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# Complexity and Control

## The New Design Paradigm

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**ABSTRACT** In this article, I outline a shift in certain design disciplines away from their particular historical identities to one of borrowing from and validating new design practices from research-based disciplines. While this move to “look outward” and engage with social contexts and disciplines is important, design practice and education often ignores the ongoing critiques of knowledge production that ultimately trace back to social “contexts” within and outside of the borrowed disciplines. Choosing a methodology based on its apparent efficacy without engaging a critical framework can easily exacerbate a “micro-physics of control” (Foucault), which is further extended through the design of large technical and economic branding and information systems that many designers are increasingly involved in. The article concludes with an expansion and suggested application of a critical framing

**based on “situated and contingent knowledges,”  
reinventing the idea of subject while reconciling  
empirical observation as contingent with ongoing  
critical interrogation.**

KEYWORDS: design systems, design research, education, situated knowledge, methods

### **Part 1: The New Scientism in Design**

Science has been about a search for translation, convertibility, mobility of meanings, and universality – which I call reductionism only when one language (guess whose?) must be enforced as the standard for all translations and conversions. What money does in the exchange orders of capitalism, reductionism does in the powerful mental orders of global sciences.

(Haraway 1988: 575–99)

One of my former students recently asked how the methods, concepts, and theories that she was exposed to during her undergraduate experience actually connected to each other. While she had just graduated and felt prepared for entering her professional field as a junior user experience designer at a well-known studio, she was attempting to reconcile the various strands of her education, and her exposure to the larger discourse of contemporary design. That original conversation motivated me to try to understand what she asked, not only because I felt I needed to answer her, but also because I had often felt moments of intellectual vertigo as I adopted some of the same ideas and procedures in my own teaching and practice.

Design over the last thirty years has constructed a canon through a semi-cohesive storyline of how design history has unfolded. This strategy is related to notions of progress and is extremely problematic in its own right, yet it has imposed a dialogue about “what design is” through competing interpretations of its apparent effect on culture(s). Historical authoring and ensuing criticism of those interpretations continues to create part of an ongoing discourse, and an identity for design as a recognizable discipline. Many basic design history texts reflected (or still reflect) a progressivist idea of design, where an avant-garde continually remakes and invents new and better forms, ideas, and practices. The emphasis on this kind of identity is waning, however.

If we assume that all disciplines are actively constructing their identity, we are seeing a transition from an identity of “What is design?” based on the earlier “discovery” of design history taught by professional-practice academics, to one that dispenses with historical formation as a major theme. Instead, this new identity is based

less on history and the continual progress of an avant-garde, and instead more focused on contemporary practice, based on building an effective and instrumentalized research culture (or in other words, a transition from the humanities as a guiding discourse through history, theory, criticism – to the sciences, aligning with a particular kind of empiricism). Between the early 2000s and today, a continuing redefinition in design education and practice is taking place, based on a number of prompts that rethink narrow and vague definitions of design activities and so-called new contexts. This includes designing not just discrete objects, but looking at a larger understanding of the ongoing connections to an audience through a more comprehensive and long-term “user experience.” Understanding experiences through a series of interactions suggests a needed move away from the primacy of object-making. Beginning to define design as experience (through time, contingent, interventionist) suggests opportunities to look at design activities connected to social activities. The motivations for this include the need to respond to a networked culture, the pressures of becoming a legitimized field in a neoliberal climate through transcending outmoded professional practices, and an uncertain future in educational and other institutions. However, a particular attitude regarding empirical objectivity in research and efficacy raises serious questions about the ability for design to adopt critical positions with this new emphasis. As design moves away from a (partial) critical history of interpretation to one of empirical proof, it borrows from various fields based on their apparent effectiveness in generating new knowledge, especially social knowledge. Sandra Harding describes such a practice (in discussing her concept of “weak objectivity”):

Objectivism's rather weak standards for maximizing objectivity make objectivity a mystifying notion, and [this character] is largely responsible for its usefulness and its widespread appeal to dominant groups. It offers hope that scientists and science institutions, themselves admittedly historically located, can produce claims that will be regarded as objectively valid without having to examine critically their own historical commitments from which – intentionally or not – they actively construct their scientific research. (Harding 1993: 71)

