

THE JOURNAL OF DESIGN STRATEGIES

Change Design

Vol. 4, No. 1 | Spring 2010

PARSONS THE NEW SCHOOL FOR DESIGN

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The Journal of Design Strategies is published annually by The New School in association with the School of Design Strategies at Parsons The New School for Design.

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New York, NY 10011

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The *Journal of Design Strategies* welcomes submissions for the Spring 2011 issue, addressing the theme of “Transdisciplinary Design.” This issue of the journal will explore emergent design practices that generate new outcomes, establish new fields, or reconfigure our understanding of design. For information about submitting articles for consideration for the forthcoming issue, please email Jamer Hunt, Guest Editor, at huntj@newschool.edu.

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ISSN: 1935-0120 (online).

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LETTER FROM THE DEAN

I am delighted to present Volume 4 of the Journal, an issue focused on the theme of “change design.” Inspired by the 2008 Changing the Change conference in Torino, Italy, the issue explores some of the ways that contemporary decision-makers in a wide range of fields are turning to the skills, methods, and processes characteristic of the design disciplines to effect positive, constructive social change.

With this issue, we inaugurate some changes of our own, starting with the name of our publication: this is now *The Journal of Design Strategies*, a name better reflecting its institutional home within Parsons’ School of Design Strategies. Also new this year is the internationally-circulated call for papers and blind peer review process that has resulted in the present issue, part of Parsons’ ongoing commitment to promote cutting-edge research at the nexus of design, business, and social progress. Updates to the graphic style reflect these substantive changes. I am very grateful to the Karan-Weiss Foundation for its continuing support of this journal and the Stephan Weiss Memorial Lecture Series, with which the journal is coordinated.

The first Weiss Memorial Lecture of the 2008/2009 series was delivered by Thomas Darwin, professor of communications at the University of Texas at Austin and its director of Community Partnerships. Darwin’s lecture described a community outreach project in which he introduced local leaders to design methods in order to stimulate constructive new approaches to problems within Austin’s communities.

Also new this year, we instituted a dialogue format for the Weiss Lectures, in which two or more prominent thinkers are invited to engage one another’s work from the standpoint of their own. The first Design Strategies Dialogue featured two internationally renowned scholars, Professor Ezio Manzini of the Politecnico di Milano (organizer of the Torino conference), and Professor Arjun Appadurai, Goddard Professor of Media, Culture, and Communication at New York University’s Steinhardt School of Culture, Education, and Human Development. The results of the inaugural Design Strategies Dialogue are published here. With the ongoing support of the Karan-Weiss Foundation, we will continue to make both this journal and the Weiss Memorial Lecture Series a forum for conducting, documenting and publishing research of interest to the design and business communities worldwide.



Joel Towers
Dean

LETTER FROM THE EDITORS

In this, our first issue under the new title *The Journal of Design Strategies*, we address the theme of “change design.” The phrase hearkens back to the 2008 *Changing the Change* conference in Torino, Italy, organized by the sustainable design theorist and Politecnico di Milano professor Ezio Manzini, and responds to the “Design Research Agenda for Sustainability” that emerged from it.

Section 1, *Design, Sustainability and Social Change*, addresses Manzini’s work explicitly, starting with “Small, Local, Open and Connected,” his contribution to the inaugural *Design Strategies Dialogue* featuring Manzini in conversation with cultural anthropologist Arjun Appadurai. Manzini argues that the transition to a sustainable society will depend on developing small and local-scale communities that are also open and connected to the wider world, and that designers can help bring such networks of connected communities into being. In his “Responses to Manzini,” Appadurai cautions against a “default assumption that smallness, connectivity, and openness are always mutually supportive” of progressive social innovation, as the example of global terrorist networks shows; he goes on to suggest that focusing on the design of “sustainable socialities”—communities that are open to the world and tolerant of diversity—may be more important for promoting long-term sustainability than design solely focused on arbitrary environmental benchmarks. Finally, “The DESIS Network” outlines the vision, aims, and activities of the Design for Social Innovation and Sustainability Network, followed by reports from DESIS-Local sub-networks in China, Brazil, the U.S., Africa and Colombia.

Section 2, *Case Studies*, documents ongoing efforts to leverage design in the service of social innovation. First, design researchers and DESIS-China members Lou Yongqi and Clarisa Diaz describe a project currently underway on Chongming Island in Shanghai, which is identifying ways to preserve the viability of rural Chinese lifestyles by opening the island to the larger city through an organic farmer’s market, eco-hiking trails and university research facilities, among other outcomes. Thomas Darwin, University of Texas at Austin faculty member and director of Community Partnerships, recounts his “Community Studio” project, in which he led community leaders in design thinking workshops focused on local issues, thereby eliciting creative, fresh perspectives on intractable community problems. Finally, artist and Parsons faculty member Cynthia Lawson describes a New School combined course and summer development project in Guatemala that has been a testing ground for comparing two approaches to social entrepreneurship in artisan communities.

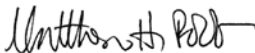
Section 3, *Educational Initiatives*, presents a range of current efforts to embody or instigate “change design” within educational and other public institutions. First, Gavin Melles and three colleagues from the Industrial and Interior Design programs at Swinburne University in Melbourne, Australia reflect on several ongoing pedagogical initiatives there, each integrating principles and

practices of sustainability into the curricula of the university's engineering and industrial design programs. Next, co-founder Mariana Amatullo describes Designmatters at Art Center College of Design in California, a program at the forefront of engaged, project-driven pedagogy that links design education to agendas and briefs generated through external partnerships with non-profit organizations, government agencies, and the United Nations (which has recognized Designmatters as an NGO). Finally, strategic design consultant Laetitia Wolff interviews Aaron Levy and William Menking, co-curators of the official U.S. representation at the 2008 Venice Biennale, questioning them about the potential for architecture exhibitions to prompt social change.

Section 4, *New Professional Trajectories*, surveys emerging prospects for design, both as a freestanding profession and above all as a toolkit of skills and competencies that are becoming increasingly important to many organizations. First, design researcher Stephen Clune argues that industrial designers today should focus not only on products, but also on “enablers” and “prompts” to subtly guide behavior in the direction of reduced environmental impact. Design consultant and Parsons faculty member Elliot Felix describes the emerging discipline of design strategy as a way of structuring the design process so as to reconcile user needs with business goals. In her review of *Expanding Architecture: Design as Activism*, designer and Parsons faculty member Denise Ramzy appreciates the book's main argument that architects should be engaging a wider range of constituencies and stakeholders—including social service agencies, government regulatory bodies, end users, and financiers—than is typical today. Entrepreneurs and Parsons faculty members Jonatan Jelen and Kaleem Kamboj argue that with the emergence of the information economy, professionals from the design management field have a role in their own right in the process of business design. Finally, design and management theorist and Parsons Paris School of Art + Design faculty member Brigitte Borja de Mozota claims that today, in the transition to postindustrial societies, “it is the skills of designers that will most help decision-makers face their current challenges”—a view of design's role within organizations intimating new professional possibilities in the field of design management.



Lisa DeBenedittis
Executive Editor



Matthew H. Robb
Managing Editor

STEPHAN WEISS MEMORIAL LECTURE SERIES

Each year, Parsons' School of Design Strategies hosts the Stephan Weiss Memorial Lecture Series on Business Strategy, Negotiation, and Innovation. This lectureship was launched to commemorate the life of the late artist and sculptor Stephan Weiss, husband and business partner of the fashion designer Donna Karan. Weiss co-founded Donna Karan International in 1984, and was instrumental in every significant venture the company undertook: launching and structuring new brands, most notably the Donna Karan Beauty Company; signing new licenses; establishing in-house legal and creative departments; devising its computer design technology; orchestrating the company's initial public offering in 1996; and negotiating its sale to the current owner, LVMH, Moët Hennessy Louis Vuitton.

Past Weiss lecturers have included Fred Dust, leader of IDEO's environmental design practice; D. Michelle Addington, professor in the Yale School of Architecture and in the Yale School of Forestry and Environmental Science; and Steven Berlin Johnson, author of several popular science books and analyst of emerging trends and business opportunities connected to web-based social networking.

The Fall 2008 Weiss Lecturer was Thomas Darwin, director of Community Partnerships at the University of Texas at Austin, who discussed the problems and promise of using design thinking to help community leaders conceive new solutions to local problems. His account of the "Community Studio" project that he orchestrated in Austin testifies to the power of design methods to promote constructive change in wide range of social, political and organizational settings.

In Spring 2009, the School of Design Strategies replaced the BBA Program in Design and Management as the formal host of the Stephan Weiss Memorial Lecture Series. Coincident with this shift was the development of a new dialogue format, whereby Weiss lecturers are invited to Parsons in pairs and encouraged to engage each other's work from the standpoint of their own. The first of these *Design Strategies Dialogues* took place in May 2009, and featured the pre-eminent design theorist Ezio Manzini in conversation with the distinguished cultural anthropologist Arjun Appadurai. Their dialogue focused on the viability of Manzini's call to support sustainable lifestyles through encouraging local and small-scaled organizations that nevertheless remain open and connected to the wider world via the internet and other communication channels.

SECTION 1: DESIGN, SUSTAINABILITY, AND SOCIAL CHANGE

SMALL, LOCAL, OPEN, AND CONNECTED: Design for Social Innovation and Sustainability

Ezio Manzini

The only sustainable way to get out of the current worldwide financial and ecological crisis is to promote new economic models, new production systems, and new ideas of well-being. To define and implement these new models is, of course, very difficult. But it is not impossible. And we do not have to start from zero. In fact, over the last few decades, a multiplicity of social actors—including institutions, enterprises, nonprofit organizations, and most of all, individual citizens and their associations—have proved that they are capable of acting outside of the mainstream economic models. In so doing, they have created a large reserve of concrete experiences that could consolidate and spread to become the most convincing answers to the dramatic challenges that we must now begin to face.

THE EMERGING SCENARIO

Thanks to the promising experiences accumulated to date, we can outline a new scenario. This emerging scenario lies at the intersection of three main innovation streams: the *green revolution* (and the environmentally friendly systems it makes available); the *spread of networks* (and the distributed, open, peer-to-peer organizations it generates); and the *diffusion of creativity* (and the original answers to daily problems that a variety of social actors are conceiving and implementing). We will refer to it as the SLOC Scenario, where SLOC stands for *small, local, open, and connected*. These four adjectives, in fact, neatly synthesize the sociotechnical system on which this scenario is based: a distributed production and consumption system in which the global is a “network of locals”—that is, a mesh of connected local systems, whose small scale makes them comprehensible and controllable by individuals and communities.

The SLOC Scenario is useful because it directs us toward sustainable solutions, indicating in particular that sustainable solutions necessarily refer to the local (and the community to which this local mainly refers) and to the small (and the possibilities in terms of relationships, participation, and democracy that the human scale makes possible). At the same time, it tells us that to implement solutions, we have to consider these small entities and these localities in the framework of the global network society in which the local and the small are both open and connected. This change in the nature of the small and local has enormous implications: With the new

The positive interplay between technological and social innovations could become a powerful promoter of sustainable ways of living and producing.

networks, it becomes possible to operate on a local and small scale in a very effective way. Moreover, utilizing these networked systems is the only way to operate in the complex and fast-changing environment generated by the present crisis and by the double transition towards a knowledge-based *and* sustainable society.

SOCIAL INNOVATION

Practical applications of SLOC-oriented initiatives already exist. Some of them are rather diffuse. Others are still quite marginal. But all of them are practical working prototypes of new ways of living and doing. Considered as a whole, they demonstrate that the SLOC Scenario is not a utopian dream, but a potentially viable perspective. The challenge, therefore, is to transform its potentiality into a mainstream reality. To do that it is necessary to better understand the complex interplay between social and technical innovation that generates the cases on which the SLOC Scenario is based. In fact, all the promising cases alluded to here emerged from a virtuous interaction between social and technical

innovation: They have been conceived and implemented (mainly) by the involved actors, who used their personal capabilities, their direct knowledge of the problems to be solved, *and* the application and deployment of existing technologies, often in unforeseen ways.

This positive interplay between technological and social innovations could become a powerful promoter of sustainable ways of living and producing. Technological innovation, especially in the digital realm, opens up new opportunities (in terms of unprecedented forms of organizations) while social innovation mobilizes diffuse social resources (in terms of creativity, skills, knowledge, and entrepreneurship). This positive double link between grassroots users and technology is particularly relevant in the transitions toward sustainability: If small and local systems are concerned, nothing can happen without widespread creative participation on the part of the people directly involved. These people are the only ones who can creatively adopt distributed and peer-to-peer models and adapt them to local specificities. In other words, given their penetration into people's everyday lives, the peer-to-peer model and the distributed systems approach cannot be enhanced without substantial changes in the way people think and behave—that is, without social innovation.

PROMISING CASES

At present, in every country in the world, there are promising cases of social and technical innovation, including collaborative social and residential services, bottom-up urban improvement initiatives, local and organic food networks, distributed production systems, and cases of sustainable local development. These examples, which can be seen as significant steps towards sustainability, are the result of many initiatives performed by a variety of people, associations, enterprises, and local governments. From different starting points, these actors are moving toward similar ideas of well-being and production: an active well-being based on a sense of community and shared goods and a production system composed of networks of collaborative actors that is based on a new relationship between the local and the global. In their diversity, these cases have a fundamental common characteristic: They all refer

to places—that is, to local resources and local communities.

Even if in quantitative terms these cases are more or less marginal, in qualitative terms they are extremely meaningful. In fact, they can be seen as viable anticipations of sustainable ways of living and producing. Of course, these emerging features assume different meanings in different societies and places. Nevertheless, their presence in situations so remote from one another raises the possibility that they may constitute a first set of sustainable features. In other words, they can be seen as the building materials for developing sustainable alternatives to the unsustainable ideas of well-being, production, and economy that dominate today.

WAYS OF LIVING AND PRODUCING

In regard to human well-being, a closer look at these promising cases reveals another fundamental common characteristic: Each compensates for a decrease in the consumption of products with an increase in other qualities. These qualities pertain to physical and social environments with the rediscovery of commons; to relationships with the rediscovery of communities; to being active with the rediscovery of individual and social capabilities; to time with the rediscovery of slowness. All these new qualities are based on traditional qualities reinterpreted in the present context. To be appreciated, all of them require a human scale, that is, they require small (comprehensible, manageable) systems. At the same time, given the present high level of connectivity, these small systems can be (and have to be) to the interactions with wider flows of people and ideas that characterize contemporary global society. For this complex relation between being small and being open we reserve the expression *cosmopolitan localism*.

Looking at these promising cases in terms of production, what appears is a new relationship between the local and the global in which local-but-connected systems of production and consumption are emerging. This general feature can take different forms, including the sustainable valorization of local resources (from natural environments and agriculture to craftsmanship and local knowledge); the realization of symbiotic production processes

(from zero-waste systems to industrial ecology districts); and the development of distributed systems (from power generation to manufacturing and to the whole economy). What unites these diverse phenomena is that each exemplifies a connected local, where knowledge, money, and decision-making power can circulate in worldwide networks, but where most of these resources remain in the hands of those who produce them.

SMALL, LOCAL, OPEN, CONNECTED

These emerging features, and the cases of sociotechnical innovation on which they are based, are characterized by the four keywords mentioned before: small, local, open and connected.

These four words are meaningful because they are *visionary* when considered as a whole (they generate a vision of how society could be), *comprehensible* when considered one by one (their meanings and implications can be easily understood by everybody) and *viable* because they are supported by major drivers of change (the emerging complex relationships between globalization and localization, the power of the Internet, and the diffusion of new forms of organization that the Internet makes possible).

These four words are also important because, in synthesising the results of 20 years of discussions and concrete experiences, they clearly indicate that there is no hope for designing sustainable solutions without starting from the notions of local and of the community to which this local mainly refers. At the same time, there is no hope of implementing sustainable solutions without considering these localities in the framework of contemporary transformations—that is, without considering that, in the globalized network society, the local and the small are at once open and connected. This point is crucial and requires further development.

SMALL IS NOT SMALL

Some 30 years ago, E. F. Schumacher wrote his very famous book *Small Is Beautiful*. At that time, because the degree of connectivity was relatively low, the small really was small and the local really was local (i.e., isolated). Therefore, Schumacher's option in terms of the small and local scale could

In the globalized network society, the local and the small are at once open and connected.

be proposed only as a cultural and ethical choice. Today, it is no longer like that: With a much higher degree of connectivity, when the small can be a node within various networks and the local can be open to global flows of people and information, the small is no longer small and a local is no longer local, at least not in traditional terms.

This change in the nature of the small has enormous implications, for better and for worse. Al-Qaeda, for instance, is a bad implication. It is, in fact, a constellation of small groups of terrorists that, by virtue of being connected, became as powerful as a big army. On the other hand, a (potentially) good implication, and the most interesting one for us here, is that networks make it possible to operate on a local and small scale in a very effective way. Indeed, the development of flexible networking systems indicates the one and only possibility for operating in the complex and fast-changing environment generated by the double transition towards a knowledge- and sustainability-based society.

LOCAL IS NOT LOCAL

Similar considerations emerge with regard to the notion of local, and the related notion of place. In recent decades, there have been long and important debates on the emerging world of flows and, therefore, on the end of places and localities. In my view, the observations from these discussions were and are still correct: It is important to recognize the role of flows and the crisis of traditional places (with the corresponding diffusion of “no-places”). But these observations do not entirely capture the complexity of the new reality. In fact, by looking into this complexity, we see that a growing number of people are actively searching for places—that is, for specific local traditions and new forms of localities.

In so doing, they establish an articulated and often contradictory relationship with the global. Thus, for example, we see the emerging phenomenon

of localisms that exist in the global framework or rather that exist because of the long-term trend toward globalization. This phenomenon also has two sides. The negative side is the dangerous emergence of a “local” as the idealized roots of a dreamed-of pure and solid identity that is in opposition to the identity of “the others”—a closed localism. The positive side is the local as a generator of original possibilities and cultures to be cultivated locally and exchanged globally—a cosmopolitan localism.

DESIGN FOR SOCIAL INNOVATION

Designers and design researchers can do a lot to empower social innovation for sustainability. They can feed the social conversation (i.e., the interplay between social and technological innovation) with visions and proposals. They can also collaborate with diffuse social innovators (to help them conceive and manage their initiatives) and with technologists, entrepreneurs, and policy makers (to develop products, services, and infrastructures to make the most promising initiatives accessible and replicable, thereby opening new markets and economic opportunities). These design activities, considered as a whole, can be termed *design for social innovation and sustainability*.

Design for social innovation and sustainability is of great potential significance, but it is still in its initial stage. All the topics discussed here need different kinds of research to be developed. Not all of them have to be developed by designers, but many of them do require some specific design knowledge, including scenarios to articulate in different contexts the general vision of “small, local, open, and connected”; solutions to implement these scenarios in a variety of specific applications; tools to facilitate the new networks and, more generally, to support ongoing social learning processes. In short, going back to what was said at the beginning, the topics synthesized by the words “small, local, open, and connected” can be considered as general guidelines to trigger and orient a broad, open, and collaborative design research program.

RESPONSES TO EZIO MANZINI

Arjun Appadurai

I respond to Ezio Manzini's stimulating remarks not with a counterargument or a sustained commentary but rather with a set of meditations on some of his key words, which have also informed my own thinking.

Small: This word invites us to rethink the issue of scale in a nonlinear manner. As Ezio says, "small is not small," because of the nature of global flows and connectivities. In my recent book, *Fear of Small Numbers*,¹ I suggested that we are entering a new world of cellular organizations, which I contrast with an earlier world of hierarchical, "vertebrate" organizations, the best example of which is the system of nation-states. Modern capitalism has both cellular and vertebrate qualities.

Cellularity, which is characterized by loose coordination, noncentralized reproduction, asymmetrical communication, and opportunistic collaboration, can be dangerous (as in the case of transnational terrorism) or highly progressive (as with many movements of grassroots globalization). This sort of cellularity relies on global information networks, high degrees of political and material porosity, and highly diverse and accelerated processes of flow. Thus smallness is moved out of the discourse of scale into the discourse of manageability through

Constraints like global warming cannot be treated as absolute parameters for design, but must be subordinated to the question of sustainable sociality when the interests of the two are not, by good fortune, coincident.

the ideas of connectivity, network, and flow. Thus, building on Ezio's remarks, I would like to raise the following question: Do we recognize that smallness has been fundamentally divorced from manageability and knowability?

Local: The word "local" has also become more complicated than it seems. I myself have stressed in my earlier work that locality is always produced against the corrosion of context and is thus not an inert or default state. Today, I would say that all locality is designed. If this is so, then sustainable design is a strategy of identifying the dynamics which underlie the

¹ Arjun Appadurai, *Fear of Small Numbers* (Durham: Duke University Press, 2006).


everyday production of locality, and extracting a set of principles from those dynamics that can be effectively networked and distributed on a global scale.

Open: The idea of openness is also interesting, since global flows sometimes produce closure and sometimes produce openness. We need to understand how to design social systems, especially in dense localities, that increase the possibility that connectivity will produce openness. This is a serious and unresolved problem for all socially oriented design, especially of the built environment. In other words, we may also wish to recognize the potential *aporia* between openness and connectivity with regard to the design of sustainable sociality.

Sustainability: Rather than emphasize the material, logistical, and economic implications of sustainability, which we all tend to do, I think we should instead begin with the question of how to design sustainable socialities. Put in other words, how do we design convivial social environments in a world where connectivity does not always lead to openness (in the sense of tolerance of diversity)? Focusing on the idea of sustainable socialities forces us back to the human requirement for stability and closure as counterbalances to volatility and flux.

Here I suggest that we return to the question of smallness. We should perhaps not think of smallness as a matter of scale, but as a matter of some other dimensions of sustainable sociality such as knowledge, risk, and tolerance. These latter criteria may suggest designs for living (both physical and social) that put social thresholds above ecological thresholds in terms of ideas like carrying capacity. This is a controversial proposition since it implies that constraints like global warming cannot be treated as absolute parameters for design, but must be subordinated to the question of sustainable sociality when the interests of the two are not, by good fortune, coincident.

In short, I am intrigued and inspired by Ezio's SLOC proposal, but suggest that we push it further to break down the default assumption that smallness, connectivity, and openness are always mutually supportive. Indeed, professionals engaged in design processes must not disregard the likelihood that these phenomena are already in conflict in today's world.



