The New Science of Awareness

Triggering the Emergence of Consciousness in Living Systems

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Abstract

The adaptive and resilient nature of awareness is practically ignored in business and organizations. The process of becoming aware is a vital factor in change and improving personal and professional effectiveness at the individual, group and organizational levels. We explore a new synthesis and explanation of spontaneous creativity in action by utilizing a novel perspective of emergence that is based on new findings from cognitive science framed in the context of simultaneously co-evolving complex adaptive systems. Bridging both physical and social sciences, we draw chiefly from biology and the life work of cognitive research scientist Francisco Varela, whose work with colleagues in neurobiology and consciousness has helped unfold the essence of the emerging paradigm of awareness. His approach introduces phenomenology as a pragmatic method for practicing awareness, wherein immanent awareness of ‘self’, ‘other’, and ‘world’ is seen as the catalyst for enacting effective relationships and intersubjectivity of teams and organizations. Because the atemporal nature of collective experience during each given moment forms our perceptions and transforms our perspectives, a non-linear model of time is needed, and introduced, representing the double intentionality of static and genetic constitution and their co-evolutionary nature. Awareness builds individual and collective capacity and disposition for dealing with change, decision-making, intentional and unintentional transformation, and improving the quality of work and well-being in life. In the conclusion, several propositions and implications for change, transformational leadership, and sustainable organization development are presented.

Keywords: Atemporality, Awareness, Cognitive Science, Consciousness, Emergence, Francisco Varela, Intersubjectivity, Non-linear

Introduction

In this paper we are building off a previously written paper presented at the 21st Annual AoM/ IAoM Conference held in Norfolk, Virginia in April 2004 (Croswell and Holliday 2004). We appreciate the help of Dr. Margaret Gorman, Gayle Griffin, and Sue Simmons in the preparation of this paper.

The phenomenon of life itself negates the boundaries that customarily divide our disciplines and fields (Jonas 2001). Yet, human kind is at a point in our evolution where we are becoming aware of our own evolutionary process (Depraz, Varela, and Vermersch 2002; Maturana and Varela 1980, 1992; Varela 1999). By becoming more aware of our ancestral and intellectual ontology greater choice and volition are made available as to how and in what direction(s) human kind will evolve. From the connections formed among the fields of psychology, sociology, biology and anthropology a living systems perspective on evolution and self-organizing systems has been theorized by cognitive and neurobiologists Maturana and Varela. Some call this the Santiago theory. Based on their study of human evolution, neural networks, behaviour, cognition and language Maturana and Varela theorize that life evolves altruistically through co-evolution (McKelvey 2002), using adaptation and conservation, as opposed to Darwin’s theory of survival of the fittest (Maturana and Varela 1992). With this greater understanding of how mutual success can be fostered inter-relationally and inter-organizationally there comes greater power to do good or to oppress and control others. Therefore, as people are taught how to be more effective and successful using this new science ethics (as in the ecological paradigm of sustainable development) must also be taught to ensure mutual success and equal rights, so that the needs of the present are met without compromising the ability of future generations to meet their own needs (WCED 1987). This paper explores a method of awareness for changing and enhancing paradigms and relationships, which has multiple implications, including change, transformational leadership and sustainability in the environmental, economy and social sense, not just economic. The most important next step in the process of becoming more aware is learning the value of increasing awareness of cognitive and affective processes themselves. To create a context for Depraz, Varela and Vermersh’s awareness model, Varela’s concept of “present time
consciousness” is introduced in the next section (Depraz, Varela, and Vermersch 2002).

**Present Time Consciousness**

Present time consciousness is the awareness that the present contains both the past and the future (Varela 1999). In thought it is often unclear that what individuals and groups subjectively perceive as fresh and innovative many times may be a rehashing of thought from memory (retention), reflections of those memories, as well as anticipatory thoughts of the future (protention) (see Figure 1). The unconscious blind spot to awareness of time and memory in thinking processes may be due to the falsely perceived separation of mind and body. Today the field of neurobiology is in the process of empirically proving that in fact the mind and body are connected. Findings show that because of this connection we can consciously choose our thoughts, giving us the ability to intentionally structure and organizes the patterns of the synaptic networks of our brains (Freeman 1999, 2000; Zull 2002).