With a simplified agenda of efficacy there is no framing or critique of the knowledge borrowed from other disciplines. This includes the historical practice of the other discipline, the contentious social role that knowledge production has on cultures and societies, and the subjective and contingent quality of knowledge production. The lack of a critical framework in design to interrogate methods arising from other disciplinary contexts concedes the primary question of what kinds of worldview/context we are operating from. This begins to reveal the rhetoric behind a scientific approach which is highly

seductive, and which needs to be externalized and critiqued in design discourse. “Comprehensive scientism” as a working definition (via Radnitzky) “is roughly the view that science has no boundaries, i.e., that eventually it will answer all theoretical questions and provide solutions for all of our practical problems” (Stenmark 1997: 29–30). The application of scientific thinking to disciplines lacking a “science” is expansionist:

Expansionists cite evidence within the body of scientific theories and findings, which can supposedly be used, either directly or indirectly, to support conclusions about sociopolitical (e.g. moral, political, aesthetic, religious) values. The result of these efforts is to expand the boundaries of science in such a way that they include, by implication, value questions. (Stenmark 1997: 18–19)

James is often enlisted as a kind of precedent and used polemically to contrast with poststructuralist theory that primarily foregrounds language and the nature of the social, and more constructivist viewpoints in general of how knowledge(s) are formed. What is glossed over in this new design research rationale is that James’s radical empiricism firmly rejected among other things metaphysics, abstractions, and a priori knowledge through a directly apprehended universe based on observable sensory-based experiences. The following is one of the most oft-quoted statements of his used to define radical empiricism: “The postulate is that the only things that shall be debatable among philosophers shall be things definable in terms drawn from experience ...” and that “The parts of experience hold together from next to next by relations that are themselves parts of experience. The directly apprehended universe needs, in short, no extraneous trans-empirical connective support, but possesses in its own right a concatenated or continuous structure” (James 1909: xii–xiii).

Simply put, since designers are not participants in the discipline’s claim to a particular position in empirical research, nor are very aware of the critical interrogations of the discipline (at least at this moment), they do not participate in James’s notion of verification. They correlate the perceived efficacy of the method with “design goals” as a final outcome. The basic underlying assumption of the design student in these cases is that a theory operates independently from the conditions in which it was tested, that it has its own immanent value and that it can be deployed since it is true to any number of similar contexts. Even in the most conservative interpretation of knowledge as empirical proof, the immanent quality of a theory divorced from experimental context is at odds with the material reality it was meant to arbitrate.

The second criticism may be traced back to the critiques of Kuhn and Feyerabend. Kuhn (trained as a physicist and who also at one

point in his life taught a history of science course to undergraduates) shares with Feyerabend the concept of incommensurability (Sankey 1993: 759–74). In Kuhn’s case, the evaluation of a scientific theory is not only based on methods and evidence, but must be examined in relationship to a particular paradigmatic theory contingent in historical context. Assessment is open to question: evaluation changes over time and sensory-based experiences are subjective. Finally, there is no common language between theories to make them explicit and comparative since the social context of the language and meaning changes over time (Kuhn 1962: 185). Feyerabend’s position on the subjective and relativistic construction of knowledge in the sciences is much more explicitly critical and pointed:

Methodological rules speak of “theories,” “observations,” and “experimental results” as if these were well-defined objects whose properties are easy to evaluate and which are understood in the same way by all scientists ... the material which a scientist *actually* has at his disposal, his laws, his experimental results, his mathematical techniques, his epistemological prejudices is indeterminate in many ways, ambiguous *and never fully separated from the historical background*. (Feyerabend 1975: 51)

Harding puts it a different way:

The truly scientific part of knowledge seeking – the part controlled by methods of research – occurs only in the context of justification. The context of discovery, in which problems are identified as appropriate for scientific investigation, hypotheses are formulated, key concepts are defined – this part of the scientific process is thought to be unexaminable within science by rational methods. Thus “real science” is restricted to those processes controllable by methodological rules. (Harding 1993: 70)