THE DESIS NETWORK: Design and Social Innovation for Sustainability

Ezio Manzini, Lara Penin,
Miaosen Gong, Carla Cipolla,
Mugendi M'Rithaa, and
Andrea Mendoza

THE DESIS NETWORK

DESIS¹ is a network of schools of design, companies, nonprofit organizations, and other institutions that are interested in promoting and supporting design for social innovation and sustainability. It is a light, nonprofit organization, conceived as a network of partners collaborating in a peer-to-peer spirit.

This international network comprises several DESIS-Local sub-networks within specified regions. DESIS-International is therefore the framework within which the different DESIS-Local networks coordinate themselves and undertake certain global initiatives.

**Social innovation mobilizes
diffuse social resources of
creativity, skills, knowledge and
entrepreneurship; for this reason,
it is a major driver of change.**

¹. See www.desis-network.org/.

THE DESIS VISION

In the complexity of contemporary societies, it is possible to recognize promising cases of socio-technical innovation. They are at once solutions to current problems and meaningful steps toward sustainability. These cases can be found in a variety of fields, from the ecological reconversion of the production system to the social construction of a new welfare and from the empowerment of diffuse microenterprises to local sustainable development programs. Many of these promising cases have a common denominator: They have been conceived and implemented (mainly) by the involved actors, moving from their direct knowledge of the problem and from their own personal capabilities. That is, they are the results of successful social innovation processes.

Social innovation mobilizes diffuse social resources (in terms of creativity, skills, knowledge and entrepreneurship). For this reason, it is a major driver of change. And it could become a powerful promoter of sustainable ways of living and producing.

Given its spontaneous nature, social innovation cannot be planned. Nevertheless, the “invention” of new ways of living and producing becomes more probable when creativity and design thinking are diffused and when there is a favorable social and institutional environment. Similarly, new promising cases last longer and are more widely replicated when they are empowered by appropriate sets of services, products, and communication tools. Favorable environments and enabling solutions are the results of articulated codesign processes in which final users, local institutions, service providers, and dedicated product manufacturers are all actively involved.

With regard to social innovation and the emerging new design networks, the professional design community has a major role to play. Designers and design researchers must use their professional knowledge to empower the codesign processes—that is, to trigger new ideas, orient the resulting initiatives, and conceive a new generation of enabling solutions (i.e., services, products, and communications specifically conceived to support them).

Design can give important contributions to social innovation, and vice versa. Social innovation can

present an opportunity for a new generation of designers: Professional designers and design researchers can work to develop and sustain new networks and feed those networks with needed design knowledge. DESIS supports social innovation worldwide and reinforces the design community's role in it.

DESI'S AIMS

- *Support social innovation using design skills to make promising cases more visible and effective and to facilitate their replicability*
- *Help companies and institutions understand the promising cases' potentialities in terms of enabling services, products, and business ideas*
- *Reinforce the design community's role in the social innovation processes, operating both within the design community (developing dedicated design knowledge) and outside it (redefining design's perceived role and capabilities)*

DESI'S ACTIVITIES

DESI pursues its activities on three different levels:

- *Fosters social innovation and sustainability by taking part in support projects and programs, gathering and offering greater visibility to significant cases*
- *Promotes design for social innovation both within and outside the design community by developing appropriate design tools and organizing cultural and didactic activities*
- *Encourages the circulation of ideas and experiences, with a peer-to-peer approach between the different DESIS-Local sub-networks, who carry out comparative research projects and co-produce courses at an international level*

These activities are mainly accomplished through the coordinating initiatives of the DESIS-Local sub-networks, each of which is organized autonomously and freely. Nevertheless, some possible “standard” DESIS activities can be listed:

- *Proposing and developing national and international research programs*
- *Organizing didactic initiatives (such as workshops, seminars, courses, and conferences)*
- *Preparing didactic resources (such as teaching tools, course formats, and bibliographic references)*

- *Collecting research information (such as promising cases, projects, and research results)*
- *Promoting cultural and communication initiatives (such as exhibitions, publications, and broadcasts)*

EZIO MANZINI

The “invention” of new ways of living and producing becomes more probable when creativity and design thinking are diffused and when there is a favorable social and institutional environment.

DESIS: AN INTERNATIONAL COMMUNITY OF DESIGN FOR SOCIAL INNOVATION AND SUSTAINABILITY

The emergence of the social economy² makes even more explicit the great pressure to develop innovations related to social demands. Innovation and design have always been more or less intertwined, and historically, this confluence has occurred in technology, whether in terms of new products, systems, or processes. Designers now have the opportunity to contribute to the new (social) economy. To do so, they will have to adapt their *modus operandi* to be in connection with social innovation dynamics and optimize their responsiveness to the new demands those dynamics generate.

Thus, the community of people and institutions that is being formed with DESIS has an important contribution to make: to research, experiment with, and implement new knowledge, practices, and cultures of design for social innovation and sustainability.

DESIS’ underlying principles can be traced back to a number of previous international initiatives that have in recent years helped to establish a set of conceptual tools for promoting social innovation and sustainability.

Among them, the pioneer project, EMUDE, Emerging User Demands for Sustainable Solutions,³ explored the potential of grassroots innovation and pinpointed emerging patterns of sustainable living

in Europe. The project Creative Communities for Sustainable Lifestyles (CCSL)⁴ turned its geographical focus to emerging countries—in particular Brazil, India, and China—through partnerships with design schools in those three countries. One of its main findings was that social innovation and collaborative creativity in everyday life can be found worldwide. Even if they are deeply rooted in specific contexts, their basic principles are very similar. The same line of investigation followed with CCSL Africa,⁵ which involved design schools in South

2. In the study *Danger and Opportunity: Crisis and the New Social Economy* by Robin Murray for the United Kingdom’s innovation agency NESTA, the “social economy” is defined as “all those areas of the economy which are not geared to private profitability. It includes the state but also the ‘civil economy’ of a philanthropic third sector, social enterprises and co-operatives operating in the market, and the many strands of the reciprocal household economy—households themselves, social networks, informal associations, as well as social movements” (p. 10). Murray points to a current “resurgence” of the social economy, motivated or enabled by digital technology and allowing for a user-centered approach to the development of services and products; the green industrial revolution bringing new practices, new movements, and new organization forms; and the increasing social pressure around “intractable social issues” (p. 12) including education, health care, geriatric facilities, and incarceration. These sectors already account for considerable shares of national GDPs both in the United Kingdom and the United States, and “on current trajectories, the biggest sectors (both by value and employment) of Western economies in 2020 and beyond will not be cars, ships, steel, computer manufacturing, or personal finance but rather health, education, and care” (p. 12). The challenge now is how to promote innovation in these sectors and make the social economy a leading force in the “next wave of economic development” (p. 33).

3. EMUDE was funded by the European Commission 6th Framework Programme (2004–2006). EMUDE identified a large number of promising cases and developed a set of conceptual tools to deal with them in order to orient policy makers and to define research and design guidelines, which would in turn to promote the cases’ consolidation and diffusion. EMUDE was organized as a consortium of European universities and research centers and has mobilized design schools from all over Europe in order to identify a collection of more than 100 promising cases of social innovation on the continent. See www.sustainable-everyday.net/EMUDE/?page_id=85.

4. CCSL (2006–2007) was part of the Task Force on Sustainable Lifestyles, within the United Nations Ten-Year Framework of Programmes on Sustainable Consumption and Production (the Marrakech Process). See www.sustainable-everyday.net/ccsl/?page_id=4.

5. CCSL-Africa (2008–2009) is currently running under the United Nations’ Task Force on Sustainable Lifestyles. See www.sustainable-everyday.net/ccsla/.

Africa and Kenya and then other schools around the African continent. This project focused on clarifying the particular forms that social innovation concepts might assume in various African nations, with a special focus on its emerging urban centers.

Following from these and other initiatives, DESIS as an international network has been founded in Italy and DESIS-Local sub-networks have been created, first in China and Brazil and now in the United States, Colombia, and Africa (SEE FIGURE 1). Each sub-network connects primarily local design schools but also other institutions, companies, and nonprofit organizations around local projects, innovative teaching, and research. DESIS operates, then, in what might be called a global spirit: It is based on local sub-networks, each of which has its own story, specific research agenda, and projects that reflect local needs. But DESIS is also in dialog with its international peers, stimulating and being stimulated by ongoing discussion in a cross-cultural forum. LARA PENIN



FIGURE 1: DESIS-Local sub-networks

DESIS-CHINA⁶

DESIS-China is a network of schools, companies, nonprofit organizations, and other institutions. It was co-founded by a group of design universities in China in collaboration with Politecnico di Milano. It is connected with other DESIS-Local sub-networks in different countries within the framework of the DESIS-International network. DESIS-China aims

to actively support design initiatives and projects for social innovation and sustainability in China.

Social innovation is a new idea, in China and elsewhere. Nevertheless, it has been widely accepted and promoted in the last several years since China is in a period of rapid transformation of its economy, culture, and society. These transformations call for social innovation in many contexts and on many levels. In the field of design, there have been intensive exchanges and collaborations in recent years between DESIS-China's founding members, Politecnico di Milano, and the executors of other related projects, including CCSL-China. In March 2009, the first kick-off meeting between the founding members of DESIS-China and representatives from Politecnico di Milano took place in Guangzhou. The participants agreed on the DESIS-China proposal and began to develop a research agenda.

The founding members of DESIS-China include six major Chinese design schools—Tsinghua University, Hunan University, Jiangnan University, Tongji University, Guangzhou Academy of Fine Arts, and the Hong Kong Polytechnic University—with additional support from a group of selected partners. When fully operative, DESIS-China will be composed of diverse participants (schools, institutions, companies, and nonprofit organizations) that all actively support DESIS objectives. In the founding phase, Tongji University is serving as the host and secretarial office.

The members' first collaborative project, DESIS09: Social Innovation and Connection, was launched at the kick-off meeting. It seeks to develop case studies of sustainable Chinese lifestyles in a networked society and to elicit design implications and guidelines from these studies. As a combined research and didactic project, it includes six courses or workshops—one at every participating university—running at the same time.

DESIS-China members are also conducting the Chongming Sustainable

Community Project, a strategic design research project focused on the rural community of Chongming Island in Shanghai. Here the emphasis is on how design

⁶ DESIS-China details—Coordination: Lou Yongqi (China), lou.yongqi@gmail.com, Miao Sen Gong (Politecnico di Milano), miao.sen.gong@mail.polimi.com. Secretary Office: p: 86 21 65 98 34 32, f: 86 21 65 98 34 32, secretary@desis-china.com. Website: www.desis-china.org.

can promote the value of rural localities and develop exchange networks within an urban-rural system. It is a part of the broader DESIS-International program, Design for Social Innovation and Local Development (DESIS/LD), which furthers prior research, including the Parco Sud Milano project in Italy, the São Paulo project in Brazil, and other projects in South Africa and the UK.⁷

In May 2009, Tongji University and DESIS-China in Shanghai cohosted a DESIS forum and exhibition. It was the first public event on the issue of design for social innovation in China, and the occasion at which the founding of DESIS-China was officially announced. There were seven speakers, including Tong Huimin, dean of the College of Design, Guagnzhou Academy of Fine Arts; Lorraine Justice, dean of the School of Design at Hong Kong Polytechnic; and Yrjö Sotamaa, professor of Design Innovation at the University of Art and Design, Helsinki. Sotamaa's remarks were entitled "Designing Schools for Social Innovation."

In October 2009, another DESIS seminar took place in Shanghai as part of Shanghai International Creative Industry Week. The seminar was aimed at sharing results and promoting exchange among a series of related collaborations and ongoing projects. In the current year, DESIS-China will be involved in various events and activities, including Shanghai Expo 2010, the Cumulus Annual conference (also in Shanghai), and the Business of Design Week in Hong Kong. **MIAOSEN GONG**

DESIS-BRAZIL⁸

DESIS-Brazil seeks to shed light on factors that could promote social innovation for sustainability in Brazil. It also seeks to establish guidelines for the design of solutions—i.e., a specific set of tools, services, and skills that help each case evolve toward a more effective and accessible organization and ultimately, to diffusion on a larger scale.

The DESIS-Brazil local network began as the result of a collaboration between the Federal University of Rio de Janeiro's COPPE Institute and Politecnico di Milano. The Brazilian university had been a partner in the international project CCSL-Desex, which investigated the potential of social innovations to generate and diffuse new and more

sustainable ways of living in the urban environments of Brazil, India, China, and Africa. The collaboration that began with CCSL activity continued with the workshop course DESIGN.ISDS: Design, Social Innovation, and Sustainable Development. Ezio Manzini taught the course at the Federal University of Rio de Janeiro (UFRJ) in 2007 and 2008. Manzini also published *Design for Social Innovation and Sustainability: Creative Communities, Collaborative Organizations, and New Design Networks* (English translation from Portuguese).⁹ The course was streamed online to universities all over the country. DESIS-Brazil was formed out of this second experience and its members now include some of the major Brazilian universities.

In its initial phase, DESIS-Brazil consists of interested teachers and researchers in five schools: Federal University of Rio de Janeiro (the current host and secretary), Fluminense Federal University, São Paulo University, Federal University of Santa Catarina, and Federal University of Paraná. The local network has formed a steering committee, which is composed of a representative from each founding member, plus one representative from the international network. The steering committee has regular distance meetings and at least one physical meeting per year. **CARLA CIPOLLA**

DESIS-USA¹⁰

The United States is currently undergoing many changes: change in its political and socio-economic agenda, change to overcome general and specific system failure, and change in the way it perceives and is perceived by the world. Among the many elements

7. See the article "Enabling Society: New Design Processes in China, The Case of Chongming" in this volume.

8. DESIS-Brazil details—Coordination: Carla Cipolla, desis@pep.ufrj.br. Website: www.itds.ufrj.br/desis/english.

9. Ezio Manzini, *Design para a inovação social e sustentabilidade. Comunidades criativas, organizações colaborativas e novas redes projetuais*. Caderno do Grupo de Altos Estudos do PEP/UFRJ. Editora E-Papers: Rio de Janeiro, 2008.

10. DESIS-USA details—Coordination: Lara Penin, penin@newschool.edu; Eduardo Staszowski, staszowe@newschool.edu; Cameron Tonkinwise, tonkinwc@newschool.edu. Website: <http://desis.parsons.edu>.

present in this transformational wave, social innovation is a relatively new arrival in the general lexicon.

In April 2009, the White House made official its new Office of Social Innovation. Even if the new office's agenda is not yet clear to the public, the few signs given so far suggest an intention to increase the activity and agency of the nonprofit sector by directing public investments toward innovative ideas and models that can generate measurable impact.

Responding to the stimulus of the DESIS-International network, a group of professors from Parsons The New School for Design, Stanford, MIT, and Politecnico di Milano gathered in New York City in May 2009 to discuss the implications of the new office for design practice and education and to launch DESIS-USA.

This group understands that the design disciplines can contribute substantially to the creation of favorable conditions for social innovation to flourish and diffuse in the United States. From supporting already-existing social innovations in our society, such as zero-mile food networks and cohousing initiatives, to helping constructively address problems in the areas of health care, urban mobility, or energy, DESIS-USA members intend to use design to help catalyze social resources for sustainable change.

The three founding institutions—Parsons, Stanford, and MIT—framed the initial phase of DESIS-USA as a project and developed a twelve-month timetable for conducting a series of activities (including courses, projects, seminars, and a conference) focused on design for social innovation in the United States. At the end of this period, the group will also establish the broader DESIS-USA agenda and define its mission, goals, management system, and membership criteria. During the first phase, Parsons is hosting and serving as secretary of the project.

One of the first projects of DESIS-USA is “Amplifying Creative Communities in NYC,” which was recently awarded a grant by The Rockefeller Foundation's Cultural Innovation Fund. Project participants investigate social innovation phenomena in New York City, analyze them through diverse disciplinary perspectives, and amplify social innovation initiatives through design methods and tools. The project, led by the DESIS Lab at Parsons, will involve partnerships with local

businesses and nonprofit organizations as well as other members of DESIS-USA and the international network.

DESIS-USA's founding members are Lara Penin, Eduardo Staszowski, and Cameron Tonkinwise (School of Design Strategies, Parsons The New School for Design); Nidhi Srinivas (Milano The New School for Management and Urban Policy); Banny Banerjee (Design Program and Design for Change Lab at Stanford University); and Federico Casalegno (Mobile Experience and Design Laboratory at MIT). Other attendees of the kick-off meeting in May 2009 included Ben Lee, senior vice president for International Affairs at The New School; Joel Towers, dean of Parsons The New School for Design; and Tim Marshall, provost of The New School. [LARA PENIN](#)

DESIS-AFRICA¹¹

The main objective of DESIS-Africa is to form a network of key actors in Design for Sustainability (DfS) projects and related activities in the public and private sector. The diffusion of social innovation entails developing inspiring initiatives through the DESIS-International network, with a particular emphasis on those of special relevance to contemporary local socio-economic and geopolitical realities on the African continent. DESIS-Africa also builds upon the Creative Communities for Sustainable Lifestyles-Africa (CCSL-Africa) project, in which promising cases of social innovation were collected, documented, and disseminated.

The inaugural CCSL-Africa initiative showed that many examples of sustainable living in Africa that are relevant in contexts far removed from our continent. Additionally, there are place-specific expressions of being and living that are unique to Africa, at least in their original authentic forms. The accessible and inclusive *ubuntu* ethos of “human-ness” is one such unique ideal. *Ubuntu* posits that “I am because we are”—an affirmation of the intrinsically relational character of human existence that contrasts sharply with the individualistic logic of modern liberalism. Through *ubuntu*, Africa invites every human

¹¹. DESIS-Africa details—Coordination: Mugendi M'Rithaa (South Africa) MugendiM@cput.ac.za; Norah Gitobu (Kenya) ngitobu@gmail.com. Website: www.desis-network.org.

being into a robust dialog of engagement and participation in the matters that affect all human beings—the sustainability agenda, for example. Through DESIS-Africa, we hope to promulgate, perpetuate, and preserve the dynamic communitarian ethos of *ubuntu*, thereby promoting a spirit of “resilience by design.”

The membership of DESIS-Africa is drawn principally from faculty members in the ever-expanding Network of African Designers (NAD). The intention is to extend DESIS-Africa to include every actor who is interested in and committed to membership. NAD was initiated by Adrienne Viljoen of the SABS Design Institute in South Africa as a peer-to-peer network with the explicit aim of “foster[ing] design and design recognition in Africa for the sustainable development of the continent and improved quality of life and economic prosperity for all.”¹²

The founding institutions of DESIS-Africa were the Cape Peninsula University of Technology (CPUT) in Cape Town, South Africa, and the University of Nairobi in Nairobi, Kenya. Other members now include Maseno University (in Kenya); the University of Botswana; Makerere University (in Uganda); the Federal University of Technology, Akure (in Nigeria); and Kwame Nkrumah University of Science and Technology (in Ghana). This fledgling network is growing through the dissemination of the results of the CCSL-Africa project, and as more NAD members become acquainted with the relatively new concept of social innovation. Personal contact remains the most effective tool for recruitment.

DESIS-Africa effectively came into being in July 2009 in Nairobi, Kenya, during a CCSL-Africa seminar. Present for this event were actors from academic institutions, the public sector (including various nongovernmental organizations), the private sector (both the formal as well as the pervasive informal *jua kali* sub-sectors), and CCSL-Africa, DESIS, and NAD members (including Adrienne Viljoen, Carla Cipolla, Daria Cantu, Ezio Manzini, François Jégou, Lilac Osanjo, Lorraine Amollo,

12. Network of Africa Designers (NAD) initiated by Adrienne Viljoen of the SABS Design Institute in South Africa. See www.desis-network.org/?q=africa.

13. DESIS-Colombia details—Coordination: Andrea Mendoza, pmendoza@uniandes.edu.co. Websites: <http://designblog.uniandes.edu.co/blogs/desis>, <http://disenoinnovacionsocial.uniandes.edu.co/>.

DESIS has an important contribution to make: to research, experiment with, and implement new knowledge, practices, and cultures of design for social innovation and sustainability.

Norah Gitobu, and Mugendi M'Rithaa). It is anticipated that a formal launch of DESIS-Africa will be celebrated during the “Africa meets Africa” NAD Africa Design Day event in May 2010. CCSL-Africa has also been invited to mount an exhibition of promising cases collected during the project at this forum.

DESIS-Africa has identified a number of projects that would showcase the efficacy of DfS and highlight pertinent social innovation around the continent. For example, through its link with the DESIS-Brazil network, a community-based tourism project will commence shortly. Fact-finding missions and capacity-building exercises began in November 2009, prior to the implementation of the design projects. The city of Cape Town and its environs are the focus of the pilot project in South Africa, which incorporates a multi-sector array of actors. **MUGENDI M'RITHAA**

DESIS-COLOMBIA¹³

Although DESIS-Colombia shares the objectives of its partners in China and Brazil, the Colombian context is quite peculiar. Given its socio-economic, political, cultural, and even geographical circumstances, social innovation crops up all over Colombia, but so far it has been disdained because “auto-organization” is merely considered a way to make a living. DESIS-Colombia, then, aims to help reorient the attitudes of citizens with regard to those small actions that improve people’s livelihoods and that are solid examples of more sustainable ways of being and doing. The organization hopes to accomplish this by publicizing social innovation and its channels, lending voice, visibility, and empowerment to all such instances of bottom-up creativity.

Aside from sharing the DESIS-International aims of mapping and subsequently amplifying cases related to greening the cities, enhancing mobility, and improving food production and distribution in the framework of design for social innovation and sustainability, DEIS-Colombia also seeks to legitimize work on issues in the following areas:

- *Justice, humanitarian initiatives, multicultural diversity, migration, and dislocation*
- *Improving the well-being and mood of citizens by means of public design and interventions close to the world of art*

In June 2009, DESIS-Colombia had a weeklong pre-workshop aimed at mapping local initiatives of social innovation. The workshop pursued different activities, such as the writing of a DESIS-Colombia Manifesto and a presentation of work using photographic and video tools, with the aim of creating an audiovisual archive. DESIS-Colombia is uploading all these materials to a DESIS blog hosted by Los Andes University.

