



Published in:

Proceedings of the Conversation on the  
Comprehensive Redesign of Societal Systems,  
International Systems Institute, Pacific Grove,  
CA, 1996.

## **Evolutionary Systems Design: Way Beyond the Two Cultures**

Alexander Laszlo, Ph.D.

### **Introduction**

Human civilization is in need of new competencies. We must learn how to deal with increasing systemic complexities, rapid societal changes, and design decisions that affect the sustainable evolution of society in nature. Traditionally, we have confronted the challenges of change with an almost blind faith in the ability of science and technology to 'fix' the problems that we encounter (or more often, that we create). At the same time, though through an entirely different set of assumptions, we vest our energies in humanitarian efforts that lead us to 'fight for peace,' or denounce injustice in other cultures, or generally demand human rights in the form we *insist* is our inalienable prerogative as human beings (since no other form could be acceptable or even tolerable to us, or therefore, to any human being).

A systemic orientation is needed to maintain an holistic, critically self-reflective attitude that seeks to integrate individual satisfaction with the needs of society at large and the natural system at larger. This integration includes the physical, mental, spiritual, and emotional needs that were advocated in the past but forgotten during the modern dash to a mechanized nirvana. The new attitude must allow us to understand the limitations of our maps and models of 'reality,' and to acknowledge the extent to which they derive from the subjective nature of human perception and interpretation. If this lesson can

truly be learned then humanity has a good chance of ‘evolving with distinction,’ rather than devolving to extinction. Evolutionary competence along these lines would promote thinking globally, acting morally, and living responsibly, and could affect the pragmatic use of relevant aspects of our culture when faced with destabilizing challenges along the path of our probabilistic, evolutionary, future creating journey. But in order to gain the requisite evolutionary competence, create this new model, adopt this attitude, and seek this wisdom, we must move way beyond the gap between C.P. Snow’s “Two Cultures” of science and the humanities: we must bridge it through Evolutionary Systems Design.

### **Beyond the Two Cultures?**

In the 1968 entry to the *International Encyclopedia of the Social Sciences* (Vol. p. 452) under “Systems Analysis: General Systems Theory,” Anatol Rapoport begins a section on “The future of general systems theory” as follows:

In short, the task of general systems theory is to find the most general conceptual framework in which a scientific theory or a technological problem can be placed without losing the essential features of the theory or the problem. *The proponents of general systems theory see in it the focal point of resynthesis of knowledge.* There was a time when the man of knowledge was a generalist rather than a specialist, that is, he embodied the knowledge of principles rather than skills. He was the philosopher and the sage, and his epistemological creed was most clearly stated by Plato, who believed that all real knowledge comes from within rather than from without, that is, from the contemplation of what must be rather than what seems to be. [Italics mine. P. 457]

This orientation indicates the route of systems theory as a possible way beyond the dichotomy of the “two cultures” first presented by Snow in his 1959 Rede Lecture on the subject. Snow contended that a widening gulf was separating the humanities from the sciences. Worse, he saw them as conflictual intellectual stances that were disjoined by misunderstanding and misbelief. In his lecture, he explained, “I believe the intellectual life of the whole of western society is increasingly being split into two polar groups ... at one pole we have the literary intellectuals, ... at the other scientists, and as the most representative, the physical scientists” [Snow (1969), *The Two Cultures and a Second Look*, Pp. 3-4]. This is still a problem when systems scientists face the challenge of transferring general models from the sciences into the area of the humanities. The

series of debates over *soft* versus *hard* systems ideas and thinking since the 1960s and '70s are testimony to this struggle.

A decade after Snow presented his original discourse on the two cultures, he reflected on the possibility of a third culture coming into existence as a bridge between them. "It is probably too early to speak of a third culture already in existence. But I am now convinced that this is coming. When it comes, some of the difficulties of communication will at last be softened: for such a culture has, just to do its job, to be on speaking terms with the scientific one. Then, as I said, the focus of this argument will be shifted, in a direction which will be more profitable to us all" [*ibid*, p. 70-71].

## **Social Systems Design**

Bela H. Banathy has proposed that this third culture be called "design." He summarizes the orientations of "the three cultures" as follows:

Science focuses on the study of the natural world. It seeks to describe what exists. Focusing on problem finding, it studies and describes problems in its various domains. The humanities focus on understanding and discussing the human experience. In design, we focus on finding solutions and creating things and systems of value that do not yet exist.

The methods of science include controlled experiments, classification, pattern recognition, analysis, and deduction. In the humanities we apply analogy, metaphor, criticism, and (e)valuation. In design we devise alternatives, form patterns, synthesize, use conjecture, and model solutions.