![Figure 1](image)

**Present Time Consciousness (Varela 1999)**

Scientific thought today is largely based on Cartesian and Newtonian principles (Schwandt and Marquardt 2000, Starkey and Crane 2003). The Cartesian heritage, originating with Descartes, caused a split in the view of connection between mind and matter, and man and nature (Starkey and Crane, 2003). Bateson has recreated a synthesis in *Mind and Nature* that begins to set the Cartesian split upright (Bateson 1979). The Newtonian heritage has taught people to think primarily in terms of linear cause and effect and probability (causality and reductionism), which can severely curtail the ability to see leverage points and underlying solutions to problems and possibility (Schwandt and Marquardt 2000; Senge 1990). The non-linear nature of brain dynamics (Freeman 2000) and complex adaptive systems (McKelvey 2002) are expanding and complementing our current understanding and awareness in human and organization theory, research and practice. This points to the need for greater awareness in thinking processes.

**Concept and Process of Awareness**

Consciously choosing to increase awareness of our thinking processes and the paradox of memory may help us adapt more efficiently, and even far more importantly, more effectively. Einstein said, “No problem can be solved from the same consciousness that created it; we must learn to see the world anew” (Schwandt and Marquardt 2000, p. 17). The way we thought rationally yesterday and the current perspectives we use for thinking today may be causing our problems. What is needed is a transformation, in consciousness, of our perspectives in relation to our awareness of the processes of how we think.

**Varela’s Concept of Awareness.** Awareness is noticing the patterns of thought (proprioeception), action, and relationships (Bohm 1996; Depraz, Varela, and Vermersch 2002; Varela 1999). Further, Freeman’s work in the new science of neurodynamics has revealed that the mechanism of awareness is transitory state that precedes consciousness (Freeman 2000). Bohm posited that thought is not proprioceptive, but requires proprioception (awareness of thought/ memory) (Bohm 1996). In other words, before one can initiate the learning process of becoming aware, first the synapse in the brain that facilitates awareness must be bridged by the realization or learning that thought is not proprioceptive, but requires
proprioception (awareness). Then one is ready to begin to the awareness process.

**Varela’s Awareness Process.** Awareness is the core process through which each individual can access his or her own experience (Bohm 1996; Depraz, Varela, and Vermersch 2002; Scharmer and Varela 2000). The model of the awareness process has three constituents: suspension, redirection and letting go (see Figure 2-1). Suspension is the active state of mind of suspending judgement, which creates the space for redirection (Bohm 1996; Isaacs 1999). Redirection is choosing a focus, implying a split focus between the inner (mind and body) and outer world (the other, the environment). The inner world is the most challenging on which to focus one’s attention. Letting go is staying open, letting go of one’s memory, judgment and assumptions. When engaging in the process there is a continual simultaneous cycling of these steps. Though to begin understanding the process the starting point is to look at each step of the process in detail, using Varela’s five step model (see Figure 2-2) (Depraz, Varela, and Vermersch 2002).

![Figure 2-1](Image)

*Figure 2-1*

Awareness Model: First Person Point of View (Depraz, Varela, and Vermersch 2002; Scharmer and Varela 2000)