Based in Bogotá, the design department at Los Andes University has been leading the process towards the consolidation of the DESIS-Colombia sub-network. Now it has been decided that the Los Andes group will work jointly with the Academic Design Network RAD (Red Académica de Diseño), a national entity that promotes excellence in the realm of design pedagogy and research. RAD tries to build interconnections and links among its many members, thereby stimulating collective creation.

For several years, RAD has organized an inter-institutional course, inviting groups of students from different universities to work on a specific topic for a whole semester. One idea currently under development involves using the RAD space for a series of courses starting in 2010. The courses will focus on an original project based on DESIS and the cases gathered so far (which include examples of community-based tourism and community-based agriculture) that have still to be organized, systematized, clustered, and further extended into new contexts.

The universities involved so far with DESIS-Colombia are Universidad del Norte (Barranquilla); Pontificia Universidad Bolivariana (Medellín); Pontificia Universidad Javeriana (Bogotá);

Universidad Nacional; Universidad Jorge Tadeo Lozano; Universidad Central; Universidad Nacional Palmira (U.N. branch); Universidad de Caldas; Fundación Universitaria del Área Andina; and Universidad de los Andes in Bogotá. The consolidation of a steering committee is underway, led by Freddy Zapata, director of the Design department at Los Andes University and with the input of interested teachers and students throughout country.

Besides the academies, several other organizations have shown interest in DESIS-Colombia and RAD, including the Fundación Corona, a private non-profit organization which, although not identifying its work as promoting “social innovation” per se, has nevertheless worked in this field for more than 10 years, collecting hundreds of cases; and Antanas Mockus, a former mayor of Bogotá who at present heads Corpovisionarios, an organization working on public policy and citizenship, mainly the areas of mutual regulation and city-building. **ANDREA MENDOZA**



SECTION 2: CASE STUDIES

ENABLING SOCIETY: New Design Processes in China

The Case of Chongming

Lou Yongqi and Clarisa Diaz

THE CHINESE CONTEXT

At the present historical juncture, it is clear that design processes must be extended into new territories and dimensions in order to address the many problems and opportunities of a rapidly changing world.¹ Today, one of the most dramatic arenas of this change is China, especially with regard to the increasing pace of urbanization there. Current research predicts that 350 million people will be added to China's urban populations by 2025—more than the current population of the United States—yielding a total of one billion people living in China's cities by 2030.² This kind of growth will necessitate the construction of some 270 mass transit systems and 40 billion square meters of floor space in five

million new buildings—50,000 of which could be skyscrapers, or the equivalent of ten New York Cities. The drive for progress and the swiftness of policy implementation in China permit experimentation with new ideas and methods; the challenge will be to stabilize China's growth by fostering ways in which people can sustain themselves economically, environmentally, and socially. In meeting this challenge, it will be necessary to involve the intended beneficiaries. This is the only way for general principles to be adapted to local conditions and proposed solutions to be made truly sustainable. And given China's enormous size, even local projects, in sufficient numbers, can have global implications. Creating opportunities for local communities to sustain themselves is where designers can have the most powerful and lasting effects. Some ongoing cases, such as the Chongming Sustainable Community Project, illustrate design's new mission and potential in this era of rapid change.

1. Ezio Manzini, *Design, Ethics, and Sustainability: Guidelines for a Transition Phase* (Milano: DIS-Indaco, Politecnico di Milano, August 2006).

2. McKinsey Global Institute, "Preparing for China's Urban Billion," (McKinsey & Company, 2009).

THE CHONGMING INITIATIVE: A SUSTAINABLE RURAL COMMUNITY PROJECT

Sustainable development in China will depend on maintaining a harmonious balance between urban and rural areas. Ongoing one-way migration to urban centers by people in pursuit of better education, higher income, and modern lifestyles has created an imbalance in Chinese society, particularly in the last several decades.³ The problem is magnified by the fact that China's population is already one of the largest in the world, and is expected to continue to grow at an unprecedented rate. The cities of Asia

Sustainable development in China will depend on maintaining a harmonious balance between urban and rural areas.

account for 40 percent of the world's urban population, with the highest growth rate currently in China. This growth is concentrated in the Yangtze and Pearl River deltas, with the country's largest metropolis, Shanghai, boasting a population of more than 20 million.⁴ However, recent shifts in policy to promote sustainable development in China's rural hinterlands have created new opportunities for developing sustainable solutions, both within and beyond the country's dense urban centers.

One of the attempts at developing such solutions in China is happening on Chongming Island, a 500-square-mile (1290 sq-km) alluvial island located at the mouth of the Yangtze River delta in Shanghai, which has a current population of 600,000. In addition to familiar environmental issues, this island and its community of resident farmers suffer from a variety of social and economic problems. The unattractiveness of the rural lifestyle for many has led to the loss of human and economic resources. Chongming Island's unique positioning within the city is one of the reasons for these problems, but its position also makes it an excellent venue for experimenting with urban–rural exchange programs oriented toward sustainable development.

The Chongming Sustainable Community Project is a design research initiative led by Tongji University and Studio TAO—an urban design “think-and-action tank” focused on sustainability. Studio TAO is coordinating all the participants in the project, including the local government of Chongming Island, village communities, business partners, and university resources.⁵ The Chongming initiative seeks to use expanded design as a new tool to promote solutions toward a sustainable future for rural China. Through a collaborative effort involving transdisciplinary teams, knowledge is being generated toward the improvement of this island and its people in the coming decades. The project's vision is to make a specifically Chinese example of how to practice ecological sustainability, while simultaneously improving daily life and socioeconomic opportunities within a rural community. A successful outcome in Chongming will serve as a prototype for using the design process to improve human life in China and beyond (SEE FIGURE 1).

THE BASIC IDEA: YIN AND YANG

The setting of Chongming within Shanghai can be understood in terms of *Yin* and *Yang*—the twin, overarching concepts of classical Chinese philosophy that interpret reality as comprised of components defined through complementary opposition to one another. In Chinese thought, these seemingly opposing principles or forces (e.g., light/dark, up/down, male/female) are in fact interconnected and interdependent, each gives rise to the other. Applying the *Yin/Yang* conceptual scheme to the present context, we can say that the exchanges between the urban and the rural districts of Shanghai should

3. During the last century, and especially since the economic reforms of 1978, focus on Chinese progress defined by modernization has caused the highest level of migration to urban centers in the history of mankind. Urban prosperity, while desirable per se, has left rural areas increasingly impoverished and stigmatized as “backward.” See Edward Taylor, “Microeconomics of Globalization,” World Bank Report, 2001.

4. UN-HABITAT, *The State of the World's Cities, 2004–2005* (London: Earthscan, 2004).

5. www.tektao.com.cn. The Chongming project is planned to fall under the auspices of the DESIS-China Network (www.desis-china.org).

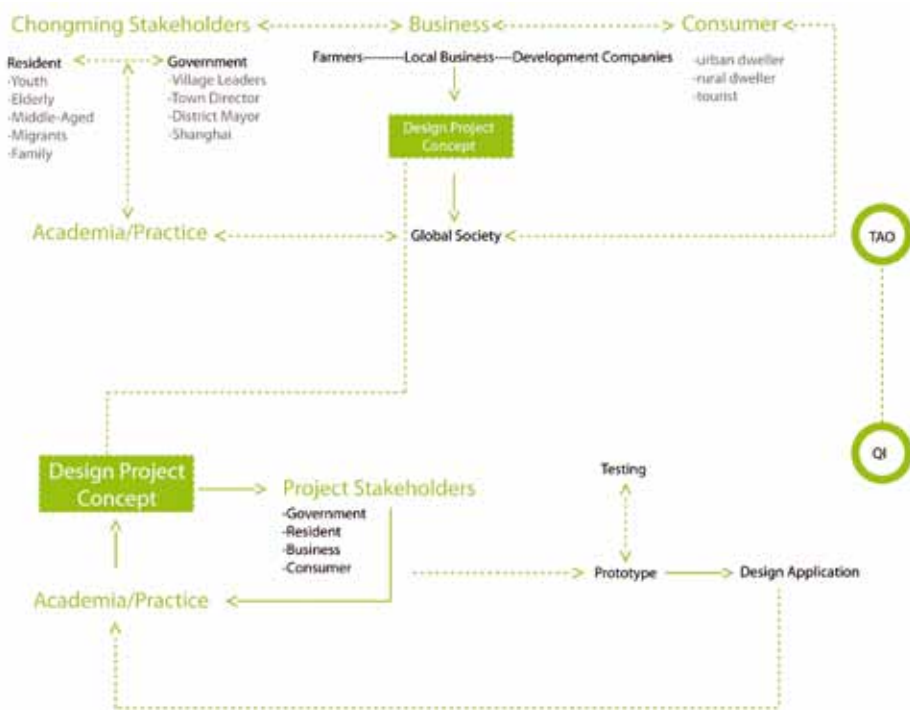


FIGURE 1: Map of the Chongming Sustainable Community Project process, showing all project stakeholders: Feedback is circulated among representatives of the community, government, involved professions, and business participants throughout the entire process, from inception of the concept to the implementation of each step or prototype.

be designed so as to maintain the identity of each, while complementing and reinforcing the other.

Accordingly, the Chongming Sustainable Community Project aims to network villages on the island to Shanghai through business and communication exchanges based on and driven by community decisions. Residents live as they like, without sacrificing their sense of place. Design, the key tool in this project, is used to interconnect the various constituencies within Shanghai, fostering sustainability by allowing people to regenerate a system benefiting their own localities. Thus, the immediate purpose of this strategy—attending to the micro-level particulars, but within a holistic, macro-level vision—was to develop a series of scenario-building prototypes. As the Chongming project seeks above all to create productive exchanges among some of Shanghai’s diverse social groups and constituencies,

the result may not always be physical development (e.g., new infrastructure), but rather the development of immaterial connections among people and the exploration of their possibilities.

RENAISSANCE OF *SHE JI*: THE CHINESE TERM FOR DESIGN

She Ji is the Chinese word for “design.” It originates from an ancient military term that means “to establish a strategy.” Conceptually, the term consists of two levels, *Tao* and *Qi*. In ancient China, the literati applied the concept of the *Tao*, or “way,” to understand human affairs, including politics, society, and culture. Artisans working on the level of materiality or operational technique were said to be employing *Qi*. Over time, the connection between *Tao* and *Qi*, and therefore the concept of *She Ji* itself, was almost

forgotten by a Chinese culture that had come to be heavily influenced by Western ideas.⁶ However, the original meaning of *She Ji*—with its connotations of both systematic comprehension and dynamic application—is currently being rehabilitated in China through the development of sustainable solutions such as those in the Chongming experiment.

A renaissance of *She Ji* as a designerly sensibility can bring a new impetus to today's challenges by

encouraging the deployment of diverse practical techniques within a systematic overarching strategy. Moreover, we believe such a renaissance could help orient contemporary Chinese designers in defining what “Chinese Design” is and might yet become. In Chongming, *She Ji* is evident on both the *Tao* and *Qi* levels. *Tao* can be seen in the methodology for developing various design interventions, whereas *Qi* is on display in the operational application and

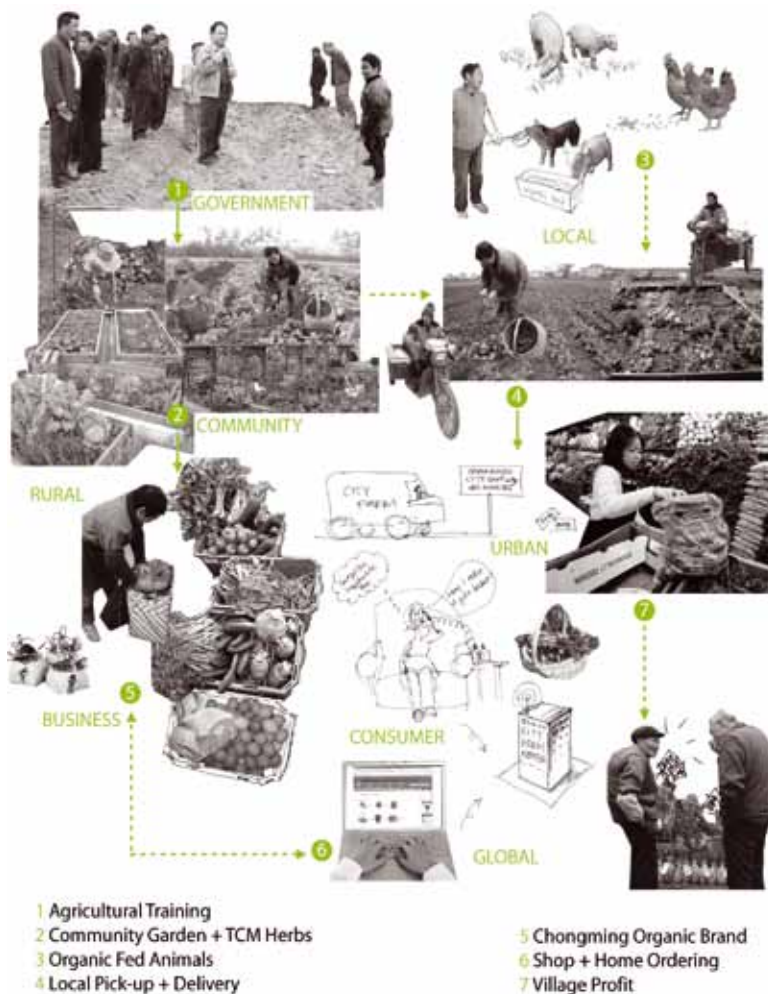


FIGURE 2: Chongming Organic Food Production storyboard—Using existing resources along with design strategy inputs, farmers are creating a system of organic agriculture linked with Shanghai. Organic farming represents a new initiative for Chongming, one that promotes higher profit potential for its farmers and healthier lifestyles among residents of the city.

tangible results of the process. As previously noted, combining *Tao* and *Qi* together makes it possible to involve a wide range of societal constituencies within coordinated strategic undertakings. *She Ji* is thus the primary avenue for realizing sustainable initiatives, including the effort at Chongming to synergistically link Shanghai's urban and rural populations.

TAO: THEORY AND STRATEGY

As noted above, one of the basic ideas behind the Chongming Sustainable Community Project is that complementary elements cannot exist without one another. In particular, large cities cannot exist without rural sustenance, whereas rural areas cannot flourish without being connected to urban resources—and by extension—to global society. Cultures need to be linked, but not hierarchically. In the case of Chongming, the twin goals of promoting exchanges with the broader urban population and preserving a specifically rural experience and identity are equally important components. Here, then, the goal of *Tao*-level design is to establish a framework that encompasses the various urban-rural, government-community, and local-global complexes involved in a dynamic and interactive system. The villages of Chongming are to be inserted into a much larger network in which knowledge, people, goods, services, and other resources can circulate more easily than at present (SEE FIGURE 2).

QI: TECHNIQUES AND TOOLS

On the other hand, the specific methods, techniques, and tools for realizing the goal of *Tao* exist, in Chinese philosophy, on the level of *Qi*, a term connoting the need to always respect the complexity and particularity of the immediate context. In the case of Chongming, for example, the design team's research indicated that pollution in the island's canal is related to the decline of its public spaces. By the same token, when the canal is no longer a part

6. Lou Yongqi, "Calling for She Ji: Rethinking and Changing the Changes in China," (paper presented at the Changing the Change Conference, Torino, Italy, July 2008).

of the villagers' daily public life, it is much easier for it to become polluted. Creating a thriving public space along the canal may

be a more efficient long-term strategy, with greater and more varied benefits, than a one-time cleanup of the canal. Surveys and inquiries within the community are used to discover existing work patterns and sustainable practices that can then be enlarged through public services or businesses, which are

The ultimate objective is to extend the design process into society by soliciting the active participation of all stakeholders in developing solutions to design problems.

designed on the basis of the residents' vision and initiative. The potential for enhancing the community is thus magnified, yielding solutions that emerge organically from a context of common goals, participation, and support. Specifically, the Chongming project seeks to transcend the urban-rural threshold by developing an array of local activities, including (but not limited to) ventures in fair trade, tourism, home rental, education, and communication technology.

Thus, a series of proposals and initiatives have been advanced in this project to realize the above-mentioned goals. In one, the Chongming Creative Industry Project, farmers plan to create a central market by renovating an abandoned village factory located along a tourism route. The factory would also house initiatives related to agriculture, rural education, arts, and leisure (SEE FIGURE 3).

Further supporting functions may include laboratories and fields for organic farming and agricultural science. Some of the space can be rented to universities for research, thereby establishing a higher education presence on the island. Villagers and city visitors could cultivate community gardens on the factory grounds, helping to build relationships. Various arts venues are also planned to showcase local and city artists and further promote the mutually beneficial coexistence of urban and rural populations. Of course, these initiatives will create jobs running and maintaining the different

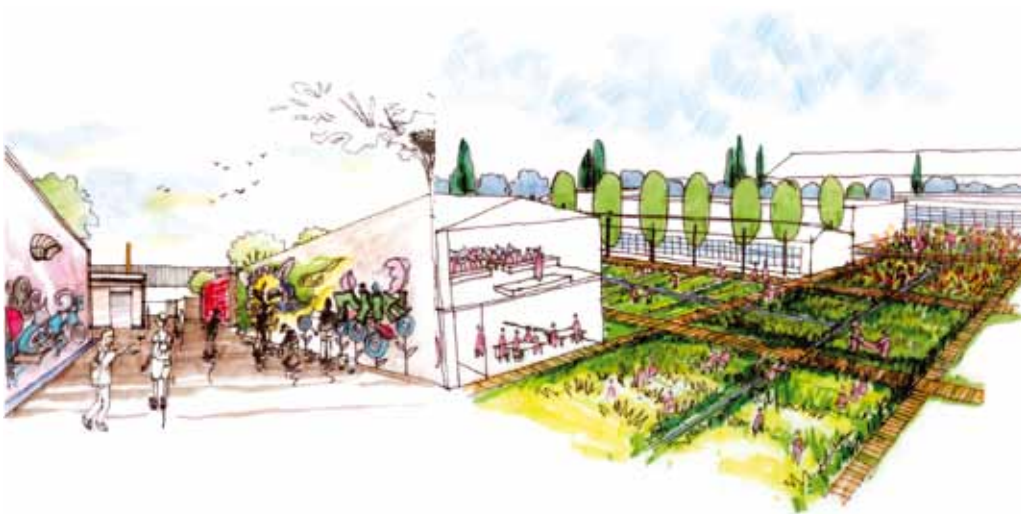


FIGURE 3: The Chongming Creative Industry renovation of a village factory. The facility may become a hub for five villages along a planned eco-tourism route. Combining leisure with arts and education, the center would provide a much-needed space for community activities as well as opportunities for employment and for higher education.

facilities, thereby giving members of the village population reasons to stay on the island. The entire process is being developed through the collaboration of community members, government agencies, businesses, and designers.

CONCLUSION

She Ji, the Chinese term for “design,” connotes system and strategy as well as technique and action. Without a systematic approach, the designer can only act in a short-term or partial frame of reference, which may or may not be sustainable. Without a dynamic, practical approach, solutions that are developed will not be able to keep up with changes. Design is fundamentally about conceptualizing and modeling new ways of being and doing.⁷ In the Chongming Sustainable Community Project, this is being achieved by directly involving all relevant parties, including representatives of various professions, government, business, and the community. In recognizing opportunities and bringing together diverse constituencies to develop a shared vision, design is developing an expanded role as an agent for building networking solutions. In this context,

the role of designers is to link disparate resources so as to allow communities to maintain their identities while engaging with the outside world.

At Chongming, this networked, participatory process establishes a foundation for sustainable solutions informed and designed by everyone involved. The project has the potential to reshape the urban-rural relationship, emphasizing the various sustainabilities—economic, environmental, and social—that Chinese society will need to develop over the long term. The ultimate objective of this approach, therefore, is to extend the design process into society by soliciting the active participation of all stakeholders in developing solutions to design problems. It is hoped that the holistic, systematic approach described here can help overcome the old oppositions of urban and rural, government and community, and local and global that have complicated and hindered Chinese development up to this point. As the Yin/Yang philosophy reveals, these entities are all equally necessary for sustainable change. The challenge of design in its newly expanded role is to elicit solutions in a context of rapid change in a balanced and inclusive way.

7. Nigel Cross, *Design-erly Ways of Knowing* (Basel: Birkhäuser, 2007).

FROM THE TOWNHALL INTO THE STUDIO: Design, Democracy, and Community Resilience

Thomas Darwin

In order to make the best use of design as a tool for community change, we have to approach it as both a capability and a mindset, make it as widely available as possible, and simultaneously pursue designed solutions to specific problems and promote the overall resilience of our communities. In my experience, we have created a wealth of techniques and forums for bringing people into dialog about their shared challenges. We have not done as much to equip people with the tools for building their capabilities to design solutions to those challenges. I've come to this conclusion through years of helping specific communities grapple with serious problems and manage change. During that time, one thing became abundantly clear—our possibilities are enabled and limited both by our collective capabilities and aspirations and by our ability to be resilient, together, through change.

Our capabilities are tested by the fact that many (if not most) of the situations we encounter as communities present us with “wicked” problems.¹ The most salient feature of wicked problems from the standpoint of design is that they defy our typical approach to problem solving. When confronted with a problem, we typically expect to

Our capabilities are tested by the fact that many (if not most) of the situations we encounter as communities present us with “wicked” problems.

be able to define the problem, analyze the problem, generate possible solutions, pick one, and execute a solution. Wicked problems, on the other hand, defy clear definition. Because they are so complex, they can be interpreted in different ways. They are continually emerging and evolving, driven by interlocking issues, interests, and constraints. And because these problems involve multiple constituencies and stakeholder groups, defining the problem is both a technical and a political process.

In practice, this means that wicked problems are not solvable in a traditional linear way. Understanding a wicked problem is best accomplished by trying different solutions. In so doing, one sees how different solutions change or reveal different aspects of the problem and thereby change one's understanding of the problem—which in turn

¹ See Jeff Conklin, *Dialogue Mapping: Building Shared Understanding of Wicked Problems* (New York: Wiley, 2005).

calls for new solutions—and so on, in an iterative process. Wicked problems are not so much solved as they are shaped, influenced, and changed over time. We stop engaging them when we have made enough progress, become engaged with different, more pressing problems, or simply run out of time, energy, or money.