Science values objectivity, rationality, and neutrality. It has concern for the truth. The humanities value subjectivity, imagination, and commitment. They have a concern for justice. Design values practicality, ingenuity, creativity, and empathy. It has concerns for goodness of fit and for the impact of design on future generations. [Banathy, *Designing Social Systems in a Changing World* (1996). Pp. 34-35]

Systems design represents a new epistemological creed that seeks confirmation in "contemplation of *what must be*," to use the terms of Rapoport. In the context of social systems, systems design is a participatory future creating disciplined area of inquiry. People engage in design in order to create a system that has a "goodness of fit" with the

dynamics of their larger society, with their own expectations, and with the expectations of their systemic environment.<sup>1</sup>

The design of open social systems is a relatively new mode of inquiry. It emerged recently as a manifestation of open systems thinking and corresponding soft-systems approaches. As a disciplined inquiry, it serves to enable evolutionary systems designers to align the systems they create with the dynamics of civilizational change and the patterns of sustainable environmental development.

The systems design approach seeks to understand a situation as a system of interconnected, interdependent, and interacting problems. Likewise, the solutions it seeks to create emerge from a vision of the entity taken as a whole. Such an orientation permits the design of the future through an informed understanding of the dynamics that govern evolutionary systems. It implies that we take responsibility for the creation of our future in co-evolutionary interdependence with our social and physical environment. This is based on the belief that we can shape our future, on the one hand, through the power of understanding the characteristics and requirements of the environment, and on the other through, our aspirations and expectations.

Systems design is participatory by nature: it recognizes that significant social change can be brought about only if those who are most likely to be affected by it participate in soliciting it, and choose how it is to be implemented. Since in societal systems human beings are the critical factor, change must necessarily both emanate from and incorporate them. Systems design advocates *anticipatory* democracy, where people actively apply their skills to the analysis and design of socially and ecologically sustainable systems by becoming active participants in shaping their future.

---

<sup>1</sup> Unfortunately, the social practice of using the term ‘system’ in a loose fashion to refer to almost anything (from “appliance system” to “the universe as a system”) has led to confusion over what is meant by systems science. The systems movement itself was guilty of uncritically describing everything in systems terms. But fortunately, this same abstract nature of General Systems Theory has led to a need for more concrete applications and solutions.

In Jean Houston's book, *A Mythic Life*, she quotes Margaret Mead who was on her death bed. “Forget everything I've been telling you about working with governments and bureaucracies! I've been lying here being an anthropologist in my own dying — fascinating experience, by the way; there is no hierarchy to it — and I've had an important insight into the future. The world is going to change so fast that people and governments will not be prepared to be stewards of change. What will save them is *teaching-learning communities* [italics mine]. They come together in churches or businesses or even in families. They could meet weekly and do your kind of exercises, especially ones that *develop their capacities*. There must be humor, laughter, games and good food as well. That will keep the participants coming back. Then, when they feel ready, they will choose projects to work on to help their *communities*. The *only way to have a possible society*, Jean, is to develop the *possible human* at the same time.”

## **Evolutionary Systems Design**

Evolutionary Systems Design (ESD) is an area of systems praxiology oriented to the creation of evolutionary pathways for the sustainable development of life on earth. Given the theoretical constructs of general evolution theory, and the methodological constructs of social systems design approaches, evolutionary systems design confronts the challenges posed by purposeful stewardship of the earth's life support systems. The orientation of this praxiology is captured in a writing that dates from well before the emergence of ESD: “having become conscious of evolution, we must now make evolution itself conscious. If we so willed it, the next leap in the development of human society can be intentionally guided.” To do so, we must create a “holarchic path where individuals and communities collaborate of their own accord in flexible social systems.” (E. Laszlo, 1991, p. 104.)

ESD seeks to develop “evolutionary competence.” Evolutionary competence refers to the state of self-actualization (of individuals and groups) that is marked by the mastery of the knowledge, the abilities, the attitudes, and the values required for co-evolutionary actions, and therefore, for the pursuit of sustainable modes of being.

Since the stewardship of evolutionary competence is one of the principle objectives of ESD, current research seeks to promote processes that cultivate individual and collective empowerment in the creation of pathways of evolutionary development through the generation of real-world models of evolutionary learning communities (ELCs). The work of others along similar lines marks a trend toward convergence on the normative issues of evolutionary systems design. Dee Hock has for some years been working on the notion of the organization that exists between chaos and order — what he calls the “chaordic organization.” According to Hock, “all organizations are merely conceptual embodiments of a very old, very basic idea — the idea of community” (as quoted in Waldrop, 1996, p. 8). His notion of the chaordic organization is meant to capture this concept of community, and to address issues of social development “in ways harmonious with liberty, the human spirit, the biosphere and the fundamental principles of evolution. Only a new concept of organization in which the whole does not control the parts and none of the parts control the whole, can competition and cooperation be blended, order emerge, and effective, efficient, equitable” systems of human activity evolve (Hock, 1994, p. 6).