Referring to both Figure 2-2 and Figure 2-3, the observer views the first and third person positions, as the second person. The stimuli is often in the form of spoken word accompanied by non-verbal cues. This evokes a response(s) within the listener, such as a thought or emotion. The listener may then begin to notice his/ her own thoughts as well as the input from the speaker. Within the act of listening, step 1 is initiated (i.e. the epoche), where all reactive and passive thought is suspended (Isaacs 1999). Step 2 is to recognize what the responsive thoughts are. In step 3 the listener becomes the speaker, expressing his/ her internal process to the other holding the perception of split focus of awareness through suspension, redirection and letting go. In step 4 the other will validate or not the original listener’s awareness. Step 5 is the emerging awareness itself of the listener that there is a split focus between the inner and outer world, and that suspension- redirection- letting go, the awareness process, was achieved (Depraz, Varela, and Vermersch 2002). With step 5 comes the realization of multiple dynamics within human interaction(s), including intersubjective, subjective, and objective ones.
Varela recommends while practicing/constructing awareness that one of the people in the group already have experience with the awareness process (Scharmer and Varela 2000). During the process the listener gradually becomes aware of first (self/subject), second (listener/observer) and third (other/object) positions (Simpson and Weiner 1984; Depraz, Varela, and Vermersch 2002) (see Figure 2-3). Long ago Aristotle said that experience is better than theory when it comes to practice (Depraz, Varela, and Vermersch 2002). The next three sections, 1) the embodied mind, 2) discussion: our non-rational mind, and 3) implications for change, transformational leadership and sustainable development, propose some ways that we can move from both theory and models to practice and experience.
The Embodied Mind

The embodied mind represents the non-linear view that the mind and body are a unified whole. Cognition and rational thought often exclude action, value, emotions and intentionality (see Figure 3) (Bethel 1989; Freeman 2000; Nunez and Freeman 1999; Schutz 1967). Action implies behaviour which has a determinate future goal in mind (Schutz 1967). Value is an expression of relationship between self and object. Before value can be created first a subject-object (self-other) relationship must be created (Bethel 1989). Emotions are dynamic processes in the brain and body that prepare the body for forthcoming actions and enable it to carry them out (Freeman 2000). The process by which meanings grow and operate is intentionality. The connection between these concepts is that before we can take action toward a goal the connection between subject (self) and object (other) must be made so that intentionality becomes part of the emotion generating process, which creates the energetic drive toward the goal in mind. By increasing the scope and power of individual and organizational value(s) awareness capacities in terms of action, value, emotion and intentionality, possibilities for balance and innovation increase manyfold.

Figure 3
The Embodied Mind (Freeman 2000; Bethel 1989; Schutz 1967)

Discussion: Our Non-Rational Mind

Our position is that humans and organizations are seldom aware and do not practice awareness. Awareness is a new neuroscientific view that is emerging from the biological domain and the study of life itself (Freeman 2000; Jonas 2001; Maturana and Varela 1992). This point of view simultaneously compliments and moves us beyond rationality and its bounded limitations. Paradigm pioneers in traditional human and organization studies have long been initiating “new science” into our conversations (Capra 1996; Kuhn 1996; Wheatley 1999). Even our use of language and linguistics is evolving with inclusion of living systems constructs, affirming that the classic views alone or combinations of psychology, sociology, and anthropology (Bluth 1982) theories and models fail to explain the complexity of humans and organizations. Classic approaches to life may even be causing perpetuating problematic conditions.

For example, Lakoff and Johnson convincingly argue that 95% of our thoughts and words are used unconsciously (Lakoff and Johnson 1999). That implies we are only conscious 5% of our lives. Bourdieu similarly posits, The action of agents is only rarely the outcome of conscious deliberation or calculation. To view action as the outcome of conscious calculation is to neglect the fact, by virtue of the habituations, individuals are already predisposed to act in certain ways (behavior), pursue certain goals, arouse certain tastes, and so on. Since individuals are the products of particular histories which endure in the habituations (identity), their actions can never be analyzed adequately as the outcome of conscious calculation (Bourdieu 1991).

