

## **Designerly Ways for Action Research**

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## Introduction

Consider design in the broad sense: design as ‘planning and patterning’ (Papanek, 1971: 3), design as ‘creat[ing] possibilities’ (Krippendorff, 2007), and design as ‘devis[ing] courses of action aimed at changing existing situations into preferred ones’ (Simon, 1969/1996: 11). In the broad sense of design, everyone designs, for design is fundamental to human nature. Archer (1979) and Cross (1982) described ‘designerly ways’ as complementary to those of the sciences and humanities. Such designerly ways – practical, creative solving and conjecturing – are illustrated in Nelson and Stolterman’s (2012: 11) contention: ‘Humans did not discover fire – they designed it.’

‘Action research,’ described by Reason and Bradbury (2008: 11), ‘nearly always starts with a question of the kind, “how can we improve this situation?”’ In essence, then, the question that action research starts with is a question of design: the design of an inquiry or engagement, the design of an ‘intervention.’ Action research designs are characterized by cycles of ‘action and reflection, theory and practice, in participation with others’ (Reason and Bradbury, 2008: 4).

Advocates for design have also made a narrower claim for design, which is central to the concept of ‘design thinking’ (Buchanan, 1992; Brown, 2009). This claim is that specific understandings and repertoires

cultivated through the study and performance of the design arts – the applied arts of graphic design, industrial design, textile and fashion design, digital design, architecture, engineering, and so on – are applicable to nontraditional contexts and situations, or applicable beyond the design of material and informational artifacts. This claim has garnered much attention and ignited much debate (NextD Journal, 2007). My own sense and annotation of this design debate is as follows: (1) the understandings and repertoires cultivated through the study and performance of the design arts can inform how one designs in nontraditional contexts and situations; (2) at the same time, designerly ways, broadly construed, need not arise from the experiences of the design arts; and (3) it is important to note ways in which the design arts’ traditional focus on material and informational artifacts may skew the development of designerly understandings and repertoires.

In this chapter, I describe designerly ways as practical skills for action research. My own standpoint is not that of someone trained in the design arts. Rather, I come to design as someone who has sought to create new possibilities and to change existing situations into preferred ones. More recently, as an instructor in applied systems thinking in a Master of Fine Arts program in Collaborative Design at Pacific Northwest College of Art, I have

also come into closer dialogue with people in traditional arts and design fields. My perspective on design is therefore a broad one, as defined above, and a broadly systems-oriented one.

### **Designerly Ways**

Design is an anticipatory activity, a future-focused activity, an activity that may be as unremarkable as rearranging a schedule or as daunting as preparing to leap from today's routines into tomorrow's explorations and opportunities.

If the scientist examines 'what is,' the designer envisions 'what could be' or 'what ought to be' (Cross, 1982; Krippendorff, 2007). This distinction between the scientific stance and the designerly stance is exemplified through the respective approaches toward representation and intervention that one adopts in each role. The scientist intervenes – that is, performs an experiment – so as to better represent or describe the structures and processes of the world around us. The designer's approach, however, is just the opposite. The designer makes representations – that is, prototypes or models – in order to better intervene. A designerly stance might not involve physical models, as a scientific one need not require controlled experiments. Nonetheless, designerly knowing is in service to doing; designerly knowing is through attention to, in, and for the practice of design (Dewey, 1929/1960; Schön, 1983).

Design thinking process designs, like those of other group process techniques, often include at least one period of divergence, in which there is an opening to fresh perspectives, eliciting

of ideas, and reframing of possibilities. In my systems thinking class, we use visioning techniques to develop senses of transformative possibilities. For organizations, Russell Ackoff (1981) advocated an 'idealized design' process: (1) imagine that the organization or organizational system can be completely redesigned, while its environment remains the same; (2) describe its mission, properties, and operations, subject to the constraints of technological feasibility and operational viability, and to the criteria that the redesign afford rapid learning and adaptation. For work on sustainability-related initiatives, Donella Meadows (1996) advised: (1) find a creative, relaxing space; (2) imagine yourself amidst the desired world; (3) concentrate on what it looks and feels like, and on how you and others work, play, and interact; (4) describe this envisioned future in detail and clarify its values; (5) share this description with diverse others and incorporate their visions, so as to reach a responsible alignment; (6) hold to the vision while remaining flexible about paths to implementation.