Notions such as these point to the need for the systems design of effective evolutionary learning communities. An ELC can be defined as a group of two or more individuals with a shared purpose and a common identity that develops evolutionary competence by learning how to learn in harmony with the dynamics of its physical and sociocultural milieu. ELCs do not adapt their environment to their needs, nor do they simply adapt to their environment. Rather, they adapt *with* their environment in a dynamic of mutually sustaining evolutionary co-creation. Situations of uncertainty are turned into opportunity — provided a basic level of evolutionary competence that permits understanding of the principles that explain the patterns of change described by all complex dynamic systems with a throughput of information and energy. Groups of people engaged in ESD form an evolutionary learning community, and such communities make for the emergence of a culture of evolutionary design. In the process, the bridge begins to be built to take us way beyond the Two Cultures.

## Reflections

The increasing complexity and interrelatedness of human social systems highlights the need for a systems praxis that combines the humanities and the sciences in an holistic interpretation of current realities, and foments the robust design of desired (and desirable) futures as legitimate responses to the perception of global and individual needs. Conscious human guidance is an ongoing requisite since the ability of societies to evolve, and even to survive, depends in great measure on their ability to adapt with changing realities. A systemic orientation is needed to maintain an holistic, critically self-reflective attitude that seeks to integrate individual satisfaction (including the physical, mental, emotional, and spiritual needs of human beings) with their societal and natural environments in consideration of dynamic evolutionary laws and processes.

However, given that they are culturally-conditioned, social systems are embedded in an even more mercurial environment than are biological systems. What the reality is that affects the existence of social institutions, political states, and economic systems depends not only on what the case is, but on what its members and its leadership perceive it to be. Since reality is not an absolute given, systems theorists should not seek to design absolute solutions to contemporary challenges; solutions should take the form of flexible systems of future creation that help decision-takers select humanistic and sustainable responses to the issues they confront. In *Order Out of Chaos* (1984), Ilya Prigogine and Isabelle Stengers note that individuals can very much play a role in evolutionary processes of change. “The threat lies in the realization that in our universe the security of stable, permanent rules are gone forever. We are living in a dangerous and uncertain world that inspires no blind confidence. Our hope arises from the knowledge that even small fluctuations may grow and change the overall structure. As a result, individual activity is not doomed to insignificance” (as quoted in Banathy, 1996, p. 313).

Through the tools of systems science and design, it is possible to construct a stable structure of human co-evolution with life and life support systems on earth. No longer is it necessary to shift weight back and forth between reliance on the technological fixes

of science and technology and reliance on the blind justice of human social institutions. As we all know, two-legged structures are inherently unstable. With the integration of the culture of design, humanity can firmly ground the world of symbols, values, social entities, and cultures that comprise our reality-making competencies. ESD can help us learn to master these competencies through evolutionarily informed acts of inventing, making, assessing, and implementing — and an understanding of the fact that not only is the future possible, it is up to us. Indeed, “the ideas and visions we now produce could be the butterflies of the ultimate decade. It is up to each of us to flap our wings — and to make use of the chaos of our times to launch our bifurcating societies along the humanistic path” (E. Laszlo, 1994, p. 61).

## Bibliography

- Ackoff, R.L. (1981). *Creating the Corporate Future*. New York: Wiley.
- Banathy, B.H. (1996). *Designing Social Systems in a Changing World*. New York: Plenum Press.
- (1995). "Developing a Systems View of Education." *Educational Technology*, May-June, 53-57.
- (1989). "The Design of Evolutionary Guidance Systems." *Systems Research*, 6(4):289-295.
- Checkland, P. (1981). *Systems Thinking, Systems Practice*. New York: Wiley.
- Hock, D. (1994). Institutions in the age of mindcrafting. Unpublished presentation at the Intermountain Health Care System, Salt Lake City.
- Laszlo, A. (1992b). "Fostering Design Competencies: Empathizing With and Enhancing Individual and Collective Self-Development Capacities." Proceedings of the Sixth International Fuschl Conversation. Fuschl, Austria.
- Laszlo, E. (1994). *Vision 2020: Reordering Chaos for Global Survival*. Philadelphia: Gordon & Breach.
- (1991). *The age of bifurcation: Understanding the changing world*. Philadelphia: Gordon & Breach.
- Prigogine, I., and I. Stengers (1984). *Order Out of Chaos*. New York: Bantam.
- Rapoport, A. (1968). "General System Theory," in *The International Encyclopedia of Social Sciences*, 15, 452-458. David L. Sills (ed). New York: Macmillan & The Free Press.
- Strijbos, S. (1995). "How can Systems Thinking Help us in Bridging the Gap between Science and Wisdom?" *Systems Practice*, 18(4):August.
- Snow, C.P. (1959). *The Two Cultures and the Scientific Revolution*. New York: Cambridge University Press.
- (1969). *The Two Cultures and a Second Look*. New York: Cambridge University Press.
- Ulrich, W. (1983). *Critical Heuristics of Social Planning: A new approach to practical philosophy*. Bern: Haupt.
- Waldrop, M. (1996). The trillion-dollar vision of Dee Hock. *Fast Company* October:November.