



Becoming sustainable: Human determinants of change

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HIGHLIGHTS

- Sustainable behavior is shaped by five different types of knowledge.
- Each one of these types is based on specific experiential rules.
- By interacting reciprocally they form an overarching knowledge regime.
- Learning to become sustainable therefore is a self-organizing systemic endeavor.

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ABSTRACT

The author is a natural scientist and philosopher who has been involved in the global experience industry for more than 25 years. During this period of time he has developed a coherent, interdisciplinary body of knowledge that appears to be of essential interest as related to the transition towards a sustainable society: the Experience Science (Frank, 2011, 2012). Important scientific inputs come from underlying disciplines like cybernetics, system theory, psychology, and cognitive science. One of the key findings of the Experience Science is the innate structure of human experiencing. Any human experience includes 5 different experiential domains that influence and regulate each other: the emotional domain (feeling); the mental imagery domain (mental narrating); the sensorimotor domain (acting & perceiving); the linguistic domain (rational reasoning); the communicational domain (conversing). In the light of the Experience Science the dilemma of the current transition process towards a sustainable society becomes clearly visible. Any relevant attempt reduces the existing problems to more or less exclusively the linguistic, rational domain. Although ever evolving rational knowledge indeed is an indispensable prerequisite for a sustainable future this is not enough. Societal change towards a sustainable life-style can only happen if the whole experiential system gets a chance to reorganize itself. This leads to the following logical consequence. Any rational knowledge is embedded in a both emotional and narrative knowledge system that underlies and frames human reasoning. As long as human learning restricts itself to an exclusively rational attempt the underlying emotional and narrative program remains untouched. The learner hence continues orienting her attention into the direction determined by the underlying emotional and narrative paradigm.

The paper delineates the experiential determinants of change and analyzes their specific, constitutive interrelations. From this a holistic choreography of change learning is outlined that pays tribute to the intrinsic transition principles represented by the human learner.

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1. Introduction

Cultural sustainability without any doubt is grounded in human experience and behavior. Some people are on a journey of exploration to develop increasingly sustainable lifestyles, whereas others are not. Hence the question of global resource use cannot be exclusively reduced to technological solutions and their political constraints. It also has to take the human condition and its successful change towards an appropriately adjusted, green life style into account. Sustainability is a matter which has economic, political, technical and human implications. The paper deals with the human implications of responsible global resource consumption

focusing on the following key problem: what are the main parameters of change seen from a human perspective of individual experience?

The traditional answer to this question says: learning to act in a sustainable way is an educational issue. We have to educate ourselves towards a green attitude. But what does this actually mean? If education is the key to a sustainable life style, which type of education do we intend to establish? Modern education predominantly deals with rational understanding. To learn means to learn to do things in a logical way; logical in the rational sense. Western school curricula emphasize on a scientific i.e. rational kind of knowledge. Is this type of rational education sufficient with respect to a global problem that has at least partly resulted from an ecologically inadequate life-style? Do life style issues not go far beyond the pure rational aspect of human life? And as a consequence of this, shouldn't we rather develop a more holistic approach

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instead that includes additional human aspects such as our emotions for instance?

2. Results and discussion

2.1. What do human experiences consist of? About the experiential parameters of human change

According to the preceding scientific investigations of the author human experiencing can be seen as a self-organizing process consisting of recursively interlinked process elements. These process elements will be outlined in the following, serving as the backbone of the paper. Frank's interdisciplinary investigations combine empiric data of his own professional work in the international attraction industry with data from different academic fields such as neurology, cognitive science, psychology and sociology. Eventually these data have been organized within a cybernetic and system theoretical framework, resulting in a coherent, holistic concept of the human experiential process. One of the main scientific sources referred to by the author is the cybernetic concept of living organisms developed by Maturana and Varela (1992). Due to their findings any human phenomenon has to necessarily correspond to the autopoietic, non-linear self-organization of living cells and organisms. This conceptual approach accords with the neuropsychological theory of Hebb (2002) who introduced the cell-assembly as the key operational unit in his ground-breaking publication of *The Organization of Behavior* in 1949. Using these two pioneering concepts as main guidelines the author has developed his theory of human experiencing aka The Experience Science. Its key findings are outlined in the following that define its main theoretical cornerstones:

- Human beings consist of approximately 10^{13} – 10^{14} cells (Lippert, 2006). These cells coordinate each other thus forming temporary patterns of interaction (Hebb, 2002). These metacellular patterns of interaction form the underlying operational matrix of human doing (action, perception, behavior, body functions etc.).
- 2 types of coordination between cells can be distinguished: neuro-humoral and neuronal coordination (Penzlin, 1977; Frank, 2002). Neuro-humoral coordination uses both the neuronal system and the body fluids as coordination pathway. Neuronal coordination is restricted to neuronal means of connecting body cells.
- These coordination events are non-linear processes thus generating operationally autonomous phenomena of human experience. The sensorimotor process for instance (see below) combines sensory and motor processes forming a continuous non-linear process entity: motor action leads to sensory feedback; sensory feedback shapes subsequent motor action.
- Five operationally autonomous domains of human experiences can be described: these are the emotional domain (feelings), the sensorimotor domain (perception), the communicational domain (communication), the mental imagery domain (mental images) and the linguistic domain (rational thinking). The emotional domain uses the neuro-humoral type of coordination. The remaining domains are purely neuronal events in coordination terms.
- The five domains exhibit two types of domain specific reciprocity: self-referential events connecting patterns within a singular domain and cross-referential events connecting patterns of and between different domains. Self-referential events lead to a contextual organization of repeatedly coinciding and/or succeeding individual metacellular patterns. This intra-domain reciprocity brings forth the human phenomenon of contextual i.e. meaningful knowledge. Individual experiences always refer or belong to overarching experiential contexts which provide the respectively specific meaning of the individual experience. E.g. the meaning of a spoon results from its functional role within the context of human ingestion; the meaning of protons and neutrons results from the contextual framework of the classical atom theory of modern physics.

- Cross referential events occur between individual domains thus leading to continuously reciprocal interactions. These inter-domain interactions have first been described by Luc Ciompi (1997a,b) who specifically focused on deciphering the laws of interaction between feeling and thinking. His theory of affect-logic serves as a kind of scientific role model for the broader theory of Human Experiencing.

According to the above outlined cornerstones human experiencing turns out to be a self-ruled process whose autonomy results from its unique structure i.e. a system of interlinked non-linear sub-processes (human emotions, human perception, human imagination, human reasoning, human communication). These sub-processes reciprocally interact thus regulating each other and forming a superordinate unity aka the experience process (Fig. 1).

2.2. First consequences to be drawn: preliminaries towards a science of human change experiences

The above list of cornerstones undeniably has to be seen as a very rough and fragmentary outline, but nevertheless one that provides a coherent basis. This basis enables us to draw first logical consequences towards our goal. Neither in theoretical nor in practical terms can we reduce human experiencing to one singular domain such as the rational domain for example. Human experiencing is always a multi-layered, multidimensional event whose outcome mainly results from the innate, self-organizational interdependencies of the human systems or human beings involved. To leave out these systemic interferences means to ignore the importance of the intrinsic, mutual interactions that both typify and specify human experiencing. Whether we speak of an experiencing child, a juvenile, an adult or a senior member of our community; whether we have to deal with representatives of different cultures or those of different sexes; whether we relate to repeat experiences, learning experiences, or experiences that have been planned and directed in order to result in a specific habitual change (see below); all this plays no role in structural terms. In any case, the experience process remains a deeply systemic event consisting of and resulting from the sub-processes outlined above. The five domains appear to be as indispensable as constituents as the organs of the human body. And like the organs of the human body that regulate each other, the five experiential domains mutually coordinate their processes thus forming an overarching totality as an indivisible process entity; the human experience.

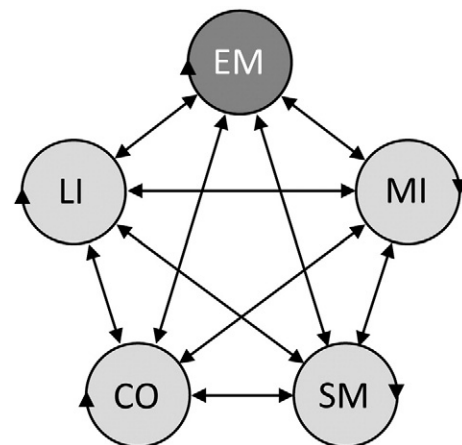


Fig. 1. Five domains of human experiencing and their reciprocal interrelations; EM: emotional experiencing, MI: mental imagery experiencing, LI: linguistic/rational experiencing, SM: sensorimotor experiencing, CO: communicational experiencing; shading in dark gray indicates underlying neuro-humoral coordination-processes; shading in light gray indicates underlying neuronal coordination-processes; straight arrows indicate reciprocal cross-referential events between domains; circular arrows indicate self-referential nature of intra-domain processes. Further explanations see text.

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