These realizations confirm that humans are not solely rational, nor is action solely rational, but that both most are often irrational. Emerging understanding of change and the processes of how transformative learning occurs makes clear that we are far more than merely rational beings (Taylor 1998, 2001; Mezirow 2000). We learn, transform and act through affective, relational, unconscious, and collective unconscious ways of knowing--- all of which are non rational, often “self-directed” ways of being and enacting who we are (Varela, Thompson, and Rosch 1991; Weick and Sutcliffe 2001). In the biological domain of neuroscience, intentionality precedes awareness and awareness precedes consciousness up to a point (Freeman 2000). Awareness is generative and transitory in nature, constantly ebbing and flowing each moment, depending on the direction and scope of the focus of the conscious mind (Depraz, Varela, and Vermersch 2002; Maturana and Varela 1992).

Implications for Change, Transformational Leadership and Sustainable Development

The practice of awareness and active understanding of present time consciousness will enhance both cognitive and affective capacities (Depraz, Varela, and Vermersch 2002; Scharmer and Varela 2000; Taylor 2001). By developing awareness, the
structure of a person changes, enabling an individual to direct his/ her own development while simultaneously co-evolving (McKelvey 2002) with the environment. Enacting awareness has major implications for human and organizational studies because awareness, as an antecedent asset, can serve as a catalyst for intentional change, transformational leadership, and sustainable development.

Change. The most complex adaptive system is a social organization (Katz and Kahn 1978). In the study of humans and organizations, the classic, predominant lenses and tools for analyzing and directing change are psychosocial ones (Piderit 2000; Weick 1979). By drawing on the field of biology, particularly neuroscience, new lenses and tools for learning, intentional change, and greater consciousness can be unfolded and created (Freeman 1999; Morgan 1996). For leaders in organizations to be able to cope with the overwhelming complexity within the social systems of organizations, the ability to create and increase awareness of both cognitive and affective process is required. At the collective level required for social and system integration (Habermas 1983), coming to awareness can be viewed as a social mechanism (Glynn 2004), something we do as catalysts for each other as we co-evolve (McKelvey 2002). The practice of awareness in transforming leaders has the potential to foster this capacity to its highest potential.

Transformational Leadership. Varela’s awareness model could help a transformational leader – from the second person position of awareness -- to better understand how they are affecting followers (the objective third person) and one’s own self (the subjective first-person). This would enable a leader to better serve both follower’s and leader’s needs (Hollander 1992; Sashkin and Sashkin 2003). As leadership is a social phenomenon , the same dynamic of second person awareness can be the experience of followers as well. During empirical research on the role of leadership in organizational learning, Croswell identified patterns of dialogic leadership that can be seen as one method for creating shared meaning and improving organizational learning (Schwandt and Marquardt 2000; Croswell 1996). It is also viewed as a concrete tool for creating the conditions for the emergence of simultaneous, synchronous first, second and third person awareness. Through the understanding and inclusion of other points of view inter-personally and inter-organizationally new possibilities for sustainable development may become available (Gardner 1993; Hall and Vredenberg 2003).

Sustainable Development. In organizations, the term sustainability has been used in at least two ways: (1) an organization that is simply economically resilient, or (2) in an ecological sense, it can refer to an organization that upholds the triple bottom-line of business dimensions -- economic, environmental, and social (Capra 1996; Hamel and Valikangas 2003; Willard 2002). Increasing awareness may eventually lead individuals and organizations realizing that the earth’s natural resources are more than just part of the environment we depend on. The environment is quite literally part of our own body, and we are part of its body. What we do to the earth, we are doing to ourselves (Capra 1996, 2002). You are physically and energetically part of the world. Any transformation in you is a transformation in the world (Krishnamurti 1969). It is a false assumption to believe our bodies are separate from the earth’s body. One of the keys to sustainable development is to create partnerships (connections, structural couplings) between organizations for success (Hall and Vredenberg 2003; Holliday, Schmeidheiny, and Watts 2002) One example is for corporations to create alliances with secondary-stakeholders, such as NGO’s, so that altruism and economic success may become shared values (Yazji 2004).

Bibliography


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