

The Necessity of Being "Un-disciplined" and "Out-of-Control"; Design Action and Systems Thinking

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This paper introduces design, integrated with systems thinking, as a necessary if not sufficient means for meeting the challenge of how to create or recreate organizations and institutions which better serve the needs and desires of clients, customers and stakeholders in a rapidly changing world. Design is a dramatically different way of moving conceptual thinking into concrete action as contrasted to the scientific or artistic traditions which are primarily designed to describe or explain the natural or phenomenal world. The limits of problem solving strategies when applied to complex organizational change leave design as the strategy of choice. The designer's role is animated by *other expression* rather than *self expression*. From within this role, designers engage in the task of creating the *un-natural* world by being *un-disciplined* using systems thinking and by being *out-of-control* as part of the creative process of design.

KEYWORDS

THE NECESSITY OF BEING 'UN-DISCIPLINED' AND 'OUT-OF-CONTROL';
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In conversations with colleagues and friends, reading reports in the mass media and reviewing summaries of formal reports, there emerges a feeling of consensus on the overwhelming need for dramatic change in many, if not most, of our significant institutions and organizations. *Re-engineering*, *re-structuring*, or *re-invention* are labels of strategies meant to facilitate the desired changes in

businesses, schools, hospitals, governmental agencies, and other human activity systems which serve our personal and public needs. The challenge is similar in all regions of the world. It is nearly impossible to find a quiet place away from the noise of confusing problems and issues of unprecedented scale and complexity.

A part of this noise comes from our not knowing which of the clearly defined problems are of the highest priority or what the right frame of reference ought to be for key issues. It is also difficult to establish clear problem definitions that remain stable over a sufficient period of time allowing solutions to take effect. The noise keeps us from seeing what is real in our experience of chaos in complex systems and what is phantom. It is difficult to discriminate between symptoms and root causes.

There is a growing belief that more than one perspective, or discipline, is needed to see our human condition more clearly. But often multiple perspectives, or multiple disciplines, seem to increase the noise of confusion further given the multitude of specialized languages and frames of reference experts and professionals utilize. We also want more detailed data and information in greater depth from which to construct predictive knowledge of our interventions in complex problematic situations. This in the hope that we will be assured of intended outcomes rather than unintended and unacceptable consequences. Most often however, we do not have the resources or time to invest in the intensive inquiry needed to generate the requisite amount of information desired.

As a consequence we either feel paralyzed or only willing to take small incremental actions which can do little harm and thus have little consequence, either positive or negative. The familiar quip is that it is analogous to rearranging the deck chairs on the Titanic. The sinking feeling (pun intended) is that the changes we need to make in our organizations need to be significant, if not transformational. These are not outcomes obtained through incrementalism.

The challenge is that our habits of thinking, both scientific and artistic, which

have had such success in describing and explaining the natural world seem to have limited direct utility in the creation or recreation of elements of the *unnatural*/world. Herbert Simon (Simon 1982) proposed the creation of a science of the artificial in distinction to the science of the natural. His proposal was one of the first significant contemporary arguments for appreciating the distinction between creating what does not exist versus describing or explaining what is already found to be in existence. Because his idea was framed within the rational tradition of science it formed an important early bridge between that tradition and the much more inclusive tradition of Design.

Design is a strategy for facilitating change which includes, but goes beyond the theory of a science of the artificial in that it deals with social organizations, patterns of human interactions and functional social-technical structures which serve human purpose. These human activity systems are formed by ethical and aesthetic principles in addition to ones of formal logic. Design is a synthesis of creativity and innovation within this multidimensional domain.

Design is both process and artifact. In the process of design there emerges an understanding of possibilities which cannot be predetermined. The innovation of these possibilities requires the utilization of a form of creative leadership that pulls people into change rather than pushes them into it. As an artifact, design serves human purpose through the creation of functional assemblies or systems that become part of people's lives.

The terms design and redesign, are often applied to activities which can be better described as planning, management or problem solving. This has discouraged attributes unique and outside of these familiar domains from being examined. For example, design thinking is often characterized as a cognitive midpoint between scientific and artistic understanding as in professions like architecture or industrial design. Design needs to be dealt with on its own terms however and its uncommon nature needs to be explored. Designs also needs to be appreciated as applicable to a wider spectrum of human endeavors.

Nigel Cross (Cross 1982, 3:221-27) has made a case for the existence of a design intelligence unique and separate from other forms of intelligence using the model of multiple intelligences developed by Howard Gardner (Gardner 1985). Gardner's work has proven quite influential in the design of educational systems but oddly without the inclusion of design as part of its academic content. C. West Churchman defines design as a teleological or goal seeking behavior (Churchman 1971) while Russel L. Ackoff defines design as an essentially synthesizing process (Ackoff 1978). Design is all of this but, the salient differentiation between scientific or artistic thinking and design thinking is that, the purpose of design is not to describe or explain what exists in the modality of *self expression* but to create what does not exist on behalf of another through *other expression*. This last point is critical in the understanding of design.

The work of the designer cannot be defined separately from those for whom the designer is creating; the clients. This is a systemic relationship of integrated, collaborative and mutually influencing tensions. Clients and designers act as a unified intentional whole, (a *con-spiracy* i.e. a breathing together), with the purpose of transcending in imagination and action what either could do separately. Designers express a clients needs through their own creative insight but always on behalf of and with the client.

This compound role loses all authority and potency if broken into separate roles just as the quality of wetness disappears when water molecules are separated into their constituent parts of hydrogen and oxygen. Terms like client, surrogate client, customer and stakeholder are used to frame this systemic relationship but, even in aggregation, these categories lack the robustness of the concept in its full potential. At the moment there is no term which fully defines this relationship satisfactorily.

Preconceptions of how to best intervene and bring change to complex human activity systems or how to bring complex organizations into existence where none now exist are typically based on metaphors drawn from a Newtonian world

view. Present theories, methods and techniques of intervention have developed from an understanding of reality that is being challenged on many fronts. Margaret Wheatly makes a case for the creation of new metaphors to be drawn from the emerging paradigms of a new science (Wheatly 1992). Complexity, chaos and nonlinear dynamic behavior are just a few of the attributes of the new sciences. The new metaphors that reflect these attributes will be used in the development of new strategies of intervention and management of complex contemporary organizations.

Design action and systems thinking are two strategies that are well matched to the opportunities brought by these paradigm shifts and emerging new metaphors. The ability to ask the best questions and to synthesize complex information into congruent patterns are attributes of design and the systems approach. This includes the identification of the what, where and when of traditional expertise but only within the context of an integrated whole. Shifting from the era of the expert to the era of systems thinking and design action in organizational change is difficult to implement.

One of the most difficult aspects is that individuals often gain identity through their discipline or profession rather than as unique individuals with particular temperaments and abilities. Giving up the role of expert or specialist is close to giving up a sense of self. Also money and recognition in professional and political work is keyed to the ability to provide depth of knowledge in clearly defined domains of expertise. Also the belief in prediction and control of both natural and created systems through specialized expertise has seemed to work well in the past. Primarily this was because of the congruence with the dominant paradigms of the age. With the emergence of newer dominant paradigms however, a concomitant change is required in how we work in the immediate future.

Intentional change can be defined in two ways. One definition is in proactive terms while the other definition is in reactive terms. The proactive strategy is one of working towards a desired state using design, rather than away from an

undesired state as exemplified by the reactive strategy of problem solving. The most appropriate for facilitating significant change in complex organizational systems is the proactive form; design. The ability to identify and work towards what is desired rather than away from what is undesired or feared needs careful cultivation. We have a great deal of experience with the latter and very little good experience with the former.

The reason that design is more appropriate than problem solving for intervention in organizational change is significant. There is a problem with problems. Horst Rittel (Rittel 1972, 8:390-96) contrasts the issue as a differentiation between *tame problems* and *wicked problems* (see below):

Steps in Solving Tame Problems:

- Understand the Problem
- Gather Information
- Analyze Information
- Generate Solutions
- Assess the Solutions
- Implement
- Test
- Modify

Characteristics of Wicked Problems:

- Cannot be Exhaustively Formulated
- Every Formulation is a Statement of a Solution
- No Stopping Rule
- No True or False
- No Exhaustive List of Operations
- Many Explanations for the Same Problem
- Every Problem is a Symptom of Another Problem
- No Immediate or Ultimate Test
- One-shot Solutions
- Every Problem is Essentially Unique

Problem Solver has no Right to be Wrong

Decision makers, managers and administrators when presented with this contrast between tame and wicked problems will often concede that the complex situations they face are not typically tame problems but in fact are wicked problems with many of the characteristics that Rittel presents. Understanding issues as wicked problems helps to gain a better insight into why tame problem strategies have not worked in wicked problem situations. However the wicked problem frame can lead to paralysis. It is difficult to see how to respond to all the difficulties and challenges posed by wicked problems.

However by stepping out of the reactive, problem-solving mode into the proactive, design mode it is possible to become intentional again and to facilitate desired change. Design decisions are not made through formal deliberations dealing with true or false answers to questions of fact or logic. Design decisions are made as a matter of formal design judgment. Judgment in this case is not the same as that implied by the negative connotation in the everyday usage of the term. Rather, it is a form of deliberation which leads to understandings which cannot be reached using critical thinking skills that more successfully obtain answers of truth in internally consistent problematic contexts.

Design judgment is utilized in both negative and positive contexts. Dilemmas are the negative context and *intentional compositions* are the positive context. For dilemmas there are no true or false answers, only consequences for decisions made. For *intentional compositions*, decisions are based on judgments of collective purpose and value.

Design judgment is enhanced considerably when done collaboratively in dialogue. An individual can follow the same rational logic as a group of people or as a computer to come up with the same best solution to the same logically defined problem. However there is a synergistic difference in the outcome of a design process based on design judgment — an outcome that is the result of design dialogue rather than an aggregation of independent monologues. This

synergistic quality can be characterized as wisdom. It is not an aggregation of data into information and then into knowledge and thus into wisdom. It is the result of a formalized, dynamic, human interaction (a *con-versation* i.e. a turning together) around shared needs and desires within the framework of design and design teams.

Another difference between design judgment and solution seeking logic is the issue of control. To engage in design dialogue, individuals must give individual control of the outcome over to a process of emergent quality rather than a linearly managed process. To be *out-of-control*, with no agendas, outcome expectations and similar scripts of logic aimed towards a predetermined end is essential for the emergence of breakthrough insights.

The creative aspect of design also requires that each individual must learn to trust their *informed intuition*. Intuitive thinking, which is out of the direct control of the rational mind (although influenced by it), is essential to the success of creative design. The rational side of the mind has to trust the *un-controlled* intuitive side in a creative partnership. This partnership can be nurtured and enhanced but not controlled.

As clients and decision makers become more acutely aware of the mismatch between the integrated nature of the issues they face everyday in their organizations and the division of expertise brought to bear on those issues, they have begun to become more interested in strategies for integration. The problems, dilemmas and opportunities of life do not present themselves within the traditional disciplinary boundaries of a university curriculum. In order to get a better frame from which to work it is necessary to *un-discipline* some expertise, to promote an integration of specialized knowledge and to create knowledge of integrated wholes. This is the domain of systems theory.

The systems approach, as presented in the seminal work of C. West Churchman (Churchman 1968) is an example of such an integrated, *un-disciplined* approach

to understanding human endeavors. Churchman set the stage for the application of systems ideas to social systems in contrast to scientific and engineering systems applications. He also laid the groundwork for the integration of systems thinking into planning and design practices. Churchman's ideas and the ideas of other systems scholars and practitioners are continuing to be developed, refined and applied around the globe. Systems thinking has begun to influence traditional disciplines and professions as well as to define new fields of integrative study such as ecology. Systems concepts such as holism and interconnection are beginning to be used in everyday settings. The world is becoming better at being more *un-disciplined*.

Design action and systems thinking are complimentary to the degree that it becomes difficult to distinguish between the two when they are brought into intellectual proximity of one another. Design profits greatly from the *un-disciplined* and integrative quality of the systems approach in that categories and taxonomies based on generalities are of limited utility unless brought into a process intended for the creation of the particular. Systems theory describes patterns of relationships and design prescribes unique patterns. Together they facilitate the creation of unique patterns of relationships that function to serve specific purposes.

To design and to be designers we have to be less concerned with predictability and control. We have to work in collaborative design teams. The design challenge to work in an *un-disciplined* manner, carefully and thoughtfully *out-of-control*, takes serious commitment. Discovering how to design and work in a designerly manner is necessary if the need for significant change in the creation or recreation of our *un-natural* systems is to be met and if the noise of chaos and complexity is to be muted.

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