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The Evolution of Evolutionary Systems Design

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Abstract

This paper presents the genesis of Evolutionary Systems Design (ESD) as a praxis that draws on General Evolution Theory and Social Systems Design methodology, in addition to Critical Systems Theory, to engage in life-long learning and human development in partnership with Earth. The contributions of Bela H. Banathy to the creation of ESD are portrayed as bridging evolutionary consciousness and evolutionary action. Following a brief description of the inspiration and mentorship provided by Bela in this regard, the roots of ESD are traced back to General Evolution Theory. It is described how notions of evolutionary stewardship grew out of encounters with Bela and his work at the International Systems Institute, and were given operational viability through the methodology of Social Systems Design he developed. The fundamental tenets of ESD are presented and discussed by way of a four stage evolutionary learning framework. Finally, the vehicle of Evolutionary Learning Community through which ESD operates is shown to embody the potential for individuals and groups to think, live, and act in harmony with the dynamics of which they are a part as a means to guide the conscious creation of sustainability.

KEYWORDS: General Evolution Theory, Social Systems Design, Evolutionary Systems Design, Evolutionary Learning Community, syntony, sustainability, life-long learning.

Introduction

When we were asked to write a paper in honor of Bela H. Banathy, we knew right away that here was an opportunity to crystallize and portray the role of one of the most significant figures to grace our lives. And what is so especially profound about his particular influence is that it is so subtle, so enabling. Bela never points or directs. He empowers by offering relevant possibilities for your consideration. As the dawn creates space for birds to sing and flowers to open, so Bela elicits and evokes our potential. He does so in his own quiet, often cryptic way. And so he sets an example, for to learn with Bela means to listen and observe, to ponder and reflect, to intuit and discern.

Part of Bela's empowerability is gleaned from simple observation of who and how he is. The other part comes from the attention he gives to who and how you are. He shows how much he believes in you, and it generally seems to be more than you believe in yourself! At least for the two of us, this has created a sense of wanting to live up to this image of who we could be.

Bela sets in motion ripples of affect. The resonance he helps elicit in us will continue to propagate as we, in turn, set others humming to the same frequencies of self-empowerment, future creation, and conscious evolution. Of course, his influence resounds in the lives of many others as well, and we come together from all parts of the world to kindle our evolutionary potential in conversation communities that seek nothing less than the comprehensive redesign of societal systems. Bela's vision — our collective dream — is to co-create the conditions for a culture of design to emerge. And through the consonance of the vision of inspired stewardship that he offers, there can be no doubt that a design culture *is being designed*.

General Evolutionary Roots

Both of us had come to an appreciation of General Evolution Theory (sometimes, Evolutionary Systems Theory) from different directions. For one, the appeal of GET lay in the interpretive framework it provided for issues relating to national development planning and sustainable development strategies. It created a 'rich picture' perspective of the whole story within which to consider how a people can develop their own ways of thinking, doing, and being without having to submit to the hegemony of technology transferred from some other culture or some other era. For the other, GET pointed to both a challenge and an opportunity in the field of education. It revealed how the educational system, at all levels, is failing to prepare people for creative, participatory, and ethical roles — both as citizens of our world and as inhabitants of this planet. It also made evident the essential isomorphy between 'learning' and 'evolution,' and the extent to which currently dominant educational paradigms are, if anything, non-evolutionary.

The natural complementarity of these concerns led us on a joint quest to further understand and contribute to the betterment of the human condition in partnership with Earth. On the one hand, we saw that the self-determination of a people and their ability to engage in sustainable development practices are matters of collective learning and emancipation. On the other, we saw that the development and advancement of life-enhancing educational orientations that foster the competencies necessary to address contemporary socio-ecological problems are matters of individual learning and empowerment. Each focus provides depth and background to the other, one concentrating on societal development and the other on personal development. They provide complementary perspectives on the issue of learning how to foster our individual and collective evolutionary potentials.

The promise of GET is captured succinctly in Laszlo, Masulli, Artigiani, and Csányi (1993):

General evolution theory, based on the integration of the relevant tenets of general system theory, cybernetics, information and communication theory, chaos theory,

dynamical systems theory, and nonequilibrium thermodynamics, can convey a sound understanding of the laws and dynamics that govern the evolution of complex systems in the various realms of investigation. ... The basic notions of this new discipline can be developed to give an adequate account of the dynamical evolution of human societies as well. Such an account could furnish the basis of a system of knowledge better able to orient human beings and societies in their rapidly changing milieu. (p. xvii.)

However, this promise is heard differently by different people. Peter Bowler (1984, p. xiii) considers the development of the notion of evolution to be “perhaps the most controversial of all scientific theories.” With somewhat greater confidence, Lewis Thomas (1974, p. 142) asserts that “our most powerful story, equivalent in its way to a universal myth, is evolution.” In the final analysis, the term must be recognized as a cognitive construct; one that informs various aspect of our perception of the world, should we choose to incorporate it into our own cognitive map (Laszlo & Krippner, 1999, p. 68). In the context of GET, it is intended to specify a trend in the development of the universe that constitutes a ‘cosmic process.’ It manifests through particular events and sequences of events that are not limited to the domain of biological phenomenon but extend to include all aspects of change in complex dynamic systems with a throughput of information and energy. More simply put, it is “a general way of conceptualizing the self-organizing selection process of the universe displayed in ... increasing complexity” (Reeves, 1992, p. 1102).

In our search for a theoretical systems approach by which to understand human and natural systems, we found GET to be most powerful. It provided a clear and succinct articulation of the emerging evolutionary scientific paradigm. Through transdisciplinary study drawing on the sciences of complexity — general system theory, cybernetics, nonequilibrium thermodynamics, autopoietic systems theory, chaos theory, and dynamical systems theory — it offers a robust explanatory model of general cosmic evolutionary processes as they manifest across both natural and cultural realms.

GET created in us a deep awareness of the embedded and entangled character of the dynamic relations between living systems and their environment. It also gave rise to an even deeper respect for the creative cosmic dance of perpetual transformation that describes these relations. We began to understand how inextricably we are a part of this grand pattern making process, and how continually we move from being to

becoming. But we did not know what, if anything, we could or should do with this understanding. That is to say, GET provides clear guidelines by which to understand “what” evolution means and “why” our actions and inactions are important, but it says precious little about “how” we can get more consciously involved in it. What was missing were indications of how to create, and then translate into action, opportunities for the proactive stewardship of sustainable pathways in partnership with the life support systems of planet Earth. If only could do this in more than just an idiosyncratic though ‘evolutionarily informed’ way, we thought we might be able consciously to foster integral evolutionary development. The dilemma was how to steward ‘that which should be’ without either imposing solutions or presuming answers.

Banathy’s Social Systems Design

In the late 1980s, we came across the work of Bela H. Banathy. Specifically, we encountered his writings on Social Systems Design (SSD) and began to participate in the International Conversations on the Comprehensive Design of Societal Systems that take place yearly at Asilomar in California and every two years at Fuschl-Am-See in Austria. We were thrilled with what we were learning from and with Bela, for it provided a way for us to address the interests and concerns that had grown out of our study of GET. What was, and continues to be, particularly thrilling about this learning is that we engage in it together with Bela — in person, at the Conversation events, through his mentorship, and through a study of the literature that has grown up around the seminal work he is doing in this area.

Bela looks upon social systems design as a “future creating disciplined inquiry” (Banathy, 1996, p. 45). According to him,

even if people fully develop their potential, they cannot give direction to their lives, they cannot forge their destiny, they cannot take charge of their future — unless they also develop competence to take part directly and authentically in the design of the systems in which they live and work, and reclaim their right to do so. This is what true empowerment is about. (Banathy, 1996, p. vii)

In our search for an action-oriented systems approach to the development of human and natural systems, we found SSD to be most powerful. It was precisely this sort of empowerment that we felt was missing from our current understanding of GET. So we immersed ourselves in SSD. We found it to provide for a purposeful and creative process through which human activity systems can transcend current realities by translating an ideal image of their future into lived reality. Magical though this may sound, the methodology worked out by Bela for doing so is robust. As an interactive and participatory process, SSD is based on the premise that we cannot design *for* others: we can only design *with* others. Were we to do otherwise, we would not be engaged in authentic design but rather in the imposition of our visions, values, and proclivities.