Adding to the lack of a critique and interrogation of knowledge production in design research, conflation of what has been observed through either unspecific vocabularies or observed correlations between apparent outcomes of research is problematic. The slippage of the term “experience design” (which seems to move back and forth between user experience and “designing experiences”) is an example. Developed at first as a term to observe and describe how a user functionally understood a digital prototype of an interface in a very limited and contingent context, the term expanded to include the broader experience of a digitally connected website which included representational issues of connotation and messaging through branding and advertising, with analytics to quantitatively demonstrate its effectiveness. Closure and efficacy is part of the

original promise of Western empiricism (which is seductive to disciplines that are looking for validation in some kind of loose claim to research, such as design). As Feyerabend says later:

The teaching of standards and their defence never consists merely in putting them before the mind of the student and making them as *clear* as possible. The standards are supposed to have maximal *causal efficacy* as well. This makes it very difficult indeed to distinguish between the *logical force* and the *material effect* of an argument. (Feyerabend 1975: 16)

The third critical framing can be epitomized by Donna Haraway and Walter Mignolo, among others. While Western science and knowledge can be critiqued as a particular history with fractures and subjectivity, there are also critiques from those traditionally excluded from its culture(s), or those who have been compromised by its ideologies and practices. Donna Haraway's discussion of "situated knowledge" (Haraway 1988: 581–96) is a position that negotiates and upholds contingent knowledge generation, arbitrating constructivist and empirical positions. Walter Mignolo extends this dialogue to the neocolonial effects of European epistemologies and the need to engage other non-Western or hybrid knowledge production in situ as an act of resistance to hegemony, and in also recognizing that differing epistemologies might help in providing alternatives to particular Western biases (for example the Western structuring of culture versus nature, which could help construct concepts that are more conducive to sustainable futures) (Mignolo 2009: 1–23). To conclude this section, this brief outline does not constitute extremely marginal or radical positions within contemporary research and science discourse. This is important to point out in any claim by those who would simplify positions to a black-and-white, "for or against" argument regarding an empirically based research culture for design.

## **Part 2: Embodied "Subjects" and "Heterotopias"**

Thirty-one years ago Clive Dilnot outlined several issues framing the relationship between design and society, and in how the term "design" was used to discuss either results (as products) or, alternatively, the definition of problems that originated the design activity. The simplification of these and other ideas (such as direct analogies between "design as art," or "design as technology") failed to take into account a broader sense of social activities vis-à-vis design activities (Dilnot 1982: 139–46).

Economic and technical networks are fundamental to the growth of supranational power and globalization. Following along with Latour, the social is in the networks between people and is embedded within human, and now increasingly nonhuman, agency of networked technology (Latour 2005). The development of branding, service, and interaction design as particular approaches to design

activities seeks to answer these and other social contexts. The focus on efficacy within those economic systems while espousing complexity can lead very quickly to unsustainable and unequal practices: efficacy is an ambiguous term that can equally be about social control or agency. This also recalls Harding's observations of the appeal that method has in justifying outcomes to dominant groups.

The new rationale for efficacy in the reconfiguration of what is design can create a disciplinary system through complex technological and economic networks where (Foucault's term) the "microphysics of power" comes to bear on the individual as consumer:

This technology is diffuse, rarely formulated in continuous, systematic discourse ... it cannot be localized in a particular type of institution or state apparatus. For they have recourse to it; they use, select or impose certain of its methods. But, in its mechanisms and its effects, it is situated at a quite different level. What the apparatuses and institutions operate is, in a sense, a microphysics of power, whose field of validity is situated in a sense between these great functionings and the bodies themselves with their materiality and their forces. (Foucault 1977: 26)

Foucault maintained that contingent relationships of power were more important than the power of the state, and in a system of global and unsustainable consumerism, development in consumer markets modeled on Western practices have dire consequences.

If tacitly abetting social control and power, a flattened definition of contextual human experiences becomes the framework of a design solution responding to a design problem (erasing Dilnot's contingent opening into how design activities and social activities coincide as process), and replicates where the method originates: Western, managerial, and when applied to new markets abroad (or to those demographic slices that are now part of local communities in developed nations), neocolonial in a very specific sense:

The colonial difference is thus an attempt to reveal and displace the logic of the same by which Europeans have represented their others. Non-Europeans are seen as existing on the *same* historical trajectory, but further behind; their goals are the *same*, but not achieved to the same degree; their knowledge is subject to the *same* justificatory procedures, but is less well developed. In this way, true otherness or difference is invisible and unintelligible. (Martin Alcoff 2007: 87)

A simplified neoliberal approach that maintains and creates informational and representational systems to moderate large, complex institutions and networks can result in the kind of system of complexity



that enhances positivist and ultimately exploitative social control and mediation: a series of panoptic systems that will exacerbate control and also engender resistance in the near future.

What I have endeavored to do is play out a particular scenario of how a lack of an ongoing critical interrogation in contemporary design activities can lead to a certain paradox about designing for “the social.” My point here is that as particular popular historical design canons are being abandoned as a strategy in design discourse (and which were flawed at any rate when approaching social activities), it may be time to construct something new, and to not cede this construction to a simple polarity of either relativism or totalizing systems.

### **Reinvent the Idea of a Subject**

A beginning framework for design at this point combines Dilnot’s original observations of design activity/social activity with Haraway’s concept of situated knowledge within a transdisciplinary framework. Such a framework would attempt a synthesis, or at least a critical suspension and interrogation between knowledges rather than use them noncritically to provide efficacy and for particular ends or products. Transdisciplinary knowledges in contingent and limited contexts could help construct interpretive and critical frameworks for emerging issues – the basis of a transdisciplinary construction of knowledge is to expose the structure and meaning of how the discipline/knowledge is constructed and then to negotiate between other disciplinary bases. By siting this within Dilnot’s broader ideas of the confluence between design activity/social activities, critical interrogation of knowledges becomes situated contingently.

### **Reconcile a Sense of Empirical Observation as Contingent with the Critical Interrogation of Knowledge**

Donna Haraway’s original call for “situated knowledges” (rather than adumbrated and simplified contexts) is a potential feature of this framework, where social activities coincide with the synthesis capable in design activities and knowledge production. Situated knowledge is dependent on positioning (literally point of view). Much of design research focuses on the concept of “user.” Haraway’s idea of situatedness stresses the subject as a body: “Even biological bodies are not natural or given entities, merely there to be discovered and unveiled. As objects of knowledge, they are brought into being by knowing and partial subjects, who have stakes in constructing them as such” (Prinz 1995: 354).

This position acknowledges the constructed aspects of knowing while reconciling to a degree the material world through a highly contingent and interrogated form of empiricism. Knowledge is understood in context rather than as “unlocatable, and so irresponsible knowledge claims.”

Such preferred positioning is as hostile to various forms of relativism as the most explicitly totalizing versions of claims to scientific authority ... The alternative to relativism is partial, locatable, critical knowledges sustaining the possibility of webs of connections called solidarity in politics and shared conversations in epistemology. (Haraway 1988: 584)

By beginning a contestation from the subjects and their embodied viewpoints, reductionist arguments of efficacy are mitigated. An embodied subject turns and gazes back at the researcher.

### **Acknowledge Power Relationships and Inequality Bluntly Without Recourse to “Progressivism”**

If neoliberal economic development is to become the predominant frame of all social activities, then it necessarily excludes those who do not or cannot participate. It diminishes the importance of understanding new, or existing alternative social networks and practices (since many alternative practices are “situated” to particular contexts) if it cannot include them in markets (Castells et al. 2012: 12).

Foucault invented the neologism of “heterotopia” as a way to describe what may be socially constructed outside of the sanctioned spaces of a particular culture. This idea has been further developed in how urban spaces are used and appropriated in ways that inevitably resist the consignment of those spaces to official managed use. There are historical patterns that can be discerned from particular “design interventions” where design and social activity are oddly aligned together, without any intention, rather than being placed within problem/solution models.

For example, in “Heterotopias and the Experience of Porous Urban Space” Stavrides details the emergence of a heterotopic space in Athens after the confrontation between Greece and Turkey after World War I. As a result of the conflict, refugees arrived from Turkey with little in the way of resources, and were relocated by the Greek government to primarily urban areas. One of the later sanctioned design interventions was the Alexandras Avenue Refugee Building Complex, ostensibly built in part to insulate the immigrant groups from the existing urban community, through the creation of a buffer or border:

Separation was not based on a layout that tried to impose physical segregation. Formless outdoor space was left to surround and contain the blocks ... Residents who had to face a hostile and unfriendly environment ... appropriated the loose space through private and common activities that could not be contained in the buildings. (Stavrides 2007: 180–81)

As Stavrides shows, design attempts to impose social control unintentionally aided in the creation of a thriving social space that

created porous connections to the surrounding urban spaces through an intentionally designed “non-space.” In my own work with students in upper-level design courses, we have uncovered similar urban space usages in our local environment, most notably the use of undeveloped beltline tracts of land used to create social spaces by immigrant groups (Townsend 2011). This positioning goes a step further from ideas of positivist cocreation, to one in which the subjects are aware and quite capable of redefining the system, where they were made invisible, or objectified as quantitative census data.

The neoliberal agenda suggests that it can accommodate all viewpoints as long as they can be rationalized into a model of consumerism. Alternative economies and practices arise when people cannot or choose not to participate in the neoliberal marketplace. They often are not part of the consumption model espoused through neoliberal markets, nor part of the systems of marketing in the earlier examples of branding, service, and interaction with a managerial elite guiding the strategic plan. Since they are not visible in the marketplace, their presence is diminished for designers and design activities. Population trends through the twenty-first century suggest growth in undeveloped parts of the world, while the developed regions’ population will level off. Health care, information, and other services through technology, housing, etc. will still primarily be accessed by the “globals,” while the “locals” (or those who remain relatively poor) will be increasingly economically dependent on the more mobile individuals who seek economic opportunity by emigrating to developed and developing areas in the globe (de Blij 2009).

I would like to suggest that the concept of heterotopia (which has been primarily thought of as discrete public spaces) can be rethought as a series of social/physical spaces and more importantly here as networks in transnational space, which then becomes another alternative way of looking at designing in distinction to complex technological and information-based systems of control. Individuals who circulate as mobile must be able to move between communities, which includes their shifting use of and reference to language, community context/history, and experiences. This has very different and transitive ways of influencing a dynamic and embodied construction of identity in globalization. Their actions create the porosity between communities (enlarging the concept of how a physical community moderates the use of particular localized spaces).

Design easily elides to a larger realm of correlation as in my earlier example of experience design, moving from contingent and limited research to extremely complicated and suspect proof. As we measure, and then correlate and infer, the subject becomes less and less visible. One significant way of overcoming this is to model subjects as irreducible and dynamically connected in their interactions. This open and contingent idea invites the subject to participate between design activity/social activities or even to become creator, eliminating

the role of design activity all together. This concept resists typologies and reductions of the subject to only a static construct of an individual as object, which can be complicit with instrumentalist multidisciplinary frameworks. Efficacy dispenses with the complicated and hard to measure aspect of subject through absence or reduction. Rather than constructing a typology dependent on a reductionist position of the continuing de-embodiment of the subject, a definition of boundaries and also porous connections could be substituted – and which would be part of a situated knowledge construct, as Haraway seems to be asserting:

For example, local knowledges have also to be in tension with the productive structurings that force unequal translations and exchanges – material and semiotic – within the webs of knowledge and power. Webs *can* have the property of being systematic, even of being centrally structured global systems with deep filaments and tenacious tendrils into time, space and consciousness, which are the dimensions of world history. (Haraway 1988: 588)

Design is well rid of a canon-based disciplinary definition, but what may by default take its place is a position that does not develop the potentialities of design and social activities. Is there a way to dispense with the construction of a new “canon” based on the supposedly smooth and validated form of efficacy and control, and instead frame design as one of “mobile positioning and passionate detachment?” If we are entering a period of an evolving system of micro-power relationships through neoliberal economic and technological networks, a position for design activities equated directly with social activities should be attempted that emphasizes subjects with agency, perhaps through an even more radicalized form of empiricism, versus the construction of so-called effective and socially/subject compromising systems of design and research. If design becomes allied with research activities, it is incumbent on designers and educators to fully extend the dilemmas and contestations of what that ongoing series of controversies entails. Not doing so makes design culpable and potentially damaging to others, contributing to an unsustainable future.

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