

**The Seventh Annual International Conference
of the International Systems Institute on
the Comprehensive Design of Evolutionary
Learning Systems**

A Report from Working Group D

D-Gang:

Building a Design Culture through Evolutionary Learning Communities

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Abstract

D-Gang is a research team that began as "Group D" or the Design Culture group in the ISI Conversation Events prior to the 1990s, and has evolved over the yearly meetings through a progression of ever more finely tuned research foci. In 1990 and '91 we were concerned with defining the concept of a "design culture"; by '92 the quest was for the principles and steps to guide designing communities; in '93 we focused on the components for building a design culture (the design principles, the learning system, and the resources or "tools" of design); by '94 we evolved from a Group to a Gang and focused our efforts on the relational dynamics among the components previously identified; and in '95 we sought to consider what would be a design culture that would enable transcendence, and in the process, reached an impasse in our own transcendence as a research team with unity of purpose. This report will not enter into the details of the first three of the five days together at Asilomar'95 during which conversation failed to bring consensus on the processes and objectives of inquiry to which individual team members wished to lend their efforts. However, some "lessons learned" from these three days will be shared in the hope that there may be a benefit for the larger ISI community in guarding against such dynamics in future conversations. The main focus of this report will be on the final day and a half during which D-Gang split into two semi-independent subgroups, bound only by agreement on the original triggering question. One subgroup was comprised of those members who came to D-Gang expecting to join a conversation that had an established, coherent line of inquiry and a knowledge base that would serve as a resource to ensuing D-Gang conversations. These members had planned to bring individual knowledge, experience, and information to the existing line of inquiry, using conversation methodology to create new knowledge, working with the existing flow of the intact line of inquiry in a synergistic, constructivist learning process. Alexander, Kathia, Sue, and Muriel became D-FILI Subgroup (Following an Intact Line of Inquiry). A second subgroup was comprised of those members who came to D-Gang expecting to employ conversation methodology to consider the issue of Design Culture and Transcendence without any preconceived line of inquiry to fetter the emergence of insight. These members wished to pursue conversation as a process, letting the line of inquiry emerge from the dynamic of the conversation itself. Arne, Ken, Diana, and Kathryn became D-TiP Subgroup (Trust in Process). The ongoing activities of "D fragmented Gang" during the time since the November Conversation Event have witnessed the strengthening of D-FILI Subgroup research initiatives and the atrophy of those of D-TiP Subgroup. For the sake of maintaining the spirit of inquiry expressed in the opening paragraph of the previous Annual Report -- "Although the membership has shifted and changed over the years, there has always been a direct passing of the torch from year to year" -- this report will conclude with a fresh set action-research objectives for future D-Gang inquiry. These are to build understanding of Evolutionary Learning Communities (ELCs) as ideal learning systems that foment the emergence of a Design Culture.

D-Gang Existential Crisis & Angst: Lessons Learned from the first three days of conversation

The first three days of Asilomar'95 were tortuous for D-Gang. The following account is a synthesis of what happened with a focus on "lessons learned" that may contribute to future organizing and planning for the Asilomar Conversation Event as well as inform the larger ISI community in general.

A review of some of the essential elements for effective group work reveals at least three non-productive "tension sources" that arose during these three days. The first D-Gang tension source was individual expectations of the conversation experience, or common goals, as described in the Abstract above. This difference in expectations or goals was unresolvable, given the limited (four day) time frame, and perhaps the remaining identified tension sources emanated from this one.

The second tension source for D-Gang was communication. We did establish some communication ground rules on the first day, but we also ignored many of these as we engaged in conversation. For example, one of our ground rules addressed active, respectful listening, yet many times we interrupted one another, overtly with interjected statements, and more subtly with side conversations. This violation of our ground rules (and healthy group dynamics) probably contributed to some members feeling reluctance and uncertainty about openly expressing their thoughts and feelings, or even about expressing themselves at all.

A third significant source of tension was a lack of well-defined decision making procedures. Again, we had addressed the importance of consensus in our ground rules, yet as we attempted conversation and dialogue, we struggled with consensual processes. We could not reach agreement on whether or not designated roles and ground rules were important to group dynamics. Finding common ground seemed an elusive, if not impossible task for us.

Content Reports: D-TiP and D-FILI Subgroups

On the afternoon of the third day, D-Gang divided into two smaller groups: one would engage in conversation and "trust in process" (labeled D-TiP Subgroup) letting the line of inquiry emerge from the conversation. The other would "follow an intact line of inquiry" based on the trajectory of inquiry developed through previous years of D-Gang research (earning it the designation of D-FILI Subgroup). This section of the group report will describe the conversation of each subgroup which took place during the remaining day and a half, covering first that of D-TiP Subgroup and subsequently D-FILI Subgroup. Both teams agreed to consider the following triggering question: What is a design culture that would enable transcendence?

D-TiP Subgroup report (submitted by Ken, Arne, Diana, and Kathryn)

Because both Kathryn and Diana had separate commitments on Wednesday afternoon, the first formulation was composed by Ken and Arne. First, Ken recapitulated his "biological" model of an evolutionary learning organization (Part I, below). then Arne and Ken abstracted the characteristics of a "culture that would enable transcendence" (Part II, below). Later, Diane added two characteristics that expressed the contributions of herself and Kathryn (Part III, below).*

After our joint meeting on Thursday afternoon, Diana and Ken prepared a revised version of our characteristics of a design group that would enable transcendence (Part IV, below). At the Friday general meeting, Ken presented an explanation of that revised version of characteristics (Part V, below).

Part I

Posed Question: What is a design culture that would enable transcendence?

Understanding of Question: What processes, characteristics, and/or organization would a design culture need if it were to enable transcendence?

Abstract: Such a culture would embody processes that are arguably the universal principles of transcendence in the universe. These universal rules are most easily identified in the process of physical and biological evolution. These rules/processes/stages can be abstracted from the work of Prigogine, Eigen, and Maturana and Varela.

Sketch of Evolutionary Background:

Prigogine

Matter is process; (it is autocatalytic).

Open systems can be pushed far-from-equilibrium; (they experience turbulence).

At far-from-equilibrium, processes bifurcate; (they create dissipative structures; they create a metabolism with their environment).

* Unfortunately, Kathryn was unable to conclude the Conversation Event with us due to a tragedy in her family. As representatives of the entire ISI Community, we wish to express our unity of spirit with her, then as now.

Eigen

Processes transcatalyze each other

When a protein cycle produces a nucleic acid cycle that, in turn, catalyzes the protein to self-reproduce, than a "hypercycle" (a cycle within a cycle: a form of a positive feedback loop) is formed.

When cyclic processes compartmentalize, they increase the fidelity of their replication.

When compartmentalization and hypercycles are joined, then a living cell (a "compartmented hypercycle") is formed.

Maturana and Varela

Living things are autopoietic, they generate their own processes of generation. (They generate the proteins, etc., that generate their life *and* the organization that is their life.)

Living things are a closed (autopoietic) organization and an open metabolic structure.

Living things evolve as they vary their structures to meet the changing metabolic demands of their environments while maintaining the integrity of their organization.

Part II: Characteristics of a design group that enables transcendence.

- 1) flexibility and variety of response.
- 2) a culture that can lower its boundaries to (or constantly be open to) seek, accept, and use the tools, services, and products of other cultures.
- 3) maintain integrity and reorganize structures; maintain sense of affiliation.
- 4) a culture that is conscious of process and is able to consciously reframe itself; e.g., a living language.
- 5) a culture that pursues attractors. An attractor is potentiality that is invisible; you do not see it until the process is well underway. E.g., a gut feeling that, once acted upon, creates a clearer focus; or a group of colleagues who are drawn together at a dinner during an international conference, and generate the excitement that creates a new book, movement, etc. Energy, excitement, then focus.
- 6) a conscious design.
- 7) Synergy: a going together, a mutual movement of thinking.

Part III:

- 8) nurturing.
- 9) a movement forward on all fronts: body, mind, spirit, time (rhythm), and group dynamics...

Part IV:

- * flexible
- * open
- * nurturing
- * maintaining integrity
- * having attractors
- * synergizing
- * having reflexivity
- * engaging all levels of development.

Part V:

These characteristics do not consider an evolutionary learning organization in the context of systems within systems. They consider a learning organization as it enacts its tasks in the present.

The first three characteristics consider the present in the present. The fourth considers the continuing presence of the past. The fifth considers the felt presence of the future. The sixth, seventh, and eighth consider effects on energy, process, and human development that are generated in the present.

D-FILI Subgroup report (submitted by Sue, Alexander, Kathia, and Muriel)

On the afternoon of the third day, D-FILI Subgroup immediately determined that there were two important tasks facing us, thus our conversation became focused on accomplishing two objectives: 1) to debrief and process what had occurred during the first two and half days with the larger conversation group; and 2) to identify and frame (clarify) the research question(s) that would guide and inform our inquiry for the coming year. We knew it was too late in the week to accomplish more than this.

Debriefing and Processing:

The debriefing and processing session became an exploration of the following question: What lessons have we learned from this experience? Our intent was twofold. First, some of us needed to work through the feelings we experienced as a result of the unresolved dissonance in the dynamics of the larger conversation group. Second, we wanted to determine whether this aspect of D-Gang experience could contribute information to the larger ISI community in general, and to future organizing and planning for the Asilomar Conversation event in particular.

As a Subgroup of D-Gang, analyzing the three tension sources, we determined that the lack of agreement on common goals (related to different expectations for the conversation dynamic) was probably the largest obstacle for D-Gang, and one that may be avoidable through some basic organizational procedures. We thought the Asilomar'95 D-Gang experience in this area might hold some important lessons for the larger ISI community and the planning of future Asilomar events. It was proposed that making explicit the nature and intent of various conversation groups might reduce the likelihood that people would join a group expecting one type of inquiry only to discover that they would likely experience something fundamentally different. The proposal to describe the nature (identity) and intent (purpose/goals) of each conversation group and to then communicate these in advance to prospective Asilomar participants was discussed in the afternoon meeting held on our last day. It is our sincere hope that clarity of identity and purpose will not only help reduce uncertainty and confusion about expectations, but that it may in fact help us develop a diversity of topic and process options that will contribute significantly to the strength and integrity of the ISI community as a whole.

Identifying and framing the research question(s):

Next we turned our focus to identifying and framing the questions that would guide our inquiry for the coming year. We agreed to carry on with the work that some members of D-FILI Subgroup had done in previous years of D-Gang activity to explore the following questions:

1. What is a design culture?
2. What are the tools, strategies, and methods used within a design culture?
3. What are the relational dynamics between/among design tools and processes that would be appropriate for a design community?

It was decided that this year's work would continue to use these questions as core elements in the research design, working toward a clearer understanding of an evolutionary learning community as ideal learning systems that proactively co-evolves with its environment toward the creation of a Design Culture. In this pursuit, we would gather data and information around the following interpenetrating strands of inquiry, which function as our learning objectives:

1. Research and identify knowledge sources relevant to Evolutionary Learning Communities (ELCs), including relevant work in the fields of systems theory, systems design, organizational and management science, as well as current learning theory from the neuro and cognitive sciences, and other branches of psychology.

We actually began applying the initial strategy of identifying examples of ELCs during Asilomar'95 when, after listening to the presentation of Javier Carrillo, we decided that the research institute which he directs, the Center for Knowledge Systems (CKS) in Monterrey, Mexico, may in fact be an example of an emerging Evolutionary Learning Community. We asked him if we might interview him to gather more data related to the qualities and characteristics of the Center. On the basis of this interview, we not only decided that the CKS is an example of the kind of learning community we are hoping to study, we also gathered data that will help us identify and study other Evolutionary Learning Communities. During our session with Dr. Carrillo, he agreed to collaborate with us in our forthcoming year(s) of inquiry. Before we left Asilomar, we

We felt there were portions of previous D-Gang work that we needed to revisit to determine their ongoing appropriateness and usefulness. We plan to use the "essential attractors" for an evolutionary learning system as a resource to describe the qualities and characteristics of an ELC. These had been generated during Asilomar'94, which in turn were based on the lists of processes and results developed during Asilomar'93 (see Proceedings of the Sixth International Conversation on Comprehensive Design of Social Systems, 1994, pages 60-63).

4. Facilitate the development of a networking and learning partnership among identified ELCs and members of the ISI community of inquiry.
 - (i) What technologies support learning in the ELC environment?
 - (h) What resources are generated by the ELC? When, where, and how are these shared and disseminated among other systems in the environment?
 - (g) What resources are required by the ELC? When, where, and how are these procured?
 - (f) How do boundary characteristics impact roles and relationships within the ELC and between the ELC and other systems in the environment?
 - (e) What are the characteristics of the boundaries within the ELC and between the ELC and its systemic environment?
 - (d) What are the functions, structures, and processes in the ELC that support individual, group, and organizational learning?
 - (c) How does the operational definition compare to current theoretical constructs?
 - (b) How does this operational definition differ from ELC to ELC?
 - (a) What is the definition of "learning" that is operationalized among members of the ELC and its stakeholders?
3. Conduct field studies of identified ELCs to gather data related to the following questions:
 - (a) What is the definition of "learning" that is operationalized among members of the ELC and its stakeholders?
 - (b) How does this operational definition differ from ELC to ELC?
 - (c) How does the operational definition compare to current theoretical constructs?
 - (d) What are the functions, structures, and processes in the ELC that support individual, group, and organizational learning?
 - (e) What are the characteristics of the boundaries within the ELC and between the ELC and its systemic environment?
 - (f) How do boundary characteristics impact roles and relationships within the ELC and between the ELC and other systems in the environment?
 - (g) What resources are required by the ELC? When, where, and how are these procured?
 - (h) What resources are generated by the ELC? When, where, and how are these shared and disseminated among other systems in the environment?
 - (i) What technologies support learning in the ELC environment?
2. Identify examples of ELCs from both the current D-Gang knowledge base and a conceptual model developed in previous work (see published proceedings from ISI Asilomar Conversation, 1994, Group D report).

agreed to also contact the Institute for Collaborative Community Studies (ICCS) in Monterey, California, which one of our members considered another example of a nascent Evolutionary Learning Community. Contact with the ICCS has now been made independently (and in person) by all four members of our Subgroup, and we will be engaged in a collaborative inquiry with staff and members of this community as well.

Other examples of ELCs continue to come to our attention. One is "Coevolution Southern Idaho," which is a "process of community-level participation in the evolution of culture toward forms which are more supportive of the process of human fulfillment and a sustainable relationship with the environment" (Shapiro, 1995, from an unpublished manuscript describing the process). A member of our Subgroup has contacted the coordinator of this evolutionary process, and a collaborative learning partnership between CSI and ISI is in the offing. As of the mid April 1996, three more ELCs have been identified and contacted: one is within the Illinois state school system; another is DynExcel, an organization located in Monterrey, Mexico; and the third is the Club of Budapest with it's world-wide system Regional Centers of Planetary Consciousness (RCPCs) -- one in Monterrey, Mexico, and another recently established in San Francisco, California. We are confident that as this network of ELCs and the process of collaborative inquiry develop, more examples and field sites will come to our attention, bringing more ELCs into the learning network.

Conclusions:

We expect ongoing D-Gang inquiry to lead us to a better understanding of ELCs, how they work, and how give rise to a Design Culture, as well as how design cultures, in turn, foster evolutionary learning. In addition, we hope to gain a better understanding of the nature of learning itself. Our action research ideal is **to seek out, identify, and nurture emerging Evolutionary Learning Communities (ELCs)**. These we define below, with the concordant set of research hypotheses that follow:

ELCs are those human activity systems that pursue sustainable pathways for co-evolutionary development in synergistic interaction with their milieu. They do so by means of individual, group, and organizational processes of empowerment and learning how to learn. We postulate that one of the emergent effects of operational ELCs could be the creation of ideal-nurturing learning ecologies. These ecologies are designed out of the mater/energy and information environments in which ELCs operate. An active learning ecology for one or more ELCs would serve as their Design Culture. The spread of Design Culture(s) could propitiate the emanation of other ELCs through purposeful positive feedback cycles of sustainable evolutionary systems design.

D-Gang research invitation

For those of you who are interested in pursuing the line of inquiry outlined in the previous section, here are some things you may wish to do:

1. Perhaps the most important thing is to be interested in learning about building a design culture on the understanding that we are following an intact line of inquiry and therefore will build on the knowledge base developed in previous years of research. Each D-Gang member seeks to be open to all contributions that help evolve the line of inquiry with which we are engaged (including, taking it in new and unforeseen directions). Therefore, each of us integrates our contributions as part of an on-going research process. With such a disposition, D-Gang is open to whomever wishes to join the inquiry.

2. Familiarize yourself with the research trajectory of D-Gang:

"Design Tools: Toward the concrete and conceptual heuristics of a design culture." Proceedings of the Sixth Annual International Conference of ISI. Asilomar Conference Center, Pacific Grove, CA: 13-18 November 1994. Pp. 55-77.

"Invitation to Collaborate in D-Gang's *Following an Intact Line of Inquiry* Subgroup." The *ISI Conversations* Newsletter, Vol. I, No. 3, December 1995. Pp. 5-6.

"Building a Design Culture through Evolutionary Learning Communities." The *ISI Conversations* Newsletter, Vol. I, No. 4, March 1996. P. 5.

3. Choose some area of systems design, organizational learning, evolutionary dynamics, systems inquiry, trends in education, learning and human development, world trends and social evolution, or organizational change, and become familiar with the concepts and their implications for D-Gang's line of inquiry. For example, at least two of our current members plan to ground part of their inquiry in current brain research, drawing from theory and knowledge sources in the neuro and cognitive sciences. To aid you in this preparation, we have compiled a resource list for designing a Design Culture through Evolutionary Learning Communities, and attached it below. This represents D-Gang Knowledge base, and may also be found on-line thanks to the efforts of Mark Ottenberg and his ISI Access Center. The Access Center is located on the World Wide Web at the following site: <http://www.clark.net/pub/nhp/isi/homepage.html>. It appears under the heading of *D-Gang Knowledge Base: DCs and ELCs* (referring to the Design Cultures and Evolutionary Learning Communities which form the subject of our inquiry).

D-Gang Knowledge Base

A resource list for designing a Design Culture through Evolutionary Learning Communities

Systems Inquiry

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Trends in Education

- Banathy, Bela H. "Developing a Systems View of Education." *Educational Technology*, May-June 1995, pp. 53-57.
- "Business as Usual?" en *The Sunday Herald*, California, February 6 1994.
- "Comprehensive Systems Design in Education." *Educational Technology*, July-August, 1994, pp. 32-34.
- "We Must Design New Education Systems" en *The Sunday Herald*, California, September 4 1994.
- "Systems Design is a Powerful Tool for Changing Education " en *The Sunday Herald*, California, September 11 1994.
- "The Cognitive Mapping of Societal Systems: Implications for education," in *The Evolution of Cognitive Maps: New paradigms for the twenty-first century*, Ervin Laszlo et.al. (eds.), Amsterdam: Gordon and Breach, 1993, pp. 205-220.
- *A Systems View of Education: Concepts and Principles for Effective Practice.* Englewood Cliffs: Educational Technology, 1992.
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