The design component of SSD is therefore participatory in nature. It acknowledges 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. SSD advocates *anticipatory* democracy — what Bela prefers to call future-oriented participatory 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.

The methodology of SSD calls for conversation. Two complementary modes of dialogue comprise design conversation: generative dialogue and strategic dialogue (Banathy, 1996, p. 218). One provides a process through which individuals become friends and partners in learning/designing and a community generates common meaning. The other focuses on particular tasks in the creation of solutions for a specific social circumstance. The complementary dynamic between generative and strategic dialogue echoes M. Scott Peck's (1987, p. 104) exhortation: "community-building first, problem-solving second."

We need not go into greater descriptive detail on the nature of SSD given the focus of the collection of articles in this *Festschrift* to Bela. Suffice it to say that the methodological constructs of SSD allowed us to complement the theoretical constructs of GET in the creation of an evolutionary systems design praxiology to confront the challenges posed by purposeful stewardship of Earth's life support systems. Bela's continued guidance in this effort has resulted in the emergence of an area of disciplined action-inquiry that serves to enable evolutionary systems designers to align the systems

they create with the dynamics of civilizational change and the patterns of sustainable evolutionary development. This praxiology we are calling Evolutionary Systems Design (ESD).

Evolutionary Systems Design

Inspired by the work Bela has done to create a rich and robust platform for SSD, we decided to extend it to incorporate a normative evolutionary perspective. By drawing on both SSD and GET, we conceived ESD as an approach for learning about evolution and acting accordingly. As a species, our actions and interventions on this planet have been largely driven by chance and, at best, ‘20/20 hindsight.’ However, as Margaret Mead noted, we are at a point where for the first time in human history, we are able to explain what is happening while it is happening (in Montuori, 1989, p. 27). ESD builds on this relatively new meta-reflective competence by serving as an instrument for the evolution of consciousness and for conscious evolution. It suggests that with the new understanding of evolutionary dynamics and effective approaches to the participatory design of social systems, our species can stop drifting upon the currents of change and begin to adjust its sails in view of sustainable evolutionary futures. “As evolution becomes history, it can become conscious. As Jonas Salk put it: conscious evolution can emerge from the evolution of consciousness — and from the consciousness of evolution” (E. Laszlo, 1996, p. 139). This is the understanding upon which ESD has been conceived.

While SSD can be characterized as a form of soft systems thinking primarily serving Habermasian practical interest (Jackson, 1991), ESD is conceived as an attempt to evolve SSD into a form of critical systems thinking by also serving an emancipatory interest. This means that ESD draws from wellsprings of soft systems thinking, critical systems thinking, and emancipatory systems thinking in addition to GET and life-long evolutionary learning orientations. The result is a humanistically oriented systems approach comprised of a meta-methodology that facilitates the critical application of various systems perspectives to real-world situations (Laszlo & Krippner, 1998, p. 59).

Much as with TSI (Total Systems Intervention, *cf.*, Flood & Jackson, 1991), those engaged in ESD must select or design appropriate approaches for addressing their

particular purposes. Rather than consider the application of ESD on philosophical grounds, designing communities face practical challenges for socio-ecological survival and must learn to move “toward what will work to provide answers where no reliable guides exist” (Salner, 1996, p. 8). This does not mean that ESD is methodologically eclectic or that it disregards the need for a coherent body of theory to inform its practice. By empowering evolutionary agents neither as activists nor as theorists, but as a synthesis of the two, it offers a way — an integral path — for human becoming in partnership with Earth. Figure 1 illustrates the key conceptual influences upon ESD.

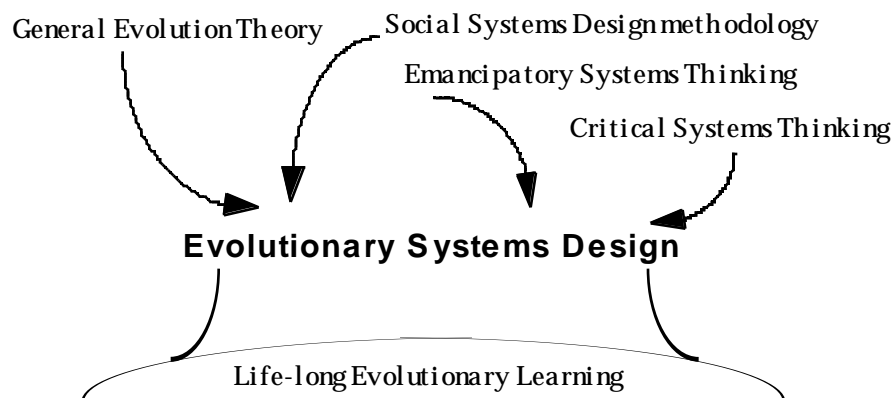


Figure 1. Conceptual influences of ESD

Evolutionary learning is a core aspect of ESD. We have developed an operational learning framework for the stages through which individuals and groups pass as they become evolutionary change agents. The four stages and their corresponding objectives are:

- 1) Evolutionary consciousness: To create an awareness of the evolutionary history, of the changing conditions of change, and of the challenges that sustainable human co-habitation with life on Earth entails.
2. Evolutionary literacy: To develop a basic scientific understanding and an empathic appreciation of the challenges facing humanity that is both personally significant and societally attuned.
3. Evolutionary competence: To gain a sense of responsibility that is coupled with the change management competence of *responsability* so that we can affect purposeful,

positive, evolutionary change in the communities within which we work, play, and learn.

4. Evolutionary praxis: To learn how to become catalysts for change by learning what modes, methods, and means are best for clearly articulating and effectively communicating to others the need for change.

Various thinkers have identified complementary learning objectives relevant to the creation of sustainable and evolutionary futures: Donald Michael's (1973) psychological barriers to be overcome for future oriented societal change; C.A. Bower's (1993) educational changes for embracing sustainability; Alfonso Montuori's (1989) ideas on the creative elicitation of the future; Dean Elias's (1997) learning for expansion of consciousness; Lester Milbrath's (1989) learning tasks for a sustainable society; and Robert Ornstein's (1991) and Ornstein and Ehrlich's (1989) ideas on conscious evolution. By drawing on the orientations put forth by these thinkers, and infusing them with Bela Banathy's (1996) agenda for evolutionary learning, it is possible to present some of the key heuristic foci of the ESD agenda implicit in the above mentioned four stage learning framework:

- Learning for evolutionary consciousness

Values are the focal point of this learning stage. "How is the world changing and what part can I play in the process?" are the sort of value-related questions that Evolutionary Systems Designers (ESDoers) can address through the types of dialogue encouraged by Bela's conversation dynamics. ESDoers need to make their values and worldviews explicit. They do so by examining how their values have been shaped by conceptual frameworks that influence human/habitat relationships, and by exploring with, and being open to learning from, others about the values necessary for the co-creation of sustainable and evolutionary futures. This learning stage, therefore, requires an understanding of the ever-changing global problematique; the exploration of perennial values (such as cooperation, trust, love, respect, harmony, and the appreciation of diversity); the development of an evolutionary ethic (including self-realization, social, and ecological ethics); and the fostering of a partnership model of human interaction, emphasizing *cooperation over competition, linking rather than ranking, and power to instead of power over*. The development of an evolutionary consciousness involves the expansion of our sense of self to include the natural and physical environment. It provides a 'bird's-eye view' of our evolutionary story by which to see issues of where

we are coming from and where we are going in a more holistic, global, and inclusive perspective. Learning how to create the conditions that foster such a consciousness — in ourselves and in others — provides a path by which we may realize the evolutionary opportunities ahead of us.

- Learning for evolutionary literacy

Understanding is the focal point of this learning stage. With the awareness and empathic appreciation of their role in the evolutionary journey, ESDoers are ready to acquire a conceptual platform to support informed evolutionary action. Systems thinking — involving the capacity to grasp complexity, connectedness, interdependence, wholeness, embeddedness and entanglement — is a basic element of evolutionary literacy. In addition to an appreciation of our evolutionary history, evolutionary literacy involves the acquisition of basic GET concepts such as steady state, bifurcation, irreversibility, and notions of systemic convergence onto higher levels of organization and complexity. This knowledge serves as a conceptual toolkit from which ESDoers draw to bolster their conviction that change is possible and that humans can play an evolutionary role in the stewardship of life in partnership with Earth. Anticipatory thinking and the consideration of the long-term consequences of our actions are part of evolutionary literacy. An understanding of the isomorphic nature of evolutionary dynamics can catalyze the move from anthropocentric to ecological and evolutionary ways of being and becoming with the world.

- Learning for evolutionary competence

Abilities are the focus of evolutionary competence, especially as concern the competencies required for social systems design. As Kenneth Boulding admonished, “intentions are fairly easy to perceive, but often do not come about. Design is hard to perceive. But it is design and not intentions that creates the future” (in Banathy, 1996, p. 71). This sentiment could be paraphrased in terms of ESD in the sense that while evolutionary consciousness and evolutionary literacy may elicit good intentions, it is evolutionary competence that empowers people to act on those intentions. ESD involves learning to think together about our values and to use the resulting understanding to co-create pathways for sustainable socio-ecological emergence. Design competence enables people to participate in the creation of a shared image of a sustainable and evolutionary future and to bring that image into being. The challenge is to find practical ways of living in harmony with nature; to learn to live lightly,

meaningfully, and simply in and with Earth, and to realize an extended sense of identity that embraces the world in enlightened self-interest.

- Learning for evolutionary praxis

Action is the focus of evolutionary praxis. ESDoers become evolutionary change agents through the previous stages of life-long evolutionary learning. At this stage, they are able to translate their awareness, understanding, and ability into evolutionary action in whatever they do. Evolutionary praxis has no more guidelines than acting, day by day, on the knowledge acquired through the three previous phases and following Gandhi's exhortation to be the change one wishes to see in the world. Usually, this means working with others, in some way, toward the conscious realization of evolutionary living and learning. As evolutionary change agents, ESDoers catalyze evolutionary development in individuals and groups and often work toward fostering healthy socio-ecological communities. The four stages along the ESD path of life-long evolutionary learning can be illustrated like this:

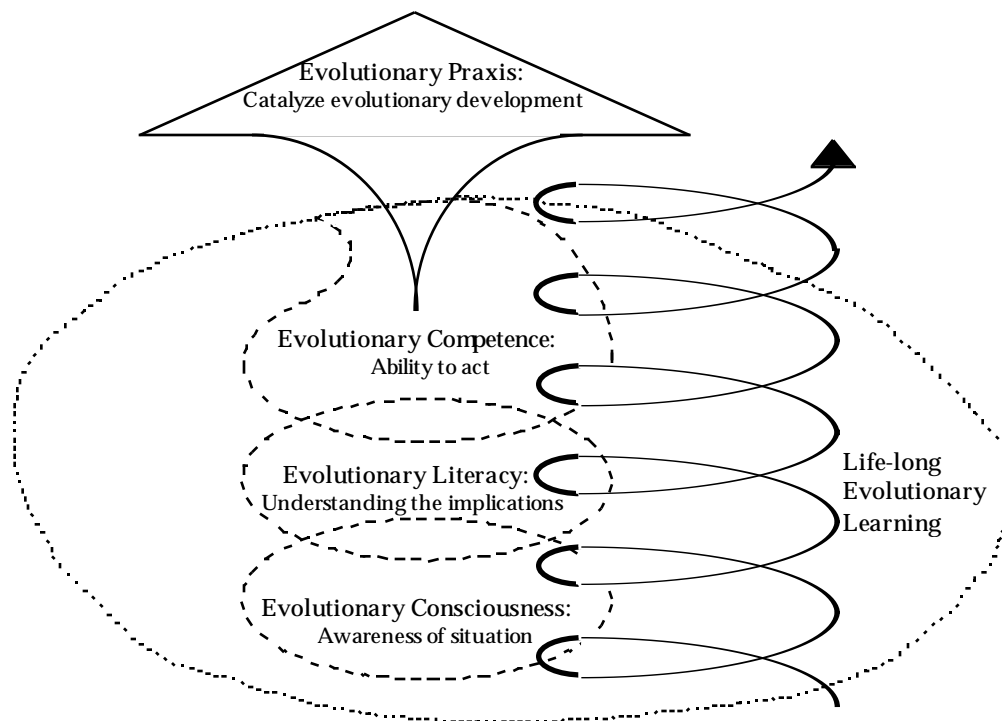


Figure 2. The evolutionary learning framework of ESD

The ESD orientation to future creation is essentially possibilistic. It assumes that human beings have the choice consciously to participate in the co-creation of the future. And yet it seeks neither to predict nor to ‘socially engineer’ the future. Rather, it seeks to create the conditions for the emergence of evolutionary futures.

“In systems such as contemporary society, evolution is always a promise and devolution always a threat. No system comes with a guarantee of ongoing evolution. The challenge is real. To ignore it is to play dice with all we have. To accept it is not to play God — it is to become an instrument of whatever divine purpose infuses the universe” (E. Laszlo, 1996, p. 139).

The aphorism that captures the spirit of ESD is one of flow: we cannot direct the wind, but we can adjust the sails. Learning to sail the currents of evolution — not just to ‘go with the flow’ but to become active participants in the journey — this is at the heart of the ESD, and an orientation to life that Bela constantly promotes.

A Vision of the Future

Through our joint learning and design journey, seeking to combine the ecosystemic, societal, and personal aspects of sustainable evolutionary development, and seeking a praxis with which to concretize our emerging ESD platform, our work converged on what we call Evolutionary Learning Community (ELC). ELC builds on and incorporates yet other ideas from Bela: the notions of healthy and authentic community and of designing community. SSD fosters healthy and authentic community and poses the challenge of how to translate the powerful ideas of true community into our everyday lives in ways that are fundamental and true. ESD fosters evolutionary learning community by seeking to facilitate the evolution of healthy and authentic community, through anticipatory design, so that it may serve as the vehicle through which we participate in the creation of sustainable and evolutionary futures. In this sense, evolutionary learning community is a form of healthy and authentic community — one with an evolutionary attitude that reaches beyond the sociosphere.

As illustrated in the diagram below, the evolution of evolutionary learning community is a purposeful process that starts with the creation of a Healthy and Authentic Community — which is the appropriate context for collaborative learning and design. When the community is ready to make the commitment to become a Learning Community, the members engage in a process of learning-how-to-learn that includes the development of evolutionary consciousness and evolutionary literacy. By subsequently developing evolutionary competence, the learning community can design itself into a Designing Community capable of continuous autopoietic re-creation as a community. This process of evolutionary learning creates the conditions for evolutionary praxis. Through the integration of ideals and actions, the individuals and the community become fully empowered as stewards of their ongoing evolution. The evolutionary path from Healthy and Authentic Community to Evolutionary Learning Community can be represented as follows:

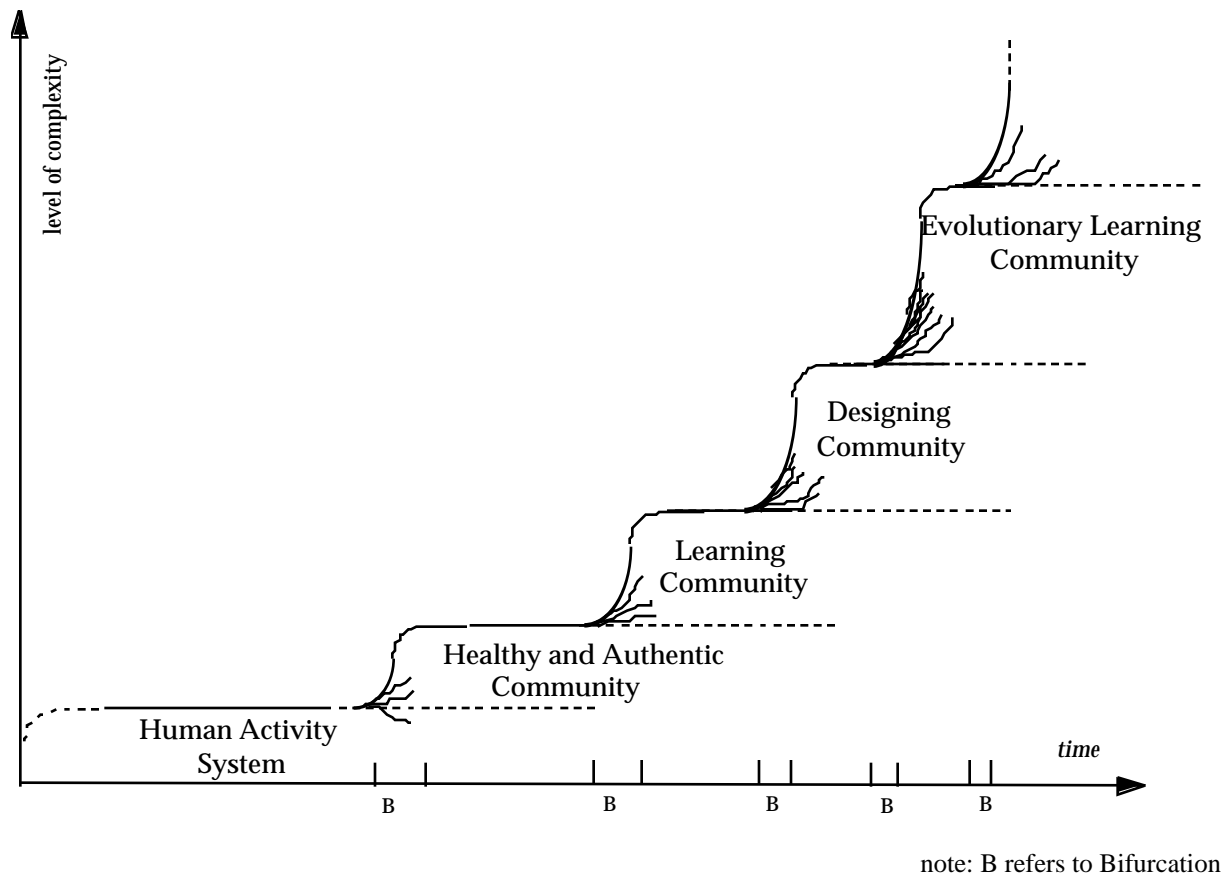


Figure 3. The evolution of Evolutionary Learning Community

Groups of people engaged in purposeful ESD form an evolutionary learning community, and such communities make for the emergence of evolutionary social systems — or systems of syntony, as shown in figure 4. In evolutionary social systems, people do not ‘come first’ — the whole ecosystem comes first. All aspects of the evolutionary social system, from psycho-personal and socio-cultural to bio-physical and process-structural — all are ‘actors’ with a voice in the creation of what we call *syntony* or evolutionary consonance (*cf.*, A. Laszlo, 1999). All listen to and create with one another. These evolutionary social systems are, of course, communities; a special type of community — one in which people act as stewards of their own futures in syntony with their dynamic surroundings.

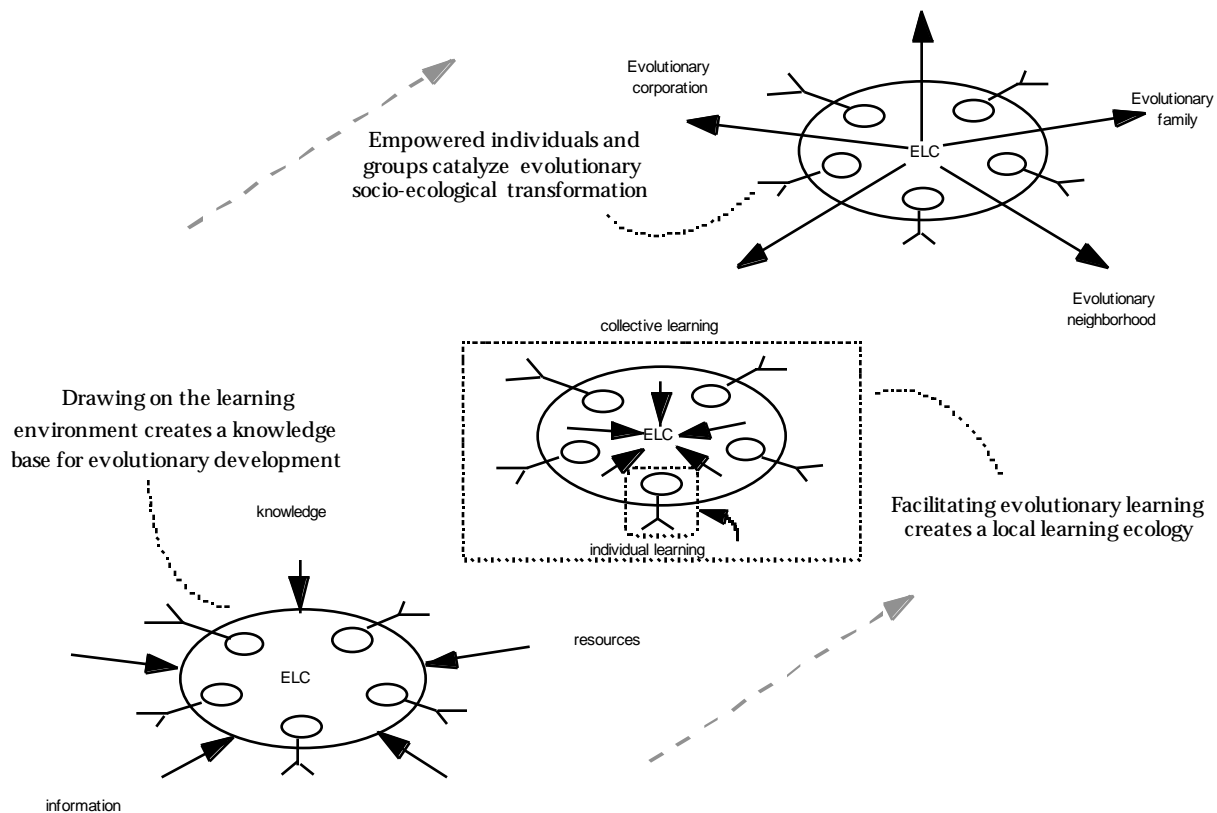


Figure 4. Evolutionary learning community facilitates the emergence of systems of syntony

Evolutionary social systems are embodiments of an evolutionary consciousness. They draw on an expanded conception of self that leads to the empathic identification with

others — including non-human others. Such an inclusive self-concept fosters understanding and love for other people, species, and future generations. It helps us learn to ‘think like a mountain,’ in Aldo Leopold’s wonderful phrase. Evolutionary consciousness of this sort creates less need for ethical guidelines on protecting and preserving nature — it would be just natural to do so. This kind of thinking leads to actions that are empathetic and inclusive, giving voice to such sentiment as Seed once showed: I’m not working to protect the rainforest, I’m part of the rainforest, in human form, protecting itself. To be human and to express such more-than-human identity and volition creates the conditions for an ethic of appropriateness, and marks a state of consciousness that is truly evolutionary.

Bela’s work provides a clear presentation of the importance of learning for the purposeful design of the future. Following his lead, we see ESD as an approach for realizing the vision of a sustainable and evolutionary *learning* society — a *paidea*, as the ancient Greeks called a society where the promotion of life-long learning and the achievement of the human potential in the broadest sense was a central priority (Milbrath, 1989, p. 94). A *paidea* can be considered a social system of syntony, and the educational vehicle we have chosen for facilitating evolutionary learning and transformation for its emergence is the ELC, and beyond it, communities of ELC, or Evolutionary Learning Ecosystems.

Conclusion

GET provides us with an optic that focuses on patterns of change; it invites us to appreciate our part in the creative process of the universe. SSD provides us with a tool for shaping the systems in which we work, learn, and live; it empowers us to be proactive participants in the creative process of our social world. In an age when the overwhelming complexity of contemporary global problems could leave us without much hope for the future, ESD provides a path for transcending problems and embracing opportunities. A successful evolutionary future in partnership with Earth depends on our capacity to hold the creative tension between our ideal images of the future and our crude present realities without either sliding into fatalistic pessimism or wishing it away with a wave of utopian optimism:

Pessimism is premature; optimism is naive. Voltaire was right: the optimist believes that we have the best of all possible worlds, and the pessimist is afraid that this is true. Neither does anything about it — the one because nothing *needs* to be done about it, and the other because nothing *can* be done. (E. Laszlo, 1996, p. 140)

Bela's work is inspirational. It is also timely and relevant. He shows that it is possible to avoid the pitfalls of pessimism and optimism and to face the challenge of envisioning and designing evolutionary futures while keeping your feet planted firmly in pragmatic reality. We walk with him on this quest, entreated by the dedication he penned in our copy of his *Systems Design of Education: A journey to create the future* (1991): "We welcome you into our conversation community and wish you all success in your journey to serve future generations."

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