Because we are human, the complexities of the problems we confront are intensified by the actual experience of grappling with them. Designers have captured this experience using Heidegger's concept of "thrownness." A fact of human existence, thrownness captures both the disorientation and the sense of possibility present in any situation calling for real change. Karl Weick defines "thrownness" as "always [being] in the middle of something, which means ... re-design, interruption, resumption, continuity, and recontextualizing."² Or as Kees Dorst puts it, thrownness is the "predicament of living in an unstable present."³ Living through and with our thrownness, then, calls for us to be resilient. Moreover, we have to work with each other to maintain our resilience, balancing competing interests, fears, anxieties, ideas, and visions for the future. With participatory methods and creative tools, design can provide a very effective path for fostering and sustaining resilience both individually and collectively.

RESILIENCE

In essence, resilience is both a characteristic of individuals and communities and a corresponding set of capabilities. The model that has informed my own work in communities is drawn from organizational psychology.⁴ According to this model, resilience has three key elements. First, it requires the "staunch acceptance of reality"—that is, the unswerving, courageous understanding and acceptance of what is actually going on in a given situation. Second, it requires a "strong belief that life is meaningful" in two senses: first, that the universe is not completely random or capricious—things happen for a reason; second, that the universe exhibits patterns of deep coherence and connection among seemingly disconnected events. Finally, and of the greatest relevance to the role of design in community change, is the "uncanny ability to improvise"—in other words, the

capacity to act in response to often rapidly changing situations while maintaining a sense of purpose and direction.

While these elements have been developed in the context of organizational change management, we can expand on them to create a framework for *community change design*. The first element, "staunch acceptance of reality," is critical because it keeps us from being too optimistic and ignoring or hoping away the tougher aspects of a situation. At the same time, staunchly accepting reality keeps us from being too pessimistic, ignoring the resources and opportunities that are inevitably available in even the direst of circumstances. Another key aspect of reality, from the standpoint of designing community change, is that a given reality is complex beyond the comprehension of a single observer. Reality supports multiple, sometimes even conflicting, interpretations and understandings. Given this, part of our role as designers is to help "complete" or more fully understand a given situation that we are engaging. This is why diversity is so critical to all collective design efforts. Diverse viewpoints and experiences provide us with a greater set of resources for understanding situations and for generating ways to move forward.

The second element of resilience is a capacity for finding meaning in situations—a capacity that derives from the ability to see one's experiences in a broader context and as serving a larger purpose. Doing so sustains the belief that our challenges serve a purpose and that we will emerge from them, perhaps even stronger than before. This is especially critical in the context of difficult community change. Too often we focus only on the technical or material aspects of our work and forget the values and commitments that have led us to do the work in the first place.

Finding meaning in a situation also involves being able to weave disparate elements into a coherent pattern or narrative. In order to have a clear picture

2. Karl Weick, "Designing for Thrownness," in *Managing as Designing* (Palo Alto: Stanford University Press, 2004), 74–79.

3. Kees Dorst, *Understanding Design* (New York: Gingko Press, 2007).

4. Diane L.outu, "How Resilience Works," *Harvard Business Review*, May, 2002, 47–55. Subsequent direct quotes all taken from this article.

of reality that we can engage, we have to be careful not to be overwhelmed by the sheer volume of “data” comprising that picture. We have to be able to articulate connections among enough key elements to actually effect change without taking on too much at one time. This is the only way to engage complexity that can otherwise easily outstrip our comprehension. It also helps protect against being deterred by the critique that our approaches are too incremental or not systemic enough.

RESILIENCE AND DESIGN

The third element of resilience, the “uncanny ability to improvise,” positions design as a key tool in community change, but also as essential to the personal and community resilience that makes sustained change possible. Seeing design as a key factor in constructive change is a natural extension of Herbert A. Simon’s canonical statement that the primary concern of design is to create “courses of action aimed at changing existing situations into preferred ones.”⁵ In the context of community change, Simon’s definition is intriguing not only because it defines design as a process of transformation, but also because it logically implies that design-driven transformation is a collective process. Transforming existing situations into preferred ones involves making choices, developing plans for putting those choices into action, and making adjustments as our plans impact people and situations.

Designers can be catalysts for community change in at least three different ways. First, designers (as in professionally credentialed or recognized designers) can design processes and goods *for* communities. They can, in effect, intervene in communities, defining problems and designing solutions on behalf of community members. Second, designers can actively work *with* community members to design processes and goods that bring about desired changes. This is the motivation and philosophy behind participatory design, for example. Designers still take the lead and facilitate the process, but

community members actively participate in the process. Finally, designers can make design tools and processes available to as many members of a community as possible, enabling them to create their own solutions to their own problems. Emily Pilloton has expressed this approach by framing design as the “new microloan.” In the same way that microloans provide capital to “enable future prosperity,” design, too, provides capital “in the form of tools that bring efficiency, productivity, and yes, even wealth.”⁶ Pilloton is getting at the fact that thinking about disparities only in terms of the “haves” and the “have nots” misses a critical point. We also need to think in terms of the “know hows” and the “don’t know hows.” Material resources are important to our communities, but it is equally important to know how to create and implement solutions to our problems. Knowing the corresponding mindset and attitude towards these problems goes along with this capability.

To facilitate this shift in mindset and capability, we need to bring design to communities at two levels. The first level involves teaching design skills, so that individuals can themselves actively understand their situations and develop responses that ameliorate problems and create new possibilities. A parallel, deeper level involves personal transformation and the development of new capabilities that make individuals better able to engage ongoing, emerging situations. In this way, designers can teach community members a new process for engaging change. As they learn to use the process, they develop a “designer’s mind” for engaging change.

COMMUNITY STUDIO

One example of a project that sought to bring design skills to a community was the Community Studio in Austin, Texas. The studio was both an actual project and a test case for how to leverage design for community change and resilience. The Community Studio was established in partnership with United Way Capital Area in Austin as an innovative approach to building the local community’s capacity for change and growth. The studio created an ongoing forum and creative space to explore and design community-based initiatives that addressed local issues. It was based on the premise that a great

5. Herbert A. Simon, *The Sciences of the Artificial*, 3rd Ed. (Cambridge: The MIT Press, 1996).

6. Emily Pilloton, “Project H Design (Anti)Manifesto: A Call To Action for Humanitarian (Product) Design”, April 2008, www.projecthdesign.com/manifesto.

way to build the capacity of our community leaders was to develop their ability to design change solutions—that is, to teach them to think about community problems as designers. The metaphor of the studio, then, highlighted the fact that we intended to create a different kind of space for community

The “design mind” requires us to believe that there is something to be done about a situation, a way to close the gap between how things are and how we hope they could be.

leadership. By introducing the idea of a studio, we wanted to emphasize that the process of change is messy, unpredictable, and iterative, but that it can be taught and directed towards amazing outcomes. After all, the studio is a focal point for extremely generative activities that focus creative energy to produce effective or useful outcomes. Those who participated in the Community Studio, therefore, would need to learn some of the same processes that yield new products, buildings, and business ventures and adapt those processes to bear on some of their most pressing community challenges.

The studio consisted of a series of monthly sessions that occurred over six consecutive months. Studio sessions were designed to harness the collective expertise and wisdom of all who participated. The goal was to elicit in the participants, through sustained, iterative, and exploratory work in the studio environment:

- *New, effective approaches to the community’s problems*
- *New modes of collaboration that might carry over into other community processes*
- *A new set of skills and corresponding innovative mindset that could help participants break out of the narrow “problem-solving” approach that seems to characterize much community change work*

While as many as 15 people participated in specific sessions, there was a core group of eight

who participated in the entire studio. Significantly, the participants were community leaders from a range of different backgrounds, with different (if overlapping) sets of professional and personal commitments. The actual Saturday studio sessions lasted three to four hours. They provided participants with opportunities to work on their ideas individually, workshop them with each other, and get feedback.

Each session also focused on a specific phase in the design process so that the participants could begin to think like designers. After an overview of design methods to orient them, participants practiced the following phases of the design process:

- *Problem/Situation Immersion—i.e., how to move beyond their own preconceptions and expert knowledge to discover and really understand the needs of the people they want to help*
- *Problem and Product Definition—i.e., how to frame a particular problem to be solved in light of what they have discovered in the immersion phase, and to create preliminary sketches of a solution or product*
- *Rapid Prototyping—i.e., how to refine their design by prototyping different versions of preliminary solutions with the help of their constituents*
- *Implementation—i.e., how to develop a plan to put their solution into practice with elements from business and project plans*

Because the design sessions were primarily opportunities for participants to actually work with each other on their designs, technical content was provided during a parallel series of workshops on the following topics including: The Design Process; Creativity and Innovation; Growing Networks and Relationships; Spreading Ideas; Communication and Persuasion; and Venture Planning.

In the end, the specific goal was for each participant to produce a rendering or example of the solution they had designed. This could be a model, website, video, toolkit, or picture. These projects were to be presented at a Community Design Fair held at the end of the studio. The purpose of the fair was to disseminate the ideas and seed potential collaborations. Participants were also to produce a venture or project plan for actually implementing the idea they had developed in the studio.

NEW CAPABILITIES: “DESIGN MIND”

Ultimately, the particular outcomes of the studio were not as important as the process of introducing the participants to a different way of engaging community challenges. Design encompasses a process, a set of capabilities, and perhaps most importantly, a way of engaging the world. It is this last element—designers’ engagement with the world—that I want to focus on in closing. I alluded to this notion above, in referring to design as a healthy response to our thrownness. Others who have written about design, and especially about making design available to non-designers, capture this notion in different ways. Daniel Pink, for example, gets at this point when he identifies a “designerly” or “designful” approach to the world as an essential element of what he calls that “whole new mind.”⁷ The engaged character of design is further illuminated by Pink’s definition of design in terms of “things” that are both useful *and* meaningful: useful in that they perform instrumental functions in realizing or promoting desired ends; meaningful in that they are consistent with our sense of order and beauty and our awareness of broader and deeper coherences in the world.

So, what are the particular ways of engaging that “thinking like a designer” can bring to the process of community change? The most important aspect of what might be called the designerly mind is a kind of disciplined openness, an openness with two main aspects. First, we must have a willingness to intelligently prototype. That is, as we engage challenges, we have to be willing to continually try new ideas and learn by doing. Rather than getting hung up on building a complete strategic plan before implementing any elements of the plan, appreciating the power of prototypes allows us to get to work on a problem immediately. The second aspect of openness involves receptivity to that which situations make available. So often when we are in a purely strategic mode, we not only ignore the real limitations presented by concrete situations, we also lose the ability to notice resources and possibilities that are inherent in the situation. This openness, then, leads us to cultivate the following elements of the “design mind”:

- *Systematic—spans boundaries and articulates subtle connections*

- *Participative—leverages diversity to blend sometimes disparate perspectives, talents, and ideas*
- *Oriented to emergence—nimble and adaptive, comfortable with ambiguity and thrownness*
- *Positive—Committed to the possibility of change and a willing to keep working through the difficult and scary passages that occur in any genuine process of change*

I want to close with this last element of the “design mind” because in light of the overwhelming challenges we face in our communities and in the world, it is the most important. Along with providing an amazingly productive set of skills, tools, and processes, perhaps the most important aspect of design is that it is fundamentally positive and forward-looking—critical and skeptical, yes, but skeptical in the interest of building things. We do not take on the challenge of design unless we really believe that there is something to be done about a situation, a better way to serve a group of people, a way to close the gap between how things are and how we hope they could be.

7. Daniel Pink, *A Whole New Mind: Why Right-Brainers Will Rule the Future* (New York: Riverhead Press, 2006).

“DESIGNED BY” VERSUS “MADE BY”: Two Approaches to Design-Based Social Entrepreneurship

Cynthia Lawson

The majority of the world’s designers focus all their efforts on developing products and services exclusively for the richest 10% of the world’s customers.¹

This finding represents a responsibility and an opportunity for individual designers, organizations such as Aid to Artisans,² and most recently, universities, to embark on projects through which they may create a positive impact on artisan communities in the areas of design, marketing, and business, with the principal goal of generating income via the sale of artisanal goods. Case studies, such as the Colombian and Indian design and craft projects documented by United Nations

Educational, Scientific, and Cultural Organization (UNESCO) have demonstrated that design can play “an important role in encouraging environmentally sustainable and economically viable models... of marginalized groups,”³ positioning it as a process and tool with which to promote social and economic development in underserved communities.

This article discusses “Made by” and “Designed by” approaches to design and social entrepreneurship initiatives in the developing world. The primary focus is an ongoing project that started as a collaboration between the global humanitarian organization CARE and The New School, in which students and faculty have been working with a group of Mayan women in Guatemala—Ajchem’a Loy’a—to help them develop a business model for exporting their handcrafted products to the United States.

1. Cooper-Hewitt National Design Museum, Design for the Other 90% website, <http://other90.cooperhewitt.org/>.

2. Aid to Artisans website, www.aidtoartisans.org.

3. Craft Revival Trust, *Artesanías de Colombia S.A.*, UNESCO, *Designers Meet Artisans: A Practical Guide*. Chicago: University of Chicago Press, 2005.

“MADE BY” VERSUS “DESIGNED BY”

The book *Designers Meet Artisans* documents several examples of the positive role design can play in artisan communities.⁴ It argues, however, that a community’s engagement with (or through) design is more likely to be sustainable if it is not imposed by an external person (creating a situation of dependency), but instead adopted as part of the artisan’s creative process.

The term “Made by” indicates a practice whereby designs from an industrialized country are executed in a low-wage manufacturing situation in

A community’s engagement with design is more likely to be sustainable if it is not imposed by an external person, but instead adopted as part of the artisan’s creative process.

a developing country.⁵ This model (adapted to an artisanal context) describes the underlying premise of projects like Cojolyá, an association in Santiago, Guatemala, that “provides weavers with threads and looms, design services, infrastructures, and the development of markets to promote sales.”⁶ Here, design is not an intrinsic part of the production process. Instead, it is a service that is given to the weavers by the organization’s designers, who impose (as opposed to collaborate on) designs, albeit ones inspired by the local culture and craft traditions.

In such a scenario, the artisans are limited to the mechanical role of making products by hand. The intended beneficiaries have relatively little input into decisions about what product is made, why it is made, and in what quantities. This model guarantees that what is produced aligns with current market trends and is thus more likely to sell. It is therefore appropriate for initiatives in which the priority is the generation of income and not necessarily education or culture preservation. If the goal is sustainable development, this method suffers from some critical defects: The artisans do not develop their skills beyond the physical, hands-on making

of the products; they are not learning about the market or the design industry; the artisans often receive a very small percentage of the profits; and they become dependent on the person or people playing the role of the designer, thereby compromising the self-sustainability of the project.⁷

There are two ways to approach the contrasting “Designed by” model. The first is exemplified by groups such as Artesanías de Colombia,⁸ which has been able to position originally designed handcrafts as desired products, accessories, and furnishings. In this development model, the design is inherent to the artisans’ traditions; it is not being transformed or adjusted to meet market needs. Instead, the overarching organization works to position these authentic designs as luxury goods through stores around the country, exports, and the internationally-known Colombian fair Expoartesanías.⁹ Incorporating local crafts with modern, minimalist furniture design has become the signature trait of Colombian interior designers, who have thus helped create a high-end local market—a rare phenomenon in other countries across Latin America, in which the great majority of craft sales are exported or sold to tourists.

In this first “Designed by” concept, artisans in developing countries are elevated to a new socio-economic position because they play a pivotal role in the design of the products (with the cooperation and advisement of a designer associated with the sponsoring social-entrepreneurial agency). This approach allows artisans to develop their own products and move up the value chain of design, rather than merely subsisting as manufacturers.¹⁰ When they are trained in the necessary skills (e.g., product design and development, business and

4. Craft Revival Trust.

5. Victor Margolin, “Design for Development: Towards a History,” *Design Studies*, 28, 2007, 111–115.

6. Cojolyá website, www.cojolya.org.

7. Fabiola Berdiel and Jaykumar Dehejia, “CARE/The New School Partnership Feasibility Study Summary,” Feasibility Study for CARE/The New School partnerships, The New School, 2007.

8. Artesanías de Colombia, www.artesantiasdecolombia.com.co.

9. Expoartesanías website, www.expoartesanias.com.

10. Craft Revival Trust.



FIGURE 1: A Guatemalan artisan participating in one of The New School's student-led design workshop—San Lucas Tolimán, Guatemala, summer 2008

organizational skills, and quality control), artisans have the opportunity to be creative in developing products that reflect their heritage while still appealing to external markets. The main goal is to increase exposure for the artisans, adding value to what they have produced for generations, in the hope of preserving their culture, heritage and traditional skills.

The case of Artesanías de Colombia represents an ideal in some respects. However, this model is not necessarily translatable to the context of a country such as Guatemala, in which the traditional techniques (e.g. back strap loom weaving) are of interest, but the designs themselves (e.g., the huipil, a traditional Mayan blouse) do not have sustainable markets. In this case, the “Designed by” model needs to be framed as a process through which the artisans learn to innovate new products by experimenting

with their traditional techniques while following design guidelines (in terms of form, color, and

quality) in order to create more marketable products (SEE FIGURE 1). This second approach to “Designed by” social entrepreneurship does, however, retain the overarching goal of helping artisans design their own products and move up the value chain of designers.¹¹ This approach to design-based sustainable development, moreover, can include “Marketed by” and “Managed by” components, in which artisans are trained in the skills and procedures of product design and development, business and organizational management, and quality control. This raises the likelihood of sustainable, income-generating success through the sale of the artisans’ goods.

THE NEW SCHOOL COLLABORATES¹²

The Design for the Other 90% exhibition website states that, “Of the world’s total population of 6.5 billion ... 90% have little or no access to most of the products and services many of us take for granted.”¹³ Motivated by this statistic, educational

11. Craft Revival Trust.

12. The New School Collaborates, www.thenewschoolcollaborates.com.

institutions have begun engaging students in collaborations aimed at reducing this “design divide.” There has been much engagement from the disciplines in the social sciences, particularly around economic and social development. Since at least the 1970s, designers have been encouraged to consider the potential positive impact of their work.¹⁴ Nevertheless, projects that approach the issue of development holistically and from various disciplinary perspectives at once are less common. One such effort has involved the creation of a cross-divisional and transdisciplinary faculty research group at The New School. The group studies socio-economic and urban development through design—in particular, the models of “Made by” and “Designed by” social entrepreneurship. The models are explored and analyzed in terms of their effectiveness in advancing the twin aims of sustainable development and cultural preservation.¹⁵

Students interested in participating in the project with the Mayan artisan weaver’s association Ajkem’a Loy’a in Guatemala take a spring course at the university that runs as a combined lecture series and seminar. The course ends with an intensive prototyping phase in which teams of students from New School divisions including Parsons, Milano, and General Studies apply what has been read and discussed to a real-world context, including the project in Guatemala. The lectures—offered by the core faculty and supplemented by domain experts from a variety of fields and institutions—focus on teaching and learning in informal settings; using digital media to communicate, represent, and motivate; microcredit and financing; marketing; fundraising; and urban development.

Central to the course’s pedagogy is the demystification of the universal expert—the idea that a single person may have an answer to every question—in

order to establish an equal field of questions, skills, and knowledge in which all participants (faculty, students, and community collaborators alike) can contribute and learn (SEE FIGURE 2). This approach has yielded a successful learning experience for students,



FIGURE 2: A New School student leading a patternmaking workshop for Ajkem’a Loy’a—San Lucas Tolimán, Guatemala, summer 2008

whose course evaluations and project debriefings often celebrate their participation in the project. As one summer 2009 participant put it in an anonymous post-fieldwork evaluation, “I think that I learned more than I ever could in a class and I have formulated opinions and ideas that I believe I could only have made through this experience.”

This positioning of students as active agents of their own education helps prepare them to facilitate the capacity-building aspect of the summer project (during which time they travel to Guatemala for up to two months). Students prepare and conduct

13. Cooper-Hewitt National Design Museum, p. 1.

14. Victor Papanek, *Design for the Real World: Human Ecology and Social Change*, 2nd ed. (Chicago: Academy Chicago Publishers, 1985); 1st ed., 1971.

15. The case study referenced here was organized and conducted by the author along with Fabiola Berdiel, J. Erin Cho, Jaykumar Dehejia, Alice Demirjian, Pascale Gatzen, Mark Johnson, Edwin Torres and Tatiana Wah; the 27 students who traveled to Guatemala in summers 2008 and 2009; and the members of the Mayan weaver associations Ajkem’a Loy’a and Ixquui A’j Ru Xel Kiem.

ice-breaker activities that promote trust and teamwork; specific skill-based workshops in product pricing, sewing, patternmaking, and computers; and discussion-based activities that cover running an organization, managing inventory, and so on. This hands-on intensive approach requires students to quickly translate theory (from the spring class and previous training) into practice. The class becomes a situation in the real world, in which the students are playing a critical role.

The first faculty-student trip to Guatemala took place in 2008, for the summer program in San Lucas Tolimán. During the first two weeks, students from across The New School ran capacity-building workshops focused on skills in the areas of business, marketing, and design. Teams of students led workshops in work-time valuation, pricing, inventory, quality control, the association's organization, new product development, patternmaking, sewing, marketing, computers, and English. The goal of the workshops was to introduce the members of the Mayan women's group to all the elements essential to running a sustainable income-generating organization. A final evaluation of the month-long collaboration indicated that substantive, active learning had occurred in at least eight areas: work-time valuation, inventory, quality control, new product development, patternmaking, sewing, computers, and English. In three of the areas (pricing, marketing, and the association's organization), the evaluation demonstrated some learning, but with a need for further instruction.¹⁶ Furthermore, although the project was initially focused on developing a "Designed by" model (in which the weavers eventually acquire all the skills needed for a sustainable enterprise), the faculty recommended continuing the collaboration under its original stated goals, while at the same time engaging in a pilot "Made by" model. Although initially resistant to this latter approach, faculty advisors observed during the project that training the artisans to be designers would entail a much longer process than they had originally anticipated. Therefore, the faculty advisors decided to test the hypothesis that making, under the supervision of a professional designer, could more quickly enhance the artisans' skills and facilitate their training towards becoming more effective makers *and* designers.

A grant from the Amsterdam-based arts organization W139¹⁷ has supported further work between two Parsons faculty members and the women of Ajkem'a Loy'a. This yearlong project, initiated in December 2008, is clearly framed within the "Made by" model: One of the faculty members is working

The "Designed by" approach allows artisans to develop their own products and move up the value chain of design, rather than merely subsisting as manufacturers.

with the women on weaving experimentation with the goal of designing a two-piece outfit, of which the association agreed to produce 139, to be purchased at a higher-than-fair-trade price. Although the number of garments has recently been reduced because of the collaboration's challenges, it has already yielded observable positive outcomes: The Mayan women are being paid 1.5 times the fair wage calculated for Guatemala; the "design expert," in this case a Parsons faculty member, has been able to engage the women, through their own craft, in weaving experimentation to which the artisans had previously never been exposed; and the artisans have been able to develop new design variations on their own products (putting the summer 2008 workshops into practice). This is consistent with a shift exhibited by Sop Moei Arts in Thailand: After several years of working on designs provided to them, artisans started to innovate their own product variations.¹⁸

In summer 2009 a new team of students from Parsons, Milano, and International Affairs traveled

16. Cynthia Lawson, "The New School, CARE & Ajkem'a Loy'a: A Case Study in Learning in Intensive and Immersive Global Programs and in Cross-Cultural and Bilingual Collaborative Work," conference presentation, Global Interactions in Design Education 2008, Online and Rensselaer Polytechnic Institute.

17. W139 website, <http://w139.nl>.

18. Carolyn Jongeward, "A Search for Sustainable Livelihoods Within Global Marketplaces: Stories of Learning and Change Among Rural Artisans in Thailand," in CASAE-ACÉEA National Conference 2001—Twentieth Anniversary Proceedings.



FIGURE 3: A new scarf design by Ajkem'a Loy'a—San Lucas Tolimán, Guatemala, summer 2009

with faculty advisors to Guatemala to continue the project New School Collaborates: Guatemala. This time half of the group worked on developing new collaborations and partnerships with new artisan groups in other Guatemalan towns, while the other half followed up on the work with Ajkem'a Loy'a in San Lucas Tolimán from the previous year. This latter group observed a change in two principal aspects of the association's work. First, the summer 2009 design team observed that women in the group have begun to see themselves as designers and are now better able to describe the creative experiments they are engaged in with their weaving (SEE FIGURE 3). On July, 16, 2009, one of the students illustrated this change on the project's blog:

We began our work with Ajkem'a Loy'a by introducing a series of "inspiration" images for them to look at. Each of the women selected a few of their favorites, explained to us why they chose them, and began experimenting with their weaving, using the images as "reference." The outcome was very pleasing: each of the women explained what elements they used from the images in their weaving (most of whom were initially attracted to the colors). Mayda, drawing inspiration from a picture of the ocean, not only incorporated colors from it, but also created a dotted pattern in her weave that represented the rocks underneath the water. Those of which were closer to the surface and thus received more sunlight were translated into brighter yellow dots in her weave, while the other rocks further from the ocean's surface were more subdued in her design.

The second major change is in how the association works as a group. Interestingly, they did not adopt the proposed horizontal model for their roles and functions, yet they have been able to strengthen their group work. They are clearly well positioned to take on larger responsibilities as a group, as there is a clear and shared understanding of the various tasks and roles involved in running the association.

These two major changes led this year's group of students to focus on preparing Ajkem'a Loy'a to begin exporting their goods (the long-term goal around which the collaboration had been established). A team of students prepared and led an exporting workshop, which was divided into three parts. The first focused on what needs to be in place before exporting begins, including high quality products, a communications plan, and a structure of specific roles for carrying out the various operational aspects of the organization. The second addressed the development of a print or online product catalog, and the third focused on receiving and fulfilling an order. Summer 2009 culminated with the definition of a product line that will now be test-marketed in New York City as the first phase of a wider import strategy.

CONCLUSIONS

The New School Collaborates: Guatemala is just one of many recent projects that shed light on the important role design can play in social entrepreneurship initiatives. In theory, a "Designed by" model is more likely to lead to ongoing sustainable development, but in practice the challenges of working with artisans of very different educational levels and cultural backgrounds can lead to serious problems of implementation.¹⁹ The New School research group's experience in Guatemala suggests that short-term "Made by" initiatives can actually help pave the way for more ambitious "Designed by" development models, since they present opportunities to put into practice design skills and concepts that are not easily integrated via workshops alone. Thus, with some artisan communities, a combination of the two models may be the optimal means of promoting design-based sustainable development.

¹⁹. See Jongeward, 5.

SECTION 3: EDUCATIONAL INITIATIVES

SUSTAINABLE PRODUCT DESIGN: Balancing Local Techniques and Holistic Constraints Through Innovative Curricula

Gavin Melles, Ian de Vere,
Kate Bisset Johnson, and
Mark Strachan

SUSTAINABILITY AND INDUSTRIAL DESIGN

Concern about “sustainability” is becoming ubiquitous in many domains of life. First emerging in the 1970s, the term quickly spread from ecology to economics and other areas to become a new global philosophy.¹ Today, the concept of “sustainability” is used in such varying contexts that it has been suggested that any generic meaning is impossible.² Thus, in areas such as economic development, it tends to be a catchall term for a range of phenomena.³ Despite this semantic ambiguity, the term continues to flag lifestyle choices pursued without

1. The first printed use has sometimes been attributed to Edward Goldsmith, et. al., *Blueprint for Survival* (New York: New American Library, 1972).

2. M. Gatto, “Sustainability: Is it a Well Defined Concept?” *Ecological Applications* 5 no. 4, 1995, 1181–83; R. Shearman, “The Meaning and Ethics of Sustainability,” *Environmental Management* 14 no. 1, 1990, 1–8.

3. D. Mebratu, “Sustainability and Sustainable Development: Historical and Conceptual Review,” *Environmental Impact Assessment Review* 18 no. 6, 1998, 493–520; R. N. Stavins, A. F. Wagner, and G. Wagner, “Interpreting Sustainability in Economic Terms: Dynamic Efficiency plus Intergenerational Equity,” *Economics Letters* 79 no. 3, 2003, 339–43.

regard for long-term environmental and socio-economic consequences.⁴ Sustainability agendas and education in design fields sometimes consider the broader domains of socio-economic and human concerns, while others are more narrowly focused on specific design processes. Birkeland, for example, focuses on integrated systems design—eco-solutions that encompass social, political, and economic factors and that radically reduce resource use while increasing health, equity, and life quality.⁵

In the areas of industrial and product design, many proposals have been made for both narrow and wide-ranging approaches to the discipline. Some of these are considered in the next section.

Although less well-known in the United States than in Europe,⁶ industrial ecology (IE) offers a broad ethical and moral paradigm linking product design with sustainable economies and human interests.⁷ Ehrenfeld notes that to “design within this concept ... it is important that the economic and material linkages within societies be identified, understood, and modified to reduce the withdrawals of energy and materials from the natural stock and the disposal of wastes back into the environment.”⁸ Such a broad platform, together with more pragmatic criteria such as Life Cycle Design—in which considerations about product manufacture, sale, and use throughout the life of a product are identified and then integrated into the design process—provide a rationale for more specific instrumental design approaches linked to product design processes.⁹ For example, Denmark supported the development of the Environmental Design of Industrial Products (EDIP) Assessment Process, which is now widely used to measure the environmental impacts of product development processes. Companies working with the tools claim to have realized a 30–50 percent environmental improvement of products over the past few years.¹⁰

SUSTAINABLE PRODUCT DESIGN IN HIGHER EDUCATION

Higher education has a key role to play in developing knowledge and practices around sustainability.¹¹ However, the varied meanings of the term and its application to a range of academic disciplines have led to some confusion;¹² this is true for individual

teachers as much as for institutions as a whole.¹³ In engineering, for example, attempts have been made to incorporate sustainability into the agenda for education in the field, particularly in relation to materials and resource use.¹⁴ However, revision of the engineering curriculum in this direction remains a challenge.¹⁵

In industrial design education, by contrast, perhaps because of its more directly social and humanistic foundations, it seems that more progress has been made. At the Politecnico di Milano, for example, a range of transdisciplinary projects and tools have been developed and are being delivered through a dedicated research and education center.¹⁶

4. S. V. Ryn and S. Cowan, *Ecological design* 10th anniversary ed., (Washington, D.C.: Island Press, 2007); P. F. Smith, *Architecture in a Climate of Change: A Guide to Sustainable Design* 2nd ed., (Oxford/Boston: Elsevier/Architectural Press, 2005); S. Walker, *Sustainable by design: explorations in theory and practice* (Sterling, VA: Earthscan, 2006).

5. J. Birkeland, *Design for Sustainability: A Sourcebook of Integrated, Ecological Solutions* (Sterling, VA: Earthscan, 2002).

6. R. Isenmann, “Further Efforts to Clarify Industrial Ecology’s Hidden Philosophy of Nature,” *Journal of Industrial Ecology* 6 nos. 3–4, 2002, 27–48.

7. J. R. Ehrenfeld, “Industrial Ecology: A Framework for Product and Process Design,” *Journal of Cleaner Production* 5 nos. 1–2, 1997, 87–95; T. E. Graedel and B. R. Allenby, *Industrial ecology*, 2nd ed. (Upper Saddle River, NJ: Prentice Hall, 2003).

8. Ehrenfeld, 90.

9. E. Jones, D. Harrison, and J. McLaren, “Managing Creative Eco-innovation—Structuring Outputs from Eco-innovation projects,” *The Journal of Sustainable Product Design* 1, 2001, 27–39.

10. M. Hauschild, H. Wenzel and L. Alting, “Life Cycle Design—A Route to the Sustainable Industrial Culture?” *CIRP Annals—Manufacturing Technology* 48 no. 1, 1999, 393–96.

11. S. Sterling, “Higher Education, Sustainability, and the Role of Systemic Learning,” *Higher Education and the Challenge of Sustainability* (Netherlands: Springer Verlag, 2004), 49–70.

12. W. L. Filho, “Dealing with misconceptions on the concept of sustainability,” *International Journal of Sustainability in Higher Education* 1 no. 1, 2000, 9–19.

13. L. Elshof, “Teacher’s Interpretation of Sustainable Development,” *International Journal of Technology and Design Education* 15 no. 2, 2005, 173–86.

14. S. Perdan, A. Azapagic, and R. Clift, “Teaching Sustainable Development to Engineering Students,” *International Journal of Sustainability in Higher Education* 1 no. 3, 2000, 267–79.

15. D.J. Peet, K.F. Mulder, and A. Bijma, “Integrating SD into Engineering Courses at the Delft University of Technology,” *International Journal of Sustainability in Higher Education* 5 no. 3, 2004, 278–88.

16. C. Vezzoli, “A New Generation of Designers: Perspectives for Education and Training in the Field of Sustainable Design—Experiences and Projects at the Politecnico di Milano University,” *Journal of Cleaner Production* 11 no. 1, 2003, 1–9.

At Delft University's Industrial Design Engineering program (IDE), an institution with a history of sustainability in education, Boks and Diehl claim that "authenticity" in terms of product briefs and processes is important to engaging students in sustainability issues.¹⁷ In Australia, meanwhile,

Linking ecodesign strategies to imagined personas highlights the connection between the physical aspects of ecologically sensitive industrial design and the end user.

sustainability has made it onto the agenda of most industrial and product design curricula, although with some limitations in scope. Ramirez, for example, found that while sustainable development issues factor into many industrial design courses in Australia, environmental sensitivity at the curricular level—and among design academics as a group—remains variable in degree of depth and application.¹⁸

A similar variation in the level of understanding and application applies to the design faculty at Swinburne University. However, a move to consider the broader agenda of sustainable design practices, consistent with the recently endorsed Kyoto Design Declaration,¹⁹ is now developing in the faculty and in the curriculum. This new trend has been reinforced by several staff members, who are undertaking professional development in sustainability at the recently established National Centre for Sustainability.²⁰ It is particularly in the areas of industrial and product design where consideration of sustainability on both local and global levels has been developed.

SUSTAINABLE INDUSTRIAL DESIGN AT SWINBURNE UNIVERSITY, AUSTRALIA

Similar to many other institutions, Swinburne University of Technology in Australia has taken up the challenge of integrating sustainability into design education in both its industrial design and

product design engineering degrees. Whereas sustainable design is integrated into all areas of the Swinburne design curriculum, this article examines three distinct areas of activity. First, the industrial design experience includes intensive inter-university workshops through Swinburne's participation in the Victorian Eco-Innovation Lab (VEIL), which seeks to promote strategies and products supporting sustainable living scenarios. This engagement with government-funded agencies is critical to the focus and vitality of the sustainability education program. Second, the Product Design Engineering study tracks the progress of these transdisciplinary students in this new engineering curriculum, as sustainable methods are embedded into the students' experience, from initial awareness to expertise in practice. These engineering students are taught to apply a "cradle-to-cradle"²¹ sensibility with a high degree of social awareness, and to develop appropriate product designs and engineering solutions. Third, many undergraduate programs within the Faculty of Design, including industrial design, interior design, and several double-degree design/business programs, require students to take Design Systems and Services, a course that aims to provide a strong foundation in both theory and practice, focusing principally on sustainability themes and issues.

These three examples, described in greater detail below, represent a cross-section of current pedagogical activity, and also suggest strategic directions for the further development of sustainability-oriented curricula. In some cases, such as the VEIL example, projects arise out of the university's participation in government-funded research projects. In the case of product design engineering, sustainability is promoted through transdisciplinary collaboration between the faculties of design and engineering, an

17. C. Boks and J. C. Diehl, "Integration of Sustainability in Regular Courses: Experiences in Industrial Design Engineering," *Journal of Cleaner Production* 14 nos. 9–11, 2006, 932–39.

18. M. Ramirez, "Sustainability in the Education of Industrial Designers: The Case for Australia," *International Journal of Sustainability in Higher Education* 7 no. 2, 2006, 189–202.

19. See www.designer.com/design_news/kyoto-design-declaration-2008.html.

20. See www.swinburne.edu.au/ncs/sustainability.html.

21. See W. McDonough and M. Braungart, *Cradle to Cradle: Remaking the Way We Make Things* (New York: North Point Press, 2002).

encounter that can engender its own challenges in developing the sustainability agenda. The pedagogical goal is to impart to undergraduates understandings and practices that are achievable for industrial and product design, but that simultaneously respond to broader constraints and principles. A longer-term aim is to encourage students to innovate outside the framework of existing product profiles by considering the broader concerns of industrial ecology and sustainability. We cannot claim, yet, to have achieved this balance of short- and long-term considerations in the student experience, but we do believe that we have made significant progress.

EXAMPLE 1: TECHNOLOGY AND SUSTAINABLE LIVING IN 2017—INDUSTRIAL DESIGN, SWINBURNE UNIVERSITY

The Victoria Eco-Innovation Lab (VEIL) is funded by the Victorian government as part of its Sustainability Action Statement of 2006.²² VEIL is a project of the Australian Centre for Science, Innovation, and Society at the University of Melbourne. As part of its agenda to raise sustainability awareness and education in Victorian universities, VEIL promulgated an transdisciplinary design brief for an “Eco-business District” (EBD), to be developed on a disused rail site close to the central business district of Melbourne.²³ This site will not be available for use for some years, and so it provides scope for imagining and prototyping developments in sustainable lifestyles for the not-too-distant future.

During several intensive workshops with expert guest speakers, faculty members from several Melbourne universities collaborated to develop an interconnected series of design briefs for students in architecture, industrial design, urban planning, and graphic design.²⁴ The result was the development of three possible scenarios for living in an “eco-city”

within a broader urban context, each of which makes use of varying levels of technology and input by the individual in order to live more sustainably.

Sustainable Living Scenario 1

“Shared”: Facilitated by spatial arrangement of apartments, and by personal contribution and commitment (high level of behavior change required)

Sustainable Living Scenario 2

“Self contained”: Facilitated by technology-driven sustainable lifestyles (e.g. limited water and energy provision, and low-energy appliances)

Sustainable Living Scenario 3

“Highly serviced”: Delivered by services—hence little private ownership; facilitated by access to services and spatial arrangement

These three sustainable living scenarios were overlaid with four common domestic tasks: cooking, cleaning, gardening and food production, and leisure. These activities were explored using a variant of the Context Mapping technique²⁵ in order, first, to understand the user context for current products, and second, to fully conceptualize the opportunities for future design interventions. The objective was to get students to imagine a future where inhabitants of an eco-city might, for instance, collaborate in cooking, rent the equipment for maintaining a community garden, make the best use of limited water availability, or share a static-charged dust collector.

We had around 65 students working on this project and the outcomes varied widely. Some of the projects involved development of energy-efficient heating and cooking using induction technology, which wastes less energy than conventional electric cooking. Some projects explored products that could be shared, especially those that are used only intermittently, thereby maximizing the hours per week that the products would be in use. Still other projects considered harnessing the wind to dry clothes in a secure communal space, rain or shine, thus doing away with tumble dryers (SEE FIGURE 1).

These students had previously been exposed to eco-design strategies, including the Ten Golden Rules,²⁶ so the product proposals themselves were strongly driven by criteria such as eco-friendly

22. See www.ecoinnovationlab.com/.

23. See www.ecoinnovationlab.com/ebd.

24. C. Ryan, “Eco-lab Part 1: A Jump Towards Sustainability,” *Journal of Industrial Ecology* 5 no. 3, 2002, 9–12.

25. F. S. Visser, P. J. Stappers, R. Van Lugt, and E. B. Sanders, “Context Mapping: experiences from practice,” *CoDesign* 1 no. 2, 2005, 119–49.



FIGURE 1: Breezeway Clothes Dryer

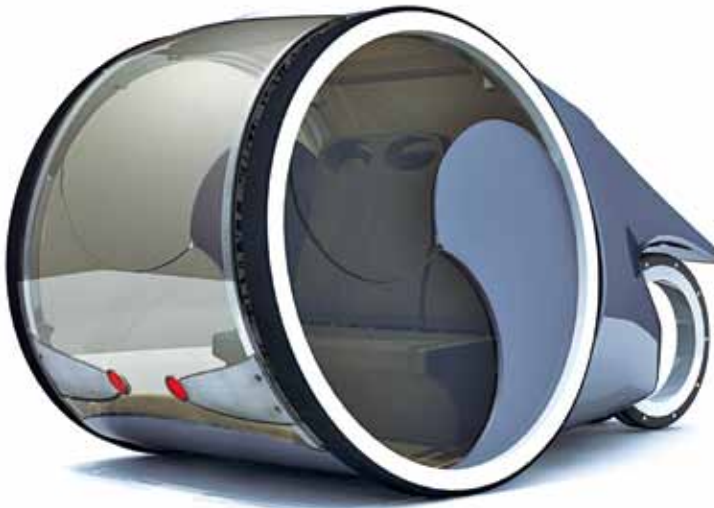


FIGURE 2: 2020 urban vehicle concept utilizing a carbon-free propulsion system

materials selection, embodied energy and energy in use, and product build strategies such as design for disassembly and upgradability. These were explored by using the mapping aspects of the LIDS eco evaluation wheel.²⁷ By linking these strategies to imagined personas, the connection between the physical aspects of ecologically sensitive industrial design and the end user was highlighted.

Integrating sustainable thinking into this project presented several challenges. First, students found it difficult to imagine different lifestyles; in particular, they found it hard to envisage a low-carbon way of living. They needed to spend some time investigating what “low-carbon” might mean and relating this in turn to how people might live. Envisaging a product was generally not difficult, but developing an understanding of how a product might fit into a bigger picture of production and waste proved more challenging. Students had a tendency to see their stand-alone concept as the total solution, but this project required them to describe how their product could contribute to a total system of sustainable living at the eco-city site, including the end users and the wider community. Student designers confronted issues such as how users may access products, other than through ownership, and how this might influence the design of the product, its interface, security features, preference settings, and level of user care and responsibility. The biggest challenge for this project was probably the inability to undertake real participatory research with real stakeholders. On the other hand, its speculative nature also freed students to design without regard to current constraints, enabling them to imagine a diversity of lifestyles and a wider range of product solutions than might otherwise have been possible.

26. C. Luttrupp and J. Lagerstedt, “EcoDesign and The Ten Golden Rules: Generic Advice for Merging Environmental Aspects into Product Development,” *Journal of Cleaner Production* 14, 2006, 1396–1408.

27. E. Jones, N. A. Stanton, and D. Harrison, “Applying Structured Methods to Eco-innovation—An Evaluation of the Product Ideas Tree Diagram,” *Design Studies* 22 no. 6, 2001, 519–42.

28. See www.environment-agency.gov.uk/business/topics/waste/32084.aspx.

29. See www.worldvision.com.au/Home.aspx.

EXAMPLE 2: PRODUCT DESIGN ENGINEERING AND SUSTAINABLE DESIGN OUTCOMES

The Swinburne Product Design Engineering (PDE) program integrates two disparate professions—industrial design and mechanical engineering—thereby seeking to develop a new kind of engineering designer. Swinburne PDE addresses sustainability in the curriculum through a multifaceted approach that starts in the second year of studies with training in sustainable design and a sustainable design project. Students are introduced to design ethics, the principles of sustainability, and eco-design methods such as Life Cycle Analysis. One specific project requires students to research the electronics industry, understand the implications of domestic e-waste, and then develop environmentally sustainable communication devices that meet the Waste Electrical and Electronic Equipment (WEEE) directive.²⁸ Environmental design tools must be utilized at an early concept stage, so that ecodesign is systematically integrated in the student projects. Moreover, the “purpose” of the device must also be sustainable—that is, devices that fail to respond to a genuine need are discouraged. Final design outcomes must be validated through Life Cycle Analysis and a projected “end of life” scenario, and are then assessed against eco-design principles.

Following this initial project, all subsequent design project outcomes must adhere to sustainable design and materials selection principles. Manufacturing processes and product impact must be addressed through appropriate design strategies, which include cultural, economic, and environmental sensitivity. Students are required to embrace a “cradle-to-cradle” philosophy that employs low-impact materials and processes; considers energy usage, embedded energy, resource renewability, and biomimicry; and utilizes design for disassembly to facilitate reuse or recycling.

As students progress through the curriculum, they are challenged to further develop their awareness by applying sustainable design principles to all their design and engineering outcomes. Project examples include the third-year social-responsibility module, in which students are challenged to develop real-world scenarios provided by the relief agency World Vision Australia²⁹ with appropriate and

sustainable design solutions that address health-care and infrastructure problems in developing nations; and the fourth-year transportation project, in which students investigate alternate commuter transportation systems utilizing low-carbon power sources, shared ownership, closed-loop energy solutions, and alternative materials and manufacturing technologies. These products all address “triple-bottom-line” accounting criteria, and serve to foster a responsible, appropriate, and sustainable approach to product design (SEE FIGURE 2).

The Melbourne Transport Strategy³⁰ identified three interrelated problems associated with transportation in and around Melbourne: poor public transport, car dependence, and traffic congestion. Private car ownership and car dependence have resulted in traffic congestion of our inner cities; suburban sprawl; and increased vehicle emissions that contribute to greenhouse gas levels, which hasten climate change. Improved public transport remains the most effective long-term solution, but capital expenditure on infrastructure would not be sufficient to alleviate the problem in the near term, and many commuters still demand an “independent” transport experience.

In the 2020 urban vehicle project brief, students were required to examine personal transport issues and to respond with a sustainable transport solu-

Swinburne students are required to embrace a “cradle-to-cradle” philosophy that employs low-impact materials and processes; considers energy usage, embedded energy, resource renewability, and biomimicry; and utilizes design for disassembly to facilitate reuse or recycling.

tion—specifically, a shared-ownership fleet vehicle with a low-carbon footprint power supply using renewable energy. The carbon footprint was defined not just by the vehicle’s usage, but also by the original means of energy generation; thus, electric cars

deriving their power from coal-burning power stations, for example, were not considered appropriate. In this connection the re-charging infrastructure was also examined, with students encouraged to work toward closed-loop solutions. Solar and wind power were harnessed to support transportation solutions that utilized alternative power sources, including electric, hydrogen fuel cell, and compressed air to power individual vehicles. Technology advancements as well as future commuter expectations were considered in design solutions that integrated life-cycle and cradle-to-cradle considerations from the outset.

Many of the most appropriate sustainable solutions rely on emergent technologies that are not yet commercialized. While this can be a barrier to product conceptualization and development, it is crucial that students and designers seek to integrate these new materials and systems, thereby contributing to the momentum required for technology realization.

Product specifications can lead to performance, manufacturing, or material properties that do not exist or are in their development infancy. Specification demands of a product can drive technological development through the realization of new markets and the transference of technologies from other industries. Setting advanced product performance criteria or parameters can lead to innovation, new solutions, and accelerated development. Hybrid drive systems, integrated photovoltaics, solar-powered hydrogen stations for vehicle refueling, piezoelectric crystals, and energy-efficient LED lighting are all examples of advances in green, eco-technologies that would not have occurred without market/product demand. Unsustainable technologies, materials, and processes must be replaced with appropriate eco-technologies. Designers can contribute to the development process by creating demand and establishing performance criteria for the successful appropriation of the technology in addressing market needs.

But while product realization requirements can drive technology development (a dynamic of special relevance in the area of sustainable design, which urgently needs new

³⁰ G. Currie, *Melbourne Future Transport Options: Final Report*, Institute of Transport Studies, The Australian Key Centre in Transport Management Department of Civil Engineering Building 60, Monash University Vic 3800, Australia, 2005.

and innovative solutions to replace unsustainable practices), leading students to present product design solutions based on the utilization of unproven technologies or materials poses serious pedagogical challenges. Both academic staff and external industry assessors may struggle to fully appreciate

The overall intent is to challenge conventional thinking and engage in holistic user-centered approaches, seeking innovations that deliver improved ecological performance and support sustainable practices.

or evaluate a student design based on an emerging technology, as its performance parameters or implementation criteria may not yet be known or clearly defined. The involvement of practicing designers and manufacturing professionals is invaluable to the learning process. However, industry generally seeks measurements against known criteria, and can be skeptical of designs that are highly conceptual or speculative or that cannot be “proven” or measured against known technological parameters. Regardless of this difficulty, it is important that students seek to produce innovative solutions and embrace new technology and materials.

EXAMPLE 3: SUSTAINABLE SYSTEMS AND SERVICES

Beginning in their second year, our industrial design students are introduced to concepts of sustainability and the principles of ecologically sustainable design through a range of Design for Environment (DfE) philosophies and strategies. In their Sustainable Environment studio, for example, students investigate product design in relation to environmental issues such as climate change and environmental degradation. Inherent in this approach is the embracing of the Product System Service (PSS) paradigm,³¹ which embeds the future product in its systemic context and considers the services needed to maintain the product. This systems approach is

further developed in the fourth year and beyond, as students move into more research-intensive courses. Combined research and design studios address the designer’s responsibility to the environment as well as the broader context of contemporary issues, including the social dynamics of shifting demographics and emerging technologies.

Now in its third year of delivery to some 360 students per year, the third-year Design Systems and Services course is a transdisciplinary, team-based studio. By looking ahead to 2032 and explicitly addressing the agenda provided by the Victoria Eco-Innovation Lab (VEIL), students engage in design thinking and processes that are intended to give rise to radical eco-innovation. The work they engage in includes systems thinking, persona creation, user journeys, scenario enactments, multifaceted mappings, and visualizations that demonstrate systems and services. The overall intent is to challenge conventional thinking and engage in holistic user-centered approaches, seeking innovations that deliver improved ecological performance and support sustainable practices. From 2003 to 2007, Melbourne 2030 (the Victorian government’s strategic planning policy framework for the metropolitan area of Greater Melbourne) was used as the background to frame the students’ studies. The themes of increasing urbanization and an aging society became integral to their research and subsequent project outcomes. Other major themes, including tourism, work, water, and the St Kilda Light Railway have also been addressed.

New design methodologies such as DfE and PSS demand that we recognize and question the assumptions that have traditionally informed design processes. Most importantly, it demands that we challenge orthodox pedagogical approaches in a bid to equip students with the necessary skills to make a significant contribution toward a sustainable future. When developing new design curricula that address sustainability, it is important to determine the overall intent and context of the studio or module and to acknowledge that the outcomes will not necessarily result in conventional conclusions.

An appropriate project for pressing clothes, for example, could specifically address the design of

³¹ N. Morelli, “Developing New Product Service Systems (PSS): Methodologies and Operational Tools,” *Journal of Cleaner Production* 14 no. 17, 2006, 1495–1501.



FIGURE 3: Reducing evaporation from farm water storages

a more efficient domestic iron that uses less energy, adopts new heating or material technology, performs the task more quickly, uses fewer materials, and is readily repairable and recyclable. These criteria are valid in terms of sustainability and they also provide pertinent and valuable lessons in product design and development. They also meet expectations in terms of economic rationalism and relevancy to established paradigms of thinking. However, if we do not address the reason why we actually need the pressed clothes in the first place, then we are doing society—and the environment—a disservice.

More radical, innovative outcomes that make substantial sustainable gains require a concerted approach. Understanding the social drivers behind the process of clothes management, for example, could give rise to alternative outcomes, such as garments that don't require ironing, new methods of pressing clothes, or service-based solutions. At the same time, this investigation into social drivers tackles the values and assumptions that determine

widespread expectations regarding ironed clothes. This could result in possible systemic alternatives to the unsustainable status quo.

DISCUSSION

While there is much more work to do in improving sustainability in industrial and product design curricula, the techniques and practices students learn at Swinburne's PDE program have also helped develop a platform for some students to pursue larger-scale research projects. One student, for example, embraced the theme of water during his fourth-year honors studies, which led to a yearlong industrial design masters project investigating solutions for an environmentally friendly monolayer-based evaporation mitigation system (SEE FIGURE 3).

This project, in turn, has led the student to doctoral research as part of a public/private Cooperative Research Centre addressing irrigation futures. There, he has been developing commercial systems

for the application and management of chemical monolayers consisting of cetyl alcohol. They are designed to reduce evaporation from farm water storage systems, reservoirs, and irrigation channels.³² This is one example of the continuing influence of sustainability-based approaches and techniques at the undergraduate level.

Despite the fact that much remains to be done, sustainable design in the industrial design curriculum is making some headway in higher education, particularly in Australia. Industrial and product design, in particular, allow for the material production of sustainable products to be embedded in a systemic and holistic environment of product life-cycle concerns and assessment. Appropriate project environments allow students to generate innovative outcomes and, in some cases, further develop their ideas as they proceed to higher-level studies. Project outcomes reflect local (Australian) concerns and global considerations of sustainability in both material selection and the other solutions proposed, whether for reducing evaporation, sharing tools and facilities, or reducing carbon footprints. These projects allow students to engage with the sustainability agenda while teaching a generation of designers to develop design thinking and practices consistent with the challenges of 21st century and beyond.

As noted above, Swinburne's PDE program leads students through a range of design-specific approaches, tools, and techniques (including PSS, LCA, LIDS) in order to encourage the development of product designs that respond to broader plans and constraints. Some projects achieve results with commercial potential, while others respond more imaginatively or speculatively to future environmental scenarios. The danger, clearly, is that the tools and techniques and their implementation in the context of specific projects obscure the broader message about sustainability and the search for innovative alternatives. Thus, for example, many of the projects discussed in this article do not innovate in the sense of radical new product design, but rather aim to modify existing products and systems. On the other hand, some projects build on "social" propositions such as shared ownership, which do

challenge existing cultural norms in developed industrialized countries.

32. See www.irrigation-futures.org.au/contacts.asp?cntID=12606.

DESIGN FOR SUSTAINABLE DEVELOPMENT:

Examples from Designmatters at Art Center College of Design

Mariana Amatullo

INTRODUCTION

The Kyoto Design Declaration represents a statement of commitment by the members of Cumulus for “building sustainable, human-centered, creative societies.”¹ With both urgency and optimism, the document sets forth a sentiment of shared responsibility to adopt a value system and collaborative framework that provides the skills with which the next generation of designers can be empowered to confront change in the face of an ever-evolving global environment. This will also enable designers to assume new leadership roles in developing solutions that will lead to a more equitable and sustainable future. Coming from a global network of art and design educators, this is a highly significant call to action that indicates a groundswell in the design community towards greater social engagement at a time when global inequities are demanding urgent attention.²

1. Kyoto Design Declaration, March 2008. The document was signed in a highly symbolic place, the Kyoto International Conference Center, which is the venue of the 1997 signing of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. Art Center College of Design has been a member of the Cumulus Association since 2006. The college participated in ratifying the Kyoto Declaration during the Cumulus Kyoto Design Conference hosted by Kyoto Seika University. See www.cumulusassociation.org and the section “The Imperative of Designers to Assume New Roles.”

2. The design-for-social-impact discourse is gaining increasing momentum, with various educational programs, initiatives, practices, and publications leading the way. Notable contributors include the Rockefeller Foundation's *Design for Social Impact: How-to Guide*, a collaboration with IDEO (2008); several websites and blogs that range from long-established voices such as David Stairs' *Design Altruism*, John Thakara's *Doors of Perception Newsletter*, and the UNESCO-sanctioned Design21 site to more recent programs and portals such as *Design Ignites Change* (an initiative made possible by Adobe Youth Voices and World Studio); the SocialDesign-Site (whose slogan is “we cannot not change the world”); and ChangeObserver, made possible by the Rockefeller's Foundation's grant to the Winterhouse Institute.

At Art Center College of Design, Designmatters has acted as a catalyst for this mode of engaged design education, connecting academic practices to design-based explorations of real-world issues since the founding of this social impact program in late 2001.³ Designmatters started as a bold institutional

Design schools have a unique opportunity to become vital laboratories for best practices in participatory and human-centered research and social engagement.

initiative that weaves aesthetic value and business acumen into a broad social and humanitarian agenda for positive change. It has evolved into a department at Art Center defined by a series of strategic alliances with local and international nonprofit organizations, government agencies—and in particular, a creative partnership with the United Nations—that has yielded a wide-ranging portfolio of Designmatters projects driven by ethics, empathy, and a commitment to improving our quality of life. At the same time, the initiative is also anchored in the pragmatic realities of today's marketplace, which, in recent years, has begun to realize bottom-line advantages in practicing social and environmental responsibility.

As this critical shift toward ethical design gains momentum, Designmatters demonstrates how design schools have a unique opportunity to become vital laboratories for best practices in participatory and human-centered research and social engagement. In the context of the Kyoto Design Declaration and the United Nations Millennium Development Goals (MDGs) ten-year anniversary in 2010, this article profiles two recent Designmatters projects: a media campaign for the United Nations Population Fund (UNFPA) and *Agua Pura*, a water purification system for rural communities in Guatemala. Both case studies illustrate different contributions of design thinking in the arena of sustainable development, and yield insight about a few of the methodologies, research

strategies, and pedagogical challenges that drive the design education for social impact model proposed by Designmatters.

DESIGN INNOVATION THROUGH STRATEGIC PARTNERSHIP

In the years since its inception, Designmatters has established a significant track record in the strategic integration of real-world projects into the curriculum of the college. In every academic term at Art Center, students and faculty participate in transdisciplinary studios, elective courses, independent studies, special projects, and international internships that focus on the social responsibility of design and business practices. In particular, the real-world outcomes and wide visibility of many of the Designmatters projects derive from the strength of the educational collaborations that the initiative has brokered with local nonprofits as well as with national and international development agencies. These partnerships focus on four pillars of investigation—human sustainable development, global healthcare, public policy, and social entrepreneurship—and expose students to a meaningful range of expertise and experience. The strategic alliances forged by Designmatters are noteworthy, especially if one considers the concept of partnership as “a means to create space for individuals and communities of peoples to seek different types of leadership ... which include new ways to express progressive

values in addressing societal changes.”⁴

In 2003, the United Nations Department of Public Information designated Art Center an NGO (nongovernmental organization) in recognition of Designmatters' service to society. Other unique affiliations now include civil organization status with the Organization of American States and another NGO designation by the United

3. The rationale for launching Designmatters at Art Center was inspired in part by a school-wide survey, in which students expressed keen interest in pursuing international educational opportunities and socially relevant projects as part of their coursework. In the first two years of the program, a volunteer task force of staff, faculty, and students worked with cofounder Mariana Amatlillo to articulate the original Designmatters mission, establish guidelines for the program, and initiate both internal and external contacts to scout for projects and fundraising opportunities. For a comprehensive archive of Designmatters projects and publications, and the Designmatters blog, see www.artcenter.edu/designmatters.

Nations Population Fund (UNFPA). In addition, the consulting role of Designmatters in collaborative projects with the Pan American Health Organization, the World Bank, the American Red Cross, and UNESCO, among others, has provided the Art Center community of students, faculty, and alumni access to a prominent stage on which to offer original solutions to critical issues. In this sense and as noted above, the initiative is part and parcel of a growing movement, within the professional design community and design schools alike, to align research and practice with the exploration of social and sustainable concerns and to find a new focus grounded in the power of design thinking for social value creation and change.⁵

DESIGN RESEARCH BEHIND THE UNFPA CAMPAIGN

Renowned business innovator Peter Drucker's definition of knowledge is "information that changes something or somebody—either by becoming grounds for action, or by making an individual or an institution capable of different and more effective action."⁶ This definition offers insight into a foundational trait of all Designmatters projects at Art Center: crosspollination of expertise and knowledge transfer among seemingly unlikely partners—and among disciplines beyond art and design—in the

initiative's transdisciplinary collaborations. With each Designmatters brief, students and faculty are invited to grasp the complexity of ever-changing global issues within an educational framework that is designed to provide an enriching and challenging learning experience imbued with critical content brought by partners and guest experts. But in addition to this, Designmatters projects also seek to develop relevant, implementable outcomes. In fact, "research transformed by action" could be considered the motto guiding all Designmatters projects. In the case of communication briefs, students are not simply taught to design stylistically proficient and persuasive messages for individual portfolio purposes, but are guided in the production of campaigns grounded in appropriate context and data about a range of cultural and socioeconomic realities. Once the work is disseminated, it can become a vehicle for effecting change.

A recent collaboration with UNFPA for a media campaign on the occasion of the 15th anniversary of the Conference on Population and Development (ICPD +15, fall 2009) is a case in point. Designmatters oversaw a studio hosted by the illustration department, enlisting students from illustration, graphic design, and fine art to create a campaign comprising a series of three animated public service announcements (PSAs), *The Wall*, *Rewind*, and *The Forest* (SEE FIGURES 1-3). Students also created a number of posters to advance the UNFPA agenda around what is often a deeply divisive issue: the relationship between world population growth and ensuring sustainable development (the focus of MDG number seven)—a complex of issues encompassing women's empowerment, gender equality, state authority, and family planning.⁷

Given that nearly half of the world's current population is under the age of 25, the brief of the class was to focus on creating a call to action that would be youth-oriented and capture fresh perspectives about the interconnections among population dynamics, reproductive health rights, and economic and social development. Designmatters Producer Elisa Ruffino points to how instrumental the initial weeks of "deep dive" research were for the students in this class. As students familiarized themselves with the nature and extent of the questions surrounding population and development, they made

4. Simon Zadek from the Institute of Social and Ethical Accountability, cited in Henri Bartoli and Jane Nelson, *Building Partnerships, Cooperation Between the United Nations System and the Private Sector* (New York: United Nations Publications, 2002), 40.

5. See Cynthia E. Smith, "World Design to End Poverty," *Design for the Other 90%* (New York: Exhibition Catalogue Cooper-Hewitt, National Design Museum, Editions Assouline, 2007), 12. Smith was one of the first design experts to identify Designmatters as one of the leading programs in the context of the "emerging arena" of socially responsible design initiatives.

6. Peter F. Drucker, *The New Realities* (London: Mandarin Press, 1990), 242.

7. The studio was led by Steve Turk, faculty member in the illustration department, Art Center College of Design. For a comprehensive understanding of the relevance of the ICPD Program of Action as related to the MDG framework and its goals for development, please consult the UNFPA website (www.unfpa.org/icpd/15/). The following credit the PSAs cited: *The Wall*, created by Tom Borowski, Tess Donohoe, Linda Kim, Gem Padamada, and Beril Toka; *Rewind*, created by Johnny Chang, Amy Kim, Da Hae Kim, Anne Lin, Diana Liu, and Ashley Park; and *The Forest*, created by Patrick Hruby, Yana Kramskaya, Grace Jihye Lee, Mike Payne, Daniaelle Persall. Animations and post-production of all three PSAs by SDF-1.

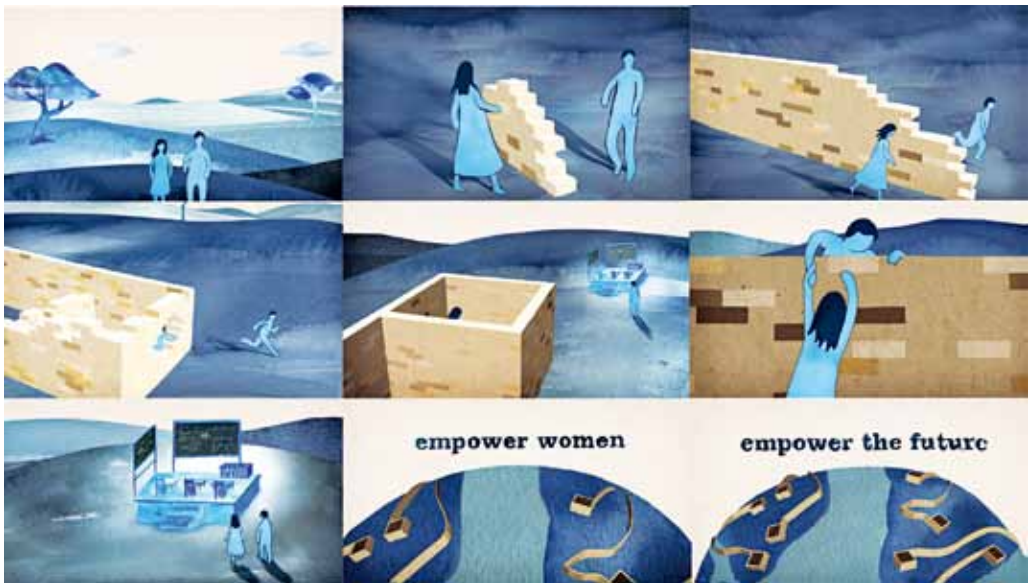


FIGURE 1: The Wall, storyboard stills



FIGURE 2: Rewind, storyboard stills

use of firsthand stories of youths in developing world regions that were provided by UNFPA and nongovernmental groups. These testimonials came from various marginalized youths, many of whom lead lives of extreme poverty defined by lack of

8. A few of the sources the students consulted for youth voices can be found on the following sites: www.youthcoalition.org; www.y-peer.org; www.afryan.org; and www.girlieffect.org.

9. See www.justforeignpolicy.org/.

access to education and medical care. Their lives are often cut short by the consequences of forced marriage, gender-based violence, and human trafficking. These and similar stories became primary research material as well as the core inspiration for the advocacy strategies later developed by the teams in the class.⁸

A workshop session with guest expert Sarah Burns of Just Foreign Policy⁹ offered the students a broader picture of the social and political



FIGURE 3: The Forest, storyboard stills

context of population growth and sustainable development. Just Foreign Policy is a nonpartisan organization that advocates for more multilateral approaches to foreign relations. As Ruffino states, the Designmatters students “needed to know more about the social landscapes that contributed to the personalized stories they were reading, and to further understand the cultural, economic, and political dynamics at the root of these dire conditions in developing countries. Many of the students wondered about the role of the activist. And of course, at the center of their inquiry was the all-important question: What can I, as an informed design student and visual storyteller, do to help?”¹⁰

The participation of Burns as guest expert supporting the studio’s design faculty is a salient trait of all Designmatters studios, which foster a process of applied research and an expanded range of inquiry that becomes fundamental to the outcomes of the projects. In this particular session, Burns analyzed and debated with the students some of the key research and data in an effort to arrive at the essence of an idea that could be translated into strong advocacy. She encouraged the students to base their communication strategies on the simple premise that political commitment can be enhanced through the effective communication of information, and thus that a “big win” in pattern-breaking social change is, in principle, possible. A key message of Burns’ workshop is worth citing here:

*Public health leaders need to better understand the contribution population growth will [continue to] make to health problems in different parts of the globe, and to raise these issues forcefully in forums where economic growth and resource conservation are being debated. Discourse among professional sectors is essential to help evolve a consensus on the science, which in turn is a necessary (but not sufficient) foundation for a consensus on policies that collectively promote a sustainable population.*¹¹

For many of the students, being part of a project in which they were able to use their art and design skills to raise awareness about such multilayered world issues became at once a humbling and empowering experience. Yana Kramskaya, one of the team members behind the PSA *The Forest*, sums up her intent as the research and development phase progressed and the concept of her communication piece evolved:

I didn’t want this project to be placed in the same boat with infomercials on Public Access TV about poverty, hunger, or displaced children in the developing world. This was not about charity. It was about creating an eloquent metaphor, stimulating a person’s imagination and capturing their attention through responsible design.

¹⁰ Elisa Ruffino, interview with the author, June 2009.

¹¹ Sarah Burns, cited in Designmatters workshop, Art Center College of Design, February 2009.

The team that developed *The Forest* pushed its design explorations on the conceptual front to address the sustainability topic. But they also extended the making of the piece to encompass a rigorous selection of sustainable materials and processes of fabrication, which led to the handmade, eclectic, and whimsical nature of the end design.¹²

As is often the case for Designmatters students, the journey of this project was one of self-discovery as well as exposure to some of the world's most pressing problems. Students emerge from these courses more aware of their power to creatively engage the complex issues presented, and to do so with authority and confidence. The following statement by Patrick Hruby, another student in the class, sums it up with eloquence:

We are in a unique position as artists and designers. We have developed a voice that can communicate with the immediacy that can only be accomplished with visual vernacular and symbology. It is what we choose to say with this voice that defines us as artists and as human beings. This project through Designmatters for UNFPA has been a great opportunity to say something worthwhile.

AGUA PURA: PROVIDING ACCESS TO CLEAN WATER IN RURAL GUATEMALA

Communities throughout Guatemala struggle with a lack of access to adequate public health services, energy, and water sanitation. In fact, one of the key issues faced by many Guatemalans is having access to pure water. According to the Guatemala Ministry of Health, 98 percent of the country's water

¹². Integral to the research resources available to Art Center's students is the Color, Materials, and Trends Exploratory Laboratory (CMTEL), which houses a multimedia library that also contains curated samples of new materials. CMTEL is a hub on campus for a variety of courses in sustainability, emerging technologies, and global trends and was a critical resource during the research phase of the team that produced *The Forest*.

sources are contaminated with water-borne diseases.¹³ The *Agua Pura* project started with field research in rural Guatemala in summer 2007 as part of a student project created in Design for Development, an ongoing course at



FIGURES 4 AND 5: Posters for the UNFPA Campaign

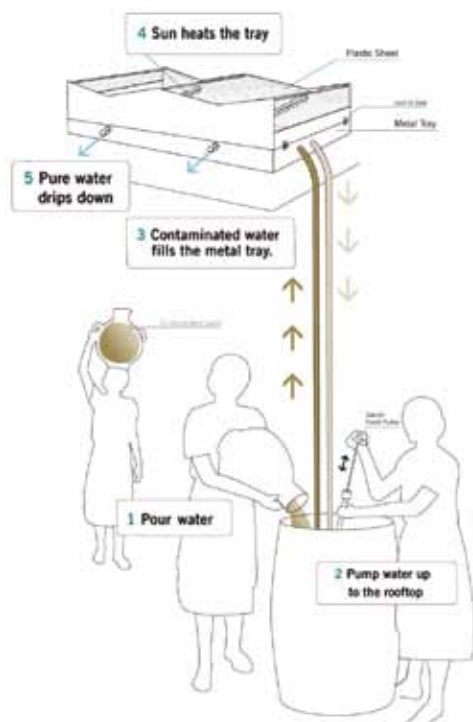


FIGURE 6: Agua Pura diagram

the California Institute of Technology. The class engages transdisciplinary teams of mechanical engineering students and Art Center product design students. Their work focuses on social impact innovations with bottom-of-pyramid applications. In the case of *Agua Pura*, over the course of two academic terms, the project evolved from a student initiative to a pilot social entrepreneurship project facilitated by Designmatters and funded by a grant from the Southern California Metropolitan Water District.

The chief goal of the innovation proposed by *Agua Pura* is to develop a practical, low-cost, solar-powered system that passively purifies water while storing it. Based on the initial field research, the student team conducted several months of ideation that have yielded a series of prototypes allowing impure

water to be pumped into a treatment area where the sun's heat evaporates it, making it condense on

For many students, being part of a project in which they were able to use their art and design skills to raise awareness about multilayered world issues is at once a humbling and empowering—experience.

a hard surface. As the water builds up, it drips down into a clean water storage area. The chief objective is to allow for purified water to be either collected on-site or routed into an indoor container (SEE FIGURE 6).

A student project that originated in the classroom has now migrated into a longer-term venture with scalable applications and impact—the team is currently in the process of testing versions of the final prototype for use in rural communities beyond Guatemala. *Agua Pura* represents a case study for a promising framework that incubates socially beneficial enterprises when academic environments partner with other institutions, organizations, and disciplines—in this case, academic programs in engineering and in design, a public-sector funder, and community-based recipients of the innovation. Lessons learned from the project also point to a few recurrent pedagogical truths and metrics that are worth implementing in this kind of engaged design educational model, both from the perspective of design innovation and community intervention:

- *Value of formative field research and field testing through cultural immersion to help understand end-users*
- *Experimentation with low-cost materials and technologies that may add to the creativity and entrepreneurial quality of concepts proposed*
- *Value of co-creation with recipients of the innovation and participatory methodologies for design as a means to achieve sustainable solutions*
- *Collection of quantitative and qualitative data about the effectiveness and efficiencies of the social innovation during field-testing of prototypes in order to gauge impact of the design solutions within the target community*

13. Data quoted in *Agua Pura* in the final report to the Metropolitan Water District, Southern California, May 2009.

As Paul C. Light has remarked in a recent article for the *Stanford Social Innovation Review*, “social entrepreneurship involves a wave of creative destruction that remakes society ... instead of treating distress, social entrepreneurship holds hope for eliminating distress altogether.”¹⁴ Light is a professor at New York University’s Robert F. Wagner School of Public Service and the author of *The Search for Social Entrepreneurship*. He goes on to discuss how a social entrepreneur can become a “linchpin of change,” attacking social problems and developing lasting, sustainable outcomes capable of shifting paradigms.

With *Agua Pura*, the two product designers in the team, Armie Pasa and Gabriel La ’O, are tackling entrenched problems caused by poverty and developing measurable solutions with the mindset of social entrepreneurs. Pasa characterizes this community-focused project as both challenging and fulfilling: “These projects are beyond our [normal] scope of vision. I think every design student should see what is on the other side. It opens the door to making the impossible a possibility.”¹⁵

CONCLUSION

The goal of social agency and value creation that drives Designmatters projects is central to an exciting dialog taking place in the design community about human-centered design, sustainable development, co-creation, and participatory modes of engagement with end-users and customers—all factors that are redefining the “toolbox” of skills and experiences design students need to master in a world where social needs and global imperatives are shifting at a rapid pace.

It is important to remind ourselves that we are now more than halfway to the target date—2015—by which the millennium development goals, which represent the development aspirations of the world as a whole, are to be achieved. As United Nations Secretary General Ban Ki-moon warns in the 2008

MDG report, the MDGs are not only development objectives, they encompass universally accepted human values and rights and a critical responsibility to future generations.¹⁶ With a new generation of design students demanding to play a larger role on the world stage than ever before, unleashing the energy, enthusiasm, and unique ingenuity and optimism of design to effect change is an empowering prospect—one that can challenge the status quo around the “wicked” problems of our crowded planet. ■

14. Paul C. Light, “Social Entrepreneurship Revisited,” *Stanford Social Innovation Review*, (Summer 2009) 7, no 3, p.21–2. See also Paul C. Light, *In Search of Social Entrepreneurship* (Brookings Institution Press, 2008).

15. Armie Pasa, email to the author, September 2008.

16. Ban Ki-moon, “Foreword,” *The Millennium Development Goals Report*, (United Nations, 2008). The document may be downloaded from www.un.org/millenniumgoals/.

INTO THE OPEN: Positioning Practice— from Venice to New York to Philadelphia

An interview with Co-Curators Aaron Levy and William Menking

Laetitia Wolff

INTRODUCTION

Into the Open: Positioning Practice was the title of the American exhibition at the 11th Venice Architecture Biennale. Attempting to bring the biennale “back home” imposed some interesting challenges. These challenges were related not only to questions of identity (biennale pavilions are typically conceived as cultural representations of a national psyche) but also to the very message conveyed by the exhibit. The show, which featured the work of 16 different architectural groups, explored the collaborative effort of today’s architects to invigorate community

The show was not necessarily about display, but about process; not about the architects themselves or the buildings they built, but about the way they work and how they create a collaborative framework.

activism and environmental policy. Interestingly, the show became the object of changing interpretations and uses, as it traveled to different politically- and symbolically-charged venues.

Following its third showing at Philadelphia's Constitution Center last summer—which succeeded its presentation at Parsons The New School for Design the previous winter—it seemed important to ask the curators, Aaron Levy and William Menking, to assess the exhibit's success as a vehicle for prompting social change. The exhibition had sought to raise questions rather than answer them, and to establish a dialog with concerned parties, by means of a conference and related public programs to address the potential role of such exhibitions as educational tools and as instruments of political change, rather than as simple surveys of the current state of architecture and urban planning. Our interview was a chance to reflect on these matters in retrospect.

With each new venue, the purpose of the exhibit changed: While Venice had taken a museological approach aimed directly at the architecture profession, Parsons offered a pedagogical articulation of the project. At Philadelphia's heritage site, in turn, the accent lay primarily on civic engagement. But how, precisely, did *Into the Open* (the very name of the exhibit was shortened in Philadelphia) attempt to establish or engage in a logic of cultural and political change and public mobilization? It took place in a cultural landscape that has is witnessing a growing number of interactive, participatory exhibitions with calls for action made to the public. Recent examples of this trend have included "Actions: What You Can Do With the City," held at the Canadian Center for Architecture (November 2008–April 2009), and "Global Polis: Interactive Infrastructures," held at the AIA Center for Architecture in New York (May–August 2009). Contemporary architecture exhibits increasingly engage their viewers in an action-oriented agenda, seeking to influence social expectations, processes, and protocols.

As *Into the Open* traveled and "matured," it succeeded in bringing together many diverse constituencies, from the worldly, art- and architecture-savvy crowds at Venice, to the faculty and students of Parsons, to the local community and citizenry of

Philadelphia. In so doing, the exhibit practiced what it preached—thereby emulating the practices featured in the show itself.

LAETITIA WOLFF (LW): What was the main question *Into the Open* tried to address, and how did it respond to Aaron Betsky's original theme for the 53rd Venice Biennale, "Beyond Architecture"?

AARON LEVY/WILLIAM MENKING (AL/WM): We interpreted Betsky's theme of "going beyond building" to mean that building could be understood as a social process and not solely as a physical infrastructure. We were interested in exploring community-oriented work and social practice by a new generation of American architects that, we believe, are redefining the meaning of social space in America. As much as the project was conceived for the Biennale, in many respects we tried from the start to go beyond the Biennale, and question the very model of the large architectural exhibition itself.

One thing that was quite unusual about our show was that it was not necessarily about display; rather, it was about process. In other words, it was not about the architects themselves or the buildings they built, but about the way they work and how they create a collaborative framework. The primary curatorial motivation in the exhibition was less to "educate" the public about the work of these 16 architecture groups than to think through their possible applications going forward. They each offer inspiring models of practice that can perhaps influence like-minded work in our own communities, neighborhoods and amongst urban professionals.

LW: Do these featured architects qualify as agents of change?

AL/WM: One of the defining highlights of the featured architects is the flexibility and inventiveness they bring to their work. The agility with which they respond to a variety of conflicts and collaborative frameworks was quite fascinating to us, but so too was their ability to unlock hidden resources in the public and private sectors. We were, for example, particularly inspired by Teddy Cruz's argument that sites of conflict can act as generators of new practice. What this means is that architects can and must

respond to the challenges posed by the site, rather than ask the site or a given community to conform to a set framework or understanding.

We hoped to emulate the feel of what has been called “change design” in the very collaborative approach to the exhibit’s curation and design, which, both at Parsons and at the National Constitution Center, was undertaken in collaboration with designers Ken Saylor of Saylor + Sirola and Prem Krishnamurthy of Project Projects. The idea was to present the exhibition in the form of a workshop environment or classroom, where designers and others could co-mingle and think together.

LW: What did Venice do as a location to shape the meaning of the exhibit?

AL/WM: Venice is so many things—a historical city, an industrial city, a literary city, a port, etc. Today, however, the city is increasingly centered around tourism, which is to say on simulation and the simulacrum, on the sign and the facade. The question is whether it’s possible today to think of “Venice” outside of this sense of spectacle, and by extension whether it’s possible to think of the destiny of the modern European city otherwise.

Venice survives on account of millions of yearly tourists, caught up in the tension or desire for the spectacle and the picturesque. Arguably, this desire for pomp and pageantry, together with the competitive spirit of contemporary art and architecture, has infected the Biennale itself and the expectations we bring to it. In such an environment, it’s important to guarantee the ambivalence of the curator’s position by acknowledging one’s involvement. Can we imagine a different type of exhibition today, one that acknowledges the seemingly inexorable desire for spectacle?

Our placement of Teddy Cruz’s photomontage of the border with Tijuana, along the facade of the U.S. Pavilion, adopts the existing syntax of Venice’s simulative power so as to encourage a new way of thinking about the stage for art and architecture exhibitions. Here, the facade is both a sign and an infrastructure, and carries with it an identity (namely, the major problems of the U.S. border with Mexico) that complicates the traditional approach to nation-state diplomacy in the U.S. Pavilion.

Moreover, while large exhibitions of architecture such as *Futurama* at the 1939 World’s Fair are often predicated on some conception of a future marked by eventual harmony and resolution, we argued instead for a model of exhibition-making predicated on dissent and conflict. Coinciding with a moment of geopolitical conflict, uneven development, and economic crisis, our response was meant to be somewhat sobering, but it was one of profound ambivalence as well. We think the European press understood and appreciated this attitude and gesture.

Ultimately, while tourists consume the physicality of the city, the Biennale has the potential to give something back, and to contribute something to the lived (which is to say social) infrastructure that is equally what Venice is about. Hopefully our work last year in the U.S. Pavilion can be situated within this trajectory, along with the work last year of Diller + Scofidio in the Arsenale, or Dominique Gonzalez-Foerster this year in the Italian Pavilion, or even Steve McQueen in the British Pavilion, to name just a few of the artists and architects who have pursued this direction. All these projects take the form not just of cultural display, but of sustained research into the idea of the city and its future, into the question of what Venice really is today. Following Robert Venturi, we should perhaps consider, from an American point of view, what the difference will be between Vegas and Venice in years to come.

LW: As curators, were you conscious of, or burdened by, the task of representing the United States in the heavily political context of the Biennale?

AL/WM: Large architectural exhibitions have always been predicated on modern nation-state representation as a mechanism for inspiring national pride. As Hans Haacke memorably noted with his project for the German pavilion some years ago, today art and architecture are inseparable from the peculiar marriage of economic tourism and nation-state representation at the Biennale. We were very conscious of this complicated burden, which very much shaped the curatorial logic behind our exhibition.

Today, as in the early days of the Biennale, art and architecture remain in the service of cultural diplomacy and national ambitions, and it would be

naïve to ignore this reality. At the same time, those projects that explicitly struggle against that heritage nevertheless remain indebted to it. Our project for the U.S. Pavilion entered the fray by acknowledging its fundamental involvement. We respected the need to represent the nation-state, but sought to do so critically, hopefully contributing to a larger dialog about the evolving and vexed relationship between culture and cultural diplomacy.

Our methodological approach centered around the keyword of conflict, which does not have a clear place either in American discourse in general, or cultural diplomacy in particular. We weren't interested in arguing that adverse circumstances can be remedied overnight by inventive architectural solutions, however. The problems the citizens face in Newburn, Hale County, Alabama, for instance—where the work of Rural Studio is situated—are so severe as to evade quick solutions and transcend questions of infrastructure and planning; they should be more properly framed as political and ideological problems. We can't recall a moment when the U.S. Pavilion in particular was used to promote this sort of sobering assessment of the challenges facing the nation, and to encourage the public to go beyond the exhibition, and arguably beyond the Biennale itself, in facilitating a conversation about the challenges facing our own neighborhoods and hometowns.

LW: And how did the context of the American election year influence your approach?

AL/WM: With a little knowing irony, we like to label *Into the Open: Positioning Practice*, “the first architectural endeavor of the Obama presidency.” Setting aside the fact that we were commissioned by the U.S. State Department under George W. Bush, and that the exhibition opened some weeks before the November 2008 election, we believe that the present moment will redefine the meaning of social space in today's American cities. At the same time, this change will perhaps take the form not of a physical shift in the meaning of social space, but rather a conceptual one.

There is clearly a newfound interest in cultural diplomacy and “soft” power at the State department today. Barack Obama has worked as a community

organizer, and it will be interesting to see how this plays out in the years ahead in terms of national representation. We hope that future representations are challenged not to just display artifacts but to stage a conversation and a form of engagement.

LW: But did the presidential campaign itself influence your message?

AL/WM: National pavilions inherit a complicated ideological mantle. While the selection process varies among nation-states, clearly national pavilions are always engaged, one way or another, in promoting a certain ideology, and it is in this respect that they could be said to be in the service of a cultural diplomacy.

In our case, we promoted a spirit of what we call “intellectual entrepreneurship,” by which we mean bottom-up inventiveness and agility, but also a sobering and collaborative ethos that reflects a self-critical disposition. The uniqueness of the processes on view in our pavilion made us realize that in fact we were displaying an “American” model of practice that even in this period of global culture is singular to this time and place.

The constellation of private architectural practices working collaboratively with nonprofit foundations, local agencies, and the federal government is unusual. This is what we sought to impart to the public, and perhaps this combination of thoughtfulness and responsibility for the future is the best one can aspire to, as long as we are working from this model of nation-state diplomacy. Meanwhile, we also conducted a sort of experiment by showcasing some of the most grassroots groups on an international stage, presenting them in a very global context without knowledge of what would happen next. In this sense, we left the message pretty open.

We also sought to depart from a modernist conception of practice that the exhibits found at the Biennale are often predicated on. We showcased collaborative practices, in contrast to Aaron Betsky's general approach, offering a corrective to the celebrity-oriented avant-garde we see today, and to the monumental presentations of past Biennales.

LW: How does the format of an exhibition help trigger change or at least questioning?

AL/WM: We attempted to instigate a conversation which was not solely about itself, and which might address the state of contemporary architecture. In other words, while we began with the 16 remarkable projects on display, the exhibition did not end there. It is not just that there are many more we could have included. Fundamentally, our goal was a taxonomic one, i.e. to exemplify the diversity of practice in America. At Parsons and in Philadelphia, unlike in Venice, this attempt was developed further, through a variety of public programs and workshop formats in which many of the featured architects were invited to speak and debate in dialog with other practitioners.

LW: What formal changes were made to the exhibit once it traveled to Parsons, and with what consequences?

AL/WM: At Parsons we tried to cultivate a more interactive environment, wherein the exhibit was activated or even completed through new approaches to public engagement. The chalkboard walls that were a defining characteristic of the Parsons iteration, and later the National Constitution Center showing, were intended to invite participation and commentary.

At Parsons we clearly adopted a narrative approach that treated text as a graphic element, and in fact the graphic design of the show was clearly on display as well. In Venice, on the other hand, we sought to avoid relying too heavily on a textual element and consciously sought to minimize the graphic design for a variety of reasons that had to do, especially, with the internationally variegated audience and the limited time each visitor affords to the pavilions.

It is also important to note that at Parsons we were addressing a design community and one that we hoped would consider the exhibit as a classroom—hence, the chalkboard was employed as a symbol rather than a measure of success, and systematically erased each week to make way for new writing. Since the 1960s and 1970s, many artists and architects have adopted the model of the classroom in their work, which not only reflects their interest in pedagogy, but also the role of the classroom in fostering thought-experiments. One

immediately thinks of artists such as Joseph Beuys or Per Kirkeby, for instance, and of course Cy Twombly. The graphic nature of Le Corbusier's use of the chalkboard was on our minds as well.

LW: Many of the chalk drawings consisted of doodles and bathroom-type, sophomoric messages. Do you still think the concept of an exhibit-classroom was successful?

AL/WM: This is one way of thinking about it, but perhaps another approach would be to read through the commentary and messages that others left behind and add those to the mix. While seemingly sophomoric, these messages also exemplified public discourse in all its messiness and disagreement. The more pressing concern we faced with the design was in regard to the desire by some to sanitize the walls, to treat them as sanctified and as eligible only for certain sorts of discourse. We considered these issues at length before going forward with the design. The most important message to take from our use of chalkboard paint is simply the idea of participation: that a public can constitute the event of the exhibition.

LW: There was an attempt to create a blog along with the exhibit and its related website. How successful was it in Venice, and then at Parsons and in Philadelphia in activating the debate?

AL/WM: We think the blog was a bit of a failure, as we did not sufficiently embed its discussions within an existing community or signal clear pathways for the public to participate in its development.

LW: Did the context of an educational institution such as Parsons, especially one that is specialized in design and architecture, also affect the intent of the exhibit?

AL/WM: It did not necessarily alter the overall message of the show, although it clearly introduced a shift in articulation towards the pedagogical. At Parsons we wanted to create conditions favorable to having students and design professionals engage in a discussion about the future of the field in an informal environment, one that would contrast with

the more museological approach often encountered in New York. This is something we also sought to do in Venice, and in Philadelphia as well.

LW: How did the Parsons gallery exhibit design respond to this approach?

AL/WM: Image and text were not on the wall so much as floating in front of it, peeling off of it. There was no single vantage point or perspective onto the projects on display or the perspectives it raised, but rather a series of competing viewpoints. In this regard, we were experimenting with the notion of a flexible exhibition, one that stages a dialog with the public, welcoming them in and enabling them as participants. In addition to the use of chalkboard walls, we incorporated informal seating/working areas, which were used regularly by students as a sort of newfound classroom or public space. The galleries were also occupied quite regularly by charrettes featuring architects and designers from the show, such as, for instance, the Yale Sustainable Food Project in conversation with a Parsons Design Build Workshop. The exhibit, together with the public programs, hopefully suggested an inviting space for reflection.

LW: You said that the featured pieces in the show were more of a pretext to a dialog than a formal showcase, yet Teddy Cruz's piece always appears front and center in the hosting venues, and its striking monumentality makes it the showpiece. Can you elaborate on that tension?

AL/WM: The process of displaying Teddy Cruz's banner definitely evidences the ambivalence we have had as curators toward the Manichean opposition of form versus process. Even though we were interested in highlighting process-oriented architecture, and Teddy's photomontage documents a practice of research, it remains an incredible, visually compelling object, and one which everyone responds to immediately. Ironically, in the Philadelphia exhibition, the piece sections Independence Mall and definitely has a very powerful presence, yet, it is somewhat overwhelmed by the much larger Constitution Center building designed by I.M. Pei and Pei Cobb Freed & Partners.

You are right, though, to note its seeming monumentality. Right now we are in fact planning to take the Cruz photomontage to the ZKM Center for Art and Media in Karlsruhe, Germany, which is run by the artist and theoretician Peter Weibel, and all he wants to show there is Teddy's banner. So there clearly is a tension in the exhibition between Teddy Cruz's piece and its relation to the exhibition as a whole. One of the other tensions that the exhibition explores is the relationship of form to sustainability. Form in architecture is just as important as sustainability, which aims towards important social and political goals. At the same time, being sustainable is not in and of itself the answer to architecture.

Also, technical decisions profoundly affected the place this piece took in relation to the others: We wanted to isolate Teddy's work from the rest of the featured practices, and bring him outside the pavilion in Venice, since he had been instrumental in conceiving the project with us. But we did not

We were particularly inspired by Teddy Cruz's argument that sites of conflict can act as generators of new practice.

set out to commission a site-specific piece from him, and we always saw his work as an entry point into the larger exhibition, as the starting point of a conversation that ultimately goes beyond the piece to explore the issues ranged in the exhibition as a whole. Its iconic monumentality resulted in large part from our decision to scale it to fit the pavilion's façade, to literally replicate the dimensions of the border. And this is, interestingly and in his defense, something that Teddy was in fact quite resistant to. Insofar as we considered the exhibition as a public protest against the perception of America abroad, Cruz's piece interestingly concealed the pavilion, effectively hiding it.

LW: What do you think was the main contribution the Parsons conference provided, which featured four out of the 16 practices in dialog with Parsons faculty members?

AL/WM: Both Teddy Cruz and Deborah Gans were challenged, even attacked, by several faculty members to defend their practice. We had invited these faculty members to play the role of *agents provocateurs*, and to criticize their working methods. The production of a tense environment reflected the ambivalence we felt as curators about form and process—a debate which is, like all political and tactical work, profoundly contradictory. How do you combine a strong design ability and intelligence, often personality-driven, while working democratically in collaboration with nonspecialist communities?

For more information about the Into the Open project, visit www.intotheopen.org.

LW: Bringing the exhibit “home” to Philadelphia’s Constitution Center in some ways yielded the strongest symbolic resonance. How did the show seek to promote civic engagement in that historic American city?

AL/WM: Each articulation of *Into the Open* has given us an opportunity to redefine the show along its trajectory. Traveling the exhibition in this way is clearly in line with the course we initiated in Venice, and later presented at Parsons, in which the exhibition served as a discursive prompt responding to the specific concerns of each site.

In Venice, the project was situated in a museological site, and took form in response to that arena. In Parsons the project played out along a more pedagogical axis. In its last iteration, in Philadelphia, the project is clearly situated in a historically overdetermined “heritage” site, where the American experiment began. As in Venice, we hoped that the symbolism of the site would act as a stimulus, supporting serious reflection on the work featured in the exhibition.

In Philadelphia, we specifically sought to emphasize the theme of civic engagement by partnering with the city and with grassroots associations throughout the region to present a series of innovative, experimental public programs. Philadelphia faces conditions not unlike those featured in our exhibition, and we hope that the city will itself benefit from but also contribute to the sorts of discussions we intended the exhibition to foster. Ultimately, the 16 examples featured in the exhibit are indicators of a larger movement across the United States, one that deserves further highlighting.

SECTION 4: NEW PROFESSIONAL TRAJECTORIES

DESIGN AND BEHAVIORAL CHANGE

Stephen Clune

INTRODUCTION

This article proposes that industrial designers should engage in design for behavioral change to encourage positive actions that contribute to a sustainable society. The article contains three sections: First, it outlines why it is critical for design to explore its potential to contribute to behavioral change; second, it presents a process for guiding designers to design for behavioral change; and third, it suggests how this type of design may provide viable future vocations for designers. While the article originated from a four-year action research study in teaching Design for Sustainability (DfS), the process also applies to the broader design community.

WHY DESIGNERS SHOULD ENGAGE IN BEHAVIORAL CHANGE

In order to move toward a long-term sustainable society, a 90–95 percent reduction in the consumption of resources will be required.¹ It has been proposed that such a reduction will necessarily involve making products from less resource-intensive materials (crudely termed technical solutions) as well as by changing the resource-intensive behaviors of people's everyday lives (crudely termed

social solutions). If we acknowledge that behavioral change has a significant role to play in the transition to a sustainable society, both at an individual and a community level, then it is worthwhile for design to explore effective ways to contribute to positive behavioral change.

There has been little engagement with the more socially orientated approaches to DfS that design for behavioral change requires in comparison to the widely taught methods of technical EcoDesign. As Margolin and Margolin claim, “there has been little theorizing about a model of product design for social need.”² They go on to suggest that the potential

1. Gary Gardner and Payal Sampat. “Mind over Matter: Recasting the Role of Materials in Our Lives,” *Worldwatch* paper, ed. Jane A. Peterson, 1998 (www.worldwatch.org/system/files/EWP144.pdf). See also Friedrich Schmidt-Bleek, “The Factor Ten/Mips Concept: Bridging Ecological, Economical, and Social Dimensions with Sustainability Indicators,” *United Nations University Zero Emissions Forum Publication Series* 1999, www.unu.edu/zef/publications_e/ZEF_EN_1999_03_D.pdf.

2. Victor Margolin and Sylvia Margolin, “A ‘Social Model’ of Design: Issues of Practice and Research,” *Design Issues* 18, no. 4 (2002), 24.

of the social designer is similar to that of the social worker who collaborates with key stakeholders to intervene in unacceptable social situations.

Design for behavioral change provides a process for intervening in unsustainable human activity. It is also a useful process for developing a connection between design and positive sustainable behavior. This claim has emerged from a four-year action research study teaching principles and methods of sustainable design to undergraduate industrial design students at the University of Western Sydney.³ It became apparent through the study that the most sustainable solutions are often so elementary that

Design often holds unsustainable behaviors in place, making them difficult to overcome.

they appear to have only a limited connection to design, at least at first. Solutions such as walking, riding, sharing, air-drying clothes, and altering one's choice of clothing instead of turning on an air conditioner are all desirable outcomes, yet the connection between such behaviors and design's potential input seems abstract to many students. Nevertheless, contemporary design examples that offer high sustainability potential, such as the Curitiba bus shelters and the Paris Vélib,⁴ provide evidence of design's power to encourage constructive behavioral change. In such examples, design has facilitated behavioral change at a local level, but with a strong element of traditional design activity, applying technical skills to support socially oriented initiatives. Today, design for behavioral change requires designers not only to design "things" or all-in-one "solutions" but also "enablers" and "prompts" to promote desirable behaviors.

A PROCESS FOR BEHAVIORAL CHANGE DESIGN

A clear process for how this kind of design may be supported is described in McKenzie-Mohr and Smith's research on Community Based Social Marketing (CBSM).⁵ CBSM provides a starting point for prompting people toward more sustainable

behaviors by applying the psychological principles of behavioral change.

It should be noted that the CBSM process does not include or formally consider design in its analysis of behavior modification. However, as will be shown, design is implicit in the process because it often holds unsustainable behaviors in place, making them difficult to overcome. CBSM has been developed for the purpose of executing effective socially based marketing campaigns. However there are strong correlations between industrial designers' skill sets and the four steps of CBSM, as the following section will make clear. Jeff Howard has previously identified the potentiality of design's application of CBSM, although within a participatory design framework.⁶ By recognizing design's agency within CBSM, a powerful guide for how industrial design students may design for behavioral change may be developed.

CBSM explores the psychology of behavioral change. McKenzie-Mohr suggests that "most programs to foster sustainable behavior continue to be based upon models of behavioral change that psychological research has found to be limited."⁷ There is often a tacit assumption in large-scale advertising campaigns that attempt to promote sustainable behavior (e.g., the "every drop counts" public service announcements that ran in Australia for many years) that raising awareness alone will lead to behavioral change.⁸ The psychology of behavioral

3. Stephen Clune, *Developing Sustainable Literacy in Industrial Design Education* (PhD diss., University of Western Sydney, 2009).

4. The Curitiba bus shelters vastly reduced the time buses take to pick up passengers by having users pay prior to entering the shelter; removing all cash handling from the bus allows the buses to operate almost as efficiently as light rail. The Paris Vélib is a bike-share scheme with purpose-built bikes and stands located throughout the city.

5. Doug McKenzie-Mohr and William Smith, *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing* (Gabriola Island, BC: New Society Publishers, 1999).

6. Jeff Howard, "Towards Participatory Ecological Design of Technological Systems," *Design Issues* 20, no. 3 (2004).

7. Doug McKenzie-Mohr, "Promoting Sustainable Behavior: An Introduction to Community Based Social Marketing," *Journal of Social Issues* 56, no. 3 (2000).

8. Bob Winters, *Every Drop Counts—Primary and Secondary, Every Drop Counts* (Melbourne: Gould League of Victoria, 2000).

change proposed by McKenzie-Mohr and Smith challenges this assumption. There is a profound difference, they claim, between what we know and what we do. This claim is supported by recent design literature, which has increasingly come to recognize a discrepancy between what one knows is right and what one does in everyday routines.⁹ McKenzie-Mohr and Smith argue that people require practical assistance in order to change habitual behaviors. There is a critical connection to be made here in relation to design, both with regard to the many ways that design supports unsustainable activities and with regard to the potential of design to make our default actions more sustainable.

Like the process of CBSM, design for behavioral change requires a clear mandate from the project leader (designer) as to what behaviors are to be targeted. In the present context, clearly defining the problem of unsustainability would be a good starting point from which such a mandate might emerge. The more specific the targeted behaviors, the easier it is to tailor an intervention. McKenzie-Mohr's system of CBSM involves four stages: (1) identifying barriers and benefits; (2) designing effective strategies; (3) piloting; and (4) evaluating. The four stages, which present strong similarities to the Action Research process that Swann has previously likened to the design process,¹⁰ will now be discussed in turn.

STAGE ONE: IDENTIFYING BARRIERS AND BENEFITS

McKenzie-Mohr and Smith present an approach for identifying why desired behaviors are not taking place that involves identifying barriers to and benefits of the desired behavior. The approach comprises three steps: literature review, participatory research, and survey. The review of trade magazines, government reports, and academic literature is linked to traditional desk research, and provides insight into why the desired behaviors are not occurring.¹¹ Participatory research using focus groups and observation is also recommended, as focus groups help identify people's perceptions of the desired behaviors, while observation confirms whether their actual actions match their stated beliefs. The final recommended step is a survey, which can help suggest whether the results gathered are likely to be

widely applicable or more narrowly local. The survey can identify the characteristics of participants who have changed their behaviors or who are most likely to change.

McKenzie-Mohr and Smith have a rather generic concept of research design, which consists of literature review, focus groups, and participatory observation and surveys, all executed with the objective of identifying the barriers to desirable behaviors. This first stage could also be conducted through numerous context-specific design research activities, so long as the core issue of identifying barriers to and benefits of particular activities is preserved. To assist in the first stage, designers many employ familiar methods such as those embodied in IDEO's method cards.¹²

STAGE TWO: DESIGNING EFFECTIVE STRATEGIES BASED ON EFFECTIVE TOOLS

Stage two of CBSM uses effective psychological strategies to facilitate behavioral changes by accentuating the benefits of positive behaviors and eliminating the barriers identified in stage one. Of the psychological strategies, three are easily appropriated by industrial design, namely "prompts," "norms," and the removal of external barriers.

"Prompts," in this context, involve the principle that we need to be reminded at the most opportune

9. "We know that we should respect the complexity and fragility of life on our planet, we should reduce energy and material consumption ... in many cases we actively desire to do right in such matters. But for the most part we fail." Susan Stewart and Jacqueline Lorber-Kasunic, "Akrasia, Ethics, and Design Education," *Design Philosophy Papers*, no. 4 (2006).

10. Cal Swann, "Action Research and the Practice of Design," *Design Issues* 18, no. 1 (2002).

11. For example, if attempting to identify why walking and bike riding is not as widely supported as desired in the city of Sydney's Central Business District, Gehl, Mortensen et al.'s (2007) publication commissioned by the city, *Public Space Public Life*, provides comprehensive design-based research identifying external barriers to easily moving on foot or bike through the city.

12. The IDEO method cards present 51 design research methods in four categories: look, learn, ask, and try. Such methods are valuable in understanding people's behaviors, for example the "empathy tool" encourages designers to try activities simulating the end user; doing so may identify limitations to the likelihood of eliciting the desired behavior. IDEO, *IDEO Method Cards* (San Francisco: William Stout Architectural Books, 2002).

time how to act. Prompts should be noticeable, self-explanatory, and near the point of action, in order to encourage the desired behavior. Prompts provide the most promising strategy for design activity. In his book *The Design of Everyday Things*, Donald Norman discusses the importance of prompt-like tools in the user interface of products, which he calls affordances, that “provide strong clues to the operations of things [e.g.,] plates are for pushing, knobs are for turning, slots are for inserting things into.”¹³

When they are well designed, affordances lead the user toward the correct use of a product, helping to ensure that the desired behavior is the most likely default action. The prompts could be visual or verbal reminders designed into the product. The tendency to boil water in a kettle and then forget it has boiled (requiring reheating) was identified and overcome by a temperature indicator and insulated kettle redesign in Kambrook’s Axis Kettle, prompting the user at the point of action to encourage appropriate behavior—in this case, not re-boiling a previously hot kettle.¹⁴ The semantic principles outlined by Norman provide an opportunity for design to practically prompt the appropriate default behavior.

The second strategy that clearly links to the practical activity of industrial designers involves the concept of the “norm.” A norm is a visual display of “normal”—i.e., appropriate or sanctioned—behavior. For example, when you approach a house and see shoes outside the door, this indicates a norm of the occupants and prompts you to take your shoes off. Elizabeth Shove identifies the role of design in changing social norms around the “three Cs” (comfort, cleanliness, and convenience) that contribute to our increased embodied and inconspicuous consumption. As standards of living improve, standards of normality change—with results like increased showering as personal hygiene standards are raised by continuous access to hot water, or the increase in air-conditioned environments in many arenas of everyday life.¹⁵ To enable norms for behavioral change, McKenzie-Mohr suggests that we need to make new sorts of norms visible. In particular, the hidden, positive actions that promote sustainability need to be made visible and desirable as social norms that can be followed. Creating norms through visualizing possible futures is a strategy that has a history of use in industrial design. The visions presented by early

The Curitiba bus shelters and the Paris Vélib provide evidence of design’s power to encourage constructive behavioral change.

industrial designers of possible futures conditioned our normality and paved the way for those visions to become our reality.¹⁶

The final strategy is the identification and removal of “external barriers.” External barriers are constraints that make the logistics of completing a desired activity difficult. These could occur for any number of reasons, including safety, distance, image, cost, and Shove’s “three Cs.” McKenzie-Mohr concedes that the removal of external barriers is not always possible. However, for designers, the removal of external barriers is probably where the most significant contributions may be made, as design has the capacity to effect change within the physical environment. The Paris Vélib provides an example of removing external barriers to riding, inasmuch as the system seeks to overcome, by design, barriers such as convenience, theft, maintenance, and parking. It is easier, cheaper, and more convenient to make the sustainable choice to ride for short-distance travel instead of opting for motorized transport. The system thus seeks to make sustainable actions the default ones.

Using design to remove external barriers to desired behaviors is not new. The introduction of the phonograph was successful once it was packaged as furniture, which removed the barrier of many homeowners’ fear of new technology and machines in the home.¹⁷ The Number Five Car of Bel Geddes

13. Donald Norman, *The Design of Everyday Things* (New York: Basic Books, 2002), 9.

14. Chris Ryan, “New Products Gain Competitive Edge,” Royal Melbourne Institute of Technology, www.cfd.rmit.edu.au/content/view/full/227.

15. Elizabeth Shove, “Converging Conventions of Comfort, Cleanliness, and Convenience,” *Journal of Consumer Policy* 26 (2003).

16. Tara Andrews, “The Legacy of Streamlining and Un-Sustainability in Industrial Design,” (University of Technology, 2007).

17. Kyle Barnett, “Furniture Music: The Phonograph as Furniture, 1900–1930,” *Journal of Popular Music Studies*, 18, no. 3 (2006).

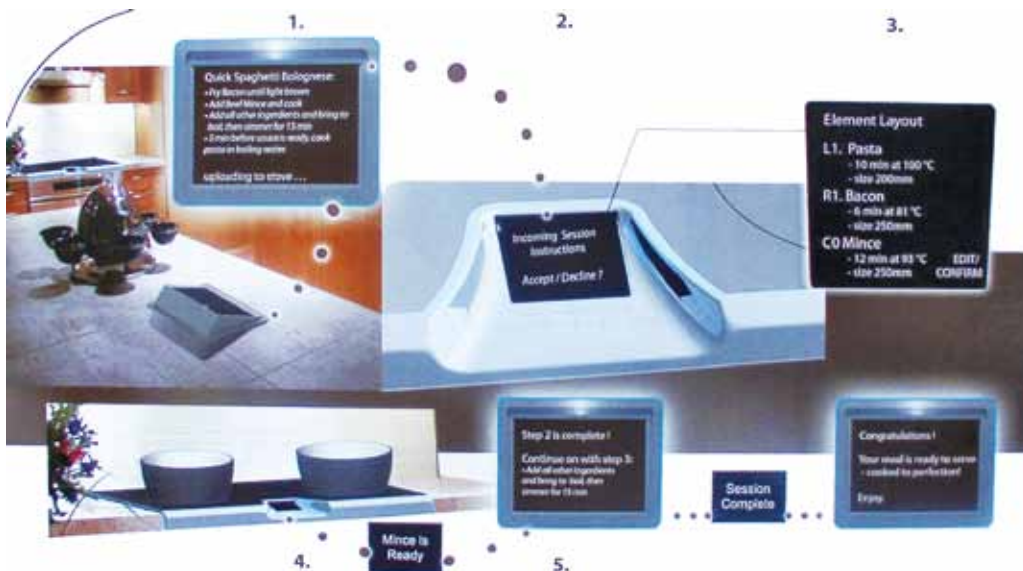


FIGURE 1: Programmable stove storyboard



Each Block Shares a Garden



Every house gets a trolley, if it is stolen or taken out of the area it notifies the owner of its location by GPS



Owners use fingerscanners to identify themselves. The trolley allows access to the garden for owners only. It also monitors the amount of produce taken.



All waste gets put into home compost bins



Compost from home bins is used to grow produce in the community

FIGURE 2: Community garden storyboard

The general lack of critical reflection in current industrial design literature makes it difficult to learn from others' mistakes and build on their successes, and restricts the intellectual growth of the discipline.

was so radical in styling that five models were produced to gradually accustom customers' tastes, thereby removing the external barrier of their aversion to radical styling.¹⁸

Within the University of Western Sydney's Sustainable Design unit, identifying barriers to the adoption of desired behaviors (and the adoption of their promising concepts) is used in design studio workshops as a concept-generating tool. It has led to concepts such as the programmable stove, which attempts to overcome the barrier of a lack of knowledge in preparing meals from fresh ingredients by utilizing an assistive display, as well as the barrier of inconvenience by making the cooking instruction programmable like the microwave (SEE FIGURE 1).

Many student solutions engage the barriers to sharing, often coming up with novel solutions, such as the finger-scanner to assist in overcoming the identified barrier of security for the community garden, as well as making the garden equitable, as the scanner records work completed and produce taken (SEE FIGURE 2).

The Mod-U-Home seeks to overcome the physical barrier to sharing via a modular home that allows sections of the house to be "handed down to the kids." In so doing, it also addresses other barriers to the problem of shared shelter, including cost and convenience—in this case, for adult children

attempting to establish their first home and empty nesters needing to downsize (SEE FIGURE 3).

As these three examples illustrate, the removal of external barriers by design is a viable tool to assist in the promotion of sustainable behaviors and lifestyles.

STAGE THREE: PILOTING THE STRATEGY

McKenzie-Mohr recommends piloting the campaign (or design concept) on a small scale, refining the prototypes until the desired results are achieved, and then implementing the program at full scale. The cost of trialling a program is likely to be small in comparison to rolling out a large but ineffective campaign. This stage, McKenzie-Mohr suggests, is often overlooked; yet it has the potential to increase the adoption of sustainable behaviors.

The relevance of pilot programs to pure industrial design is clearer today than it once was. In the case of the Paris Vélib, the scale on which the system was rolled out was due to sound planning and, above all, to a smaller trial in Lyon, the Vélo'V, prior to full-scale implementation on the streets of Paris.

STAGE FOUR: EVALUATING

Stage four, evaluating the strategy once it has been implemented, is often poorly executed, according to McKenzie-Mohr. This omission is especially problematic within the field of DFS, because the way the design plays out in action is essential to assessing its viability. As Lerner suggests, "it is important to make it happen now, *and then ... take the time to improve.*"¹⁹ The Sustainable Everyday Project has advanced considerably in attempting to critically evaluate the success of implemented projects.²⁰ The dissemination and evaluation of sustainable case studies is also important if we are to enable healthy reflection on current DFS strategies. The general lack of critical reflection in current industrial design literature makes it difficult to learn from others' mistakes and build on their successes, and restricts the intellectual growth of the discipