future of science and humanity, the situation may be summed up as follows. Since we have reached the area of information, knowledge has become a major societal topic. However, cultural disagreements continue to divide the earth through fundamentalist wars and anxiety between religious communities, and cultural disagreement increases provided by the interactions of a globalizing world.

If innovation through foreseeing and participating in change is desired, first we need to see the necessity and the possibilities to do so. Systems Anthropology may contribute to change in cultural systems.

This paper presents a model of the functions of systems knowledge based on a systems approach and qualitative characteristics of humans in their various forms of living and thinking as well as its implications for future work to contribute to a better understanding of each other. The understanding of each other is not only seen as cultural disagreement but also points to approaches in philosophy of science which correlate systems of knowledge with paradigms and their evolution.

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## References

- Bateson, G. (1979). *Mind and nature: A necessary unity*. New York: Dutton.
- Bateson, G. (1972). *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. University of Chicago Press.
- Bateson, G., & Bateson, M.C. (1987). *Angels fear: An investigation into the nature and meaning of the sacred*. Rider.
- Blum, F. H. (1972). Bewußtseinsentfaltung und Wissenssoziologie. *Ideologie, Neuwied*.
- Dostal, W., & Reisinger L. (1981). Ein Modell des öko-kulturellen Interaktionssystems. *Zeitschrift für Ethnologie* H. 1/2, 43-50.
- Harris, M. (2001). *Cultural materialism: The struggle for a science of culture*. Alta Mira Press.
- Rappaport, R. A. (2000). *Pigs for the ancestors: ritual in the ecology of a New Guinea people*. Waveland Press.
- Rappaport, R. A. (1971). Ritual, sanctity, and cybernetics. *American Anthropologist* 73.1, 59-76.
- Rappaport, R. A. (1999). *Ritual and Religion in the Making of Humanity*. Vol. 110. Cambridge University Press.
- Scheffer, M. (2009). *Critical transitions in nature and society*. Princeton University Press.
- Varela, F. G., & Maturana, H.R., & Uribe, R. (1974). Autopoiesis: the organization of living systems, its characterization and a model. *Biosystems* 5.4, 187-196.