A period of divergence is necessarily followed by one of convergence, of selection among options and preparing for action. If the envisioned designs are transformative, then the designers face the dilemma of living amidst the current regime – the current pattern of institutional, cultural, and material relationships – while concurrently attempting to nurture its supplement or replacement. A business that experiments with new ways of delivering value must remain viable while it attempts to pivot. Designers

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working on an alternative currency system must still trade in dollars or Euros or whatever; and designers developing an alternative food system will likely also find themselves eating from the conventional one. There are, in this view, three systemic areas for design engagement: support the establishment of the envisioned alternative regime, seek to undermine or attenuate the forces that entrench the dominant regime, or encourage and enable individuals and organizations to shift their affiliations and allegiances from one to the next (Morgan, 1997; Westley et al., 2011).

Straddling two regimes requires conceptual flexibility and a tolerance for ambiguity (Lippitt, 1973). Another critical attribute of designers is situational sensitivity, a perceptiveness about the affordances of a given situation – that is, a perceptiveness about relevant opportunities for effective engagement in ever-changing environments, at a given point in time (Gibson, 1977).

### **Design Thinking Heuristics**

The popular literature on design thinking promises creativity and business innovation (Brown, 2009; Martin, 2009), at a time when demand could hardly be greater. In a 2010 IBM global survey, for example, CEOs selected creativity as the most critical factor for business success. Meanwhile, empirical research on creativity has begun to offer a fuller understanding of the creative experience (Sawyer 2012).

The practices of design thinking are often described as a set of heuristics or guidelines, commonly including: a discovery stage, based on research or

conversations or ethnographic studies; an ideation stage, using techniques for generating ideas or insights; and a prototyping stage, with iterative model building or experimenting, followed by evaluation and redesign. Each heuristic stage is designed to cultivate or elicit a set of values and skills, among the designers. The discovery stage is designed for empathy or what Donella Meadows called responsibility; the ideation stage is designed for ingenuity and creativity; and the prototyping stage is designed for problem-solving agility, analogous to the heuristic principles that inform the software programmer's agile development.

In the phrases 'design for empathy' and 'design for creativity,' 'for' is the word that puts the dynamics in the design. Some things can be systematically designed: a spoon, a transportation system, a meeting agenda. Qualities of systemic engagement, on the other hand, may or may not emerge from our designs, and can only be designed for (Ison, 2010). Another term for these qualities, for what-is-designed-for is affordance (Norman, 1988). The spoon affords a certain type of eating experience, based on its design. Likewise, transportation systems afford certain types of interactions, and meeting agendas afford certain types of conversations, based on their designs.

### **Boundary Objects**

Cultivating a design sensibility has informed my thinking on two initiatives in which the US-based nonprofit Ecotrust played a leading role. In both cases, my work on supporting and related initiatives offered

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opportunities to interview and engage with key participants inside and outside the organization. One initiative was designed to foster the development of a local-regional food system, the other to enable the implementation of marine protected areas. In both cases, I'll focus on the creation of so-called 'boundary objects' – a concept we used only later, but one that has become more relevant to me in reflecting on these efforts.

Boundary objects are artifacts or experiences that can be understood in different ways by different people, creating a space for conversation by both affirming and bridging standpoints (Star and Griesemer, 1989). The design of such 'objects' may be useful in cases where participants perceive themselves as holding conflicting interests, or where there is simply a lack of shared practices and norms.

The food initiative began in the late 1990s in Portland, Oregon. A small group of designers, representing a variety of businesses and organizations, and motivated by a range of concerns and opportunities, were able to forge an alignment of purposes: working together to increase business-to-business, direct-market opportunities amongst producers and buyers of local and regional foods. Before long, these efforts took a couple of forms: a Farmer-Chef Connection Conference and an accompanying publication, a Guide to Local and Seasonal Products. Over time, both conference and guide were expanded to include additional participants in the regional food network, including ranchers, fishermen, retailers, institutional

buyers, processors, and distributors. The initiative was perceived by many as successful and was adapted for use in numerous other cities.

The marine initiative began in 2004 with efforts by a coalition of public and private organizations to engage stakeholder participation in the design of protected areas along the California coast – a design, in effect, of constraints on human activity. These design partners worked to compile spatial data on fishing and other activities into a geographic information system (GIS) and then to combine this social and economic information with ecosystem information in an iteratively developed, real-time decision support system available to stakeholder individuals and groups. Many perceived this participatory process as critical to the establishment of a statewide network of marine protected areas in near-shore waters; and two organizations that emerged from this work, SeaSketch and Point 97, continue to support marine planning efforts around the world.

In both initiatives, the 'objects' that were created functioned at the boundaries. In the food work, where the focus was on nurturing business relationships, both the conference and guide offered coaching and connections. The conference featured "speed-dating" sessions between farmers and chefs, and the guide offered pointers: 'Notes from a farmer to a chef' and 'Notes from a chef to a farmer.' In the marine work, where the focus was on transparency and trade-offs among potentially conflicting interests, the GIS provided a contextual basis for the

negotiation of shared spatial and social understandings.

### **Innovating by Analogy**

Innovating by analogy is a technique that both constrains and stimulates the creative process. The basic notion is that if something works over there, perhaps it will work over here. It is the practice I hear when Donna Haraway (2013) extols, 'the bringing together or colliding together ... of entities, beings, worlds, ideas, systems that are dissimilar, so that one holds still long enough to be an extended metaphor for investigating the other.'

Schön (1983) gave the example of industrial designers at a paintbrush manufacturer who, experimenting with nylon materials, gained insight by seeing the paintbrush as a kind of pump, designed to facilitate the flow of paint between the bristles. Such metaphors also underlie the theory and practice of biomimicry: taking nature as model, measure, and mentor. Examples from the Biomimicry 3.8 Institute include rotors based on the geometry of whirlpools and seashells, and wind turbine blades based on the drag-reducing irregularity of humpback whale flippers.

A similar pattern can be found in Charles Sanders Peirce's (1903/1935) process of logical abduction, often cited as prototypical of design thinking: 'The surprising fact, C, is observed; But if A were true, C would be a matter of course; Hence, there is reason to suspect that A is true.' To illustrate: I observe that birds can fly; But if the magic of flight were in the wings, then the fact that birds can fly would be a matter of course; Hence, there is reason to suspect

that the magic of flight is in the wings. As a designer, my sense of wonder is melded with an impetus to action. I endeavor to build a machine with wings to see if it enables me to fly. Initial prototypes fail, but they also offer opportunities for social learning and, perhaps, iterative improvements in aerodynamics.

Although each of these examples describes an industrial design, similar techniques can also offer creativity and clarity in a social context, as examined for instance in the literature on institutional logics (Thornton et al., 2012). The focus here is on the transposition of logics – the institutional, cultural-, and material dimensions of social life – from one context to another. As illustrations, I apply this type of transpositional thinking to the food and marine work introduced above.

From a social logics perspective, the business-as-usual US food system is dominated by market logics. Food is largely understood as a commodity, with productivity and profitability the dominant values, and decisions along the supply chain from producer to eater made largely on price. With the rise of the organic food movement, designers attempted to develop an alternative regime. In contrast and complement to the food-as-commodity understanding, these proponents identified with food as interconnected with personal and environmental health. Years later, efforts to develop local-regional food systems attracted many who had been supporting the organic movement, but the use of metaphors was different. The local-regional food system invokes

what researchers call community logics, based on values such as a shared sense of place and a trust in proximate connections.

In the marine initiative, the dominant social logic was the regulatory logic of the state, which limits who can fish when and where for how much of what species. Although the participatory process described above brought many types of stakeholders into dialogue, the process was not designed to evolve into an ongoing practice for community-based governance. From a logics perspective, then, the implementation of protected areas represented an adaptive evolution in the existing governance regime rather than a transformative one.

Evaluating whether, in any social or ecological context, what designs better support the ecosystem services that provide for food or fish depends on processes for adaptive monitoring and learning.

### **Evaluating Design, Designing Evaluation**

We live in a time of increasing awareness of and attention to local and global challenges: from the provision of food, water, and energy, to the development of health care, education, and infrastructure, all intertwined with issues of governance and finance, affected by memories and legacies of historical designs, and amidst heightened environmental uncertainties. Efforts to create new social possibilities, to change existing situations into preferred ones – whether understood as action research, transdisciplinarity, international development, organizational

development, philanthropy or nonprofit or charity work, political or policy or regulatory reform, social entrepreneurship, social practice, community organizing, disruptive innovation, hacking, or some other approach – are now supplemented by efforts at so-called humanitarian design or social impact design or public interest design. These design efforts have been celebrated in venues and exhibitions such as Doors of Perception, Massive Change, and the US Smithsonian Cooper-Hewitt, National Design Museum's 'Design with the Other 90%.'

Given this outpouring of design effort, closer examination is essential. What constitutes good design? Are traditional evaluative methods applicable to these design engagements, or might this emerging field contribute to a revised understanding of evaluation itself?

One exercise I have done with students is to critically and appreciatively examine documented examples of design projects, such as the ones in the Smithsonian exhibitions. In 2013, my exercise design went like this. First, I asked students to each develop their own evaluative rubric. Together, we discussed these rubrics, and I introduced a range of evaluative models and practices. Students then worked in teams to select a design project, research it, and discuss their evaluations. They wrote individual reports. Lastly, we reconvened for discussion of the evaluative approaches they utilized, the design projects they reviewed, and the exercise design itself.

A wide range of evaluative inquiries emerged from this exercise. What questions did this project ask or not ask? To what extent were the project's 'clients' included as its co-designers? Were specific skills transferred in the design process? Is the design versatile enough to evolve with the community over time? Is the community more resilient to ecological stresses as a result of both the project's activities and its outputs? Can the design artifact and its process be re-purposed for different geographies, climates, biases, or habits? Are there indications and descriptions of reflexive learnings among the designers?

Among the models I introduced was the logic model: the standard evaluation framework for accounting from x inputs and activities to y outputs, outcomes, and impacts. Our inquiries, however, also resembled Patton's (2011) and Wenger and colleagues' (2011) approaches, in which outcomes and impacts are more broadly understood in terms of learning and creating value.

Among the projects we examined, there were some we thought impressive, others less so. It is hardly surprising that design projects might be seen as falling short, given the complexities involved. In fact, design theorists have been careful critics of such social design efforts, especially of projects seen to be insensitive to cultural differences or perpetuating dominant cross-cultural relationships (Stairs 2007).

### **The Promises and Purposes of Design**

The promise of design is that another world is possible. In the language of

complex systems, the promise of design is that the dynamics of a situation might be influenced and, indeed, shaped through the planning and patterning of purposeful activities.

Despite this promise, would-be designers confront several stark realities. One is the existence of today's dominant designs, with their decidedly suboptimal social and environmental outcomes. 'It's true, we designed our way into this mess,' conceded John Thackara (2007). Another is that efforts at systemic change inevitably encounter the power relationships, cultural rigidities, persistent habits, and other path dependencies that make systemic innovation so challenging. A third is that such efforts lead to unintended consequences and that alternative systems give rise to their own dynamics, which may in turn be seen as problematic. 'Social problems are never solved,' cautioned Rittel and Webber (1973). 'At best they are only resolved – over and over again.'

While the broad sense of design that I have described is broad indeed, it is far from all encompassing. Just outside its boundaries are, on one side, the purposes that the designer brings to the tasks of planning and patterning, and on the other side, the associated affordances that the designer perceives, anticipates, and seeks to establish or engender in situational environments.

Design purposes that others or I have advocated include: design for sustainability, design for resilience, design for democracy, design for learning, design for an increasing number of choices, and so on. Reason and Bradbury (2008: 4-5) advocated

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similar types of purposes, with one notable addition. Reflecting action research's explicitly reflexive stance, they emphasized the purpose: 'to liberate the human body, mind and spirit in the search for a better, freer world.'

In this chapter, I have introduced some designerly ways and, as in the quote by Donna Haraway, pursued a 'colliding together' or patterning of ideas from design, action research, systems, institutional theory, and

evaluation. The pattern of purposes in design against action research, in the previous paragraph, seems to point to a neglected design thinking heuristic. In addition to empathy, creativity, and agility, designers of design thinking heuristics might seek to explicitly cultivate reflexivity – a stronger appreciation for the involvements, entanglements, ethics, biases, limitations, and liberations of the designer, in the act of performing his or her designs (Glanville, 1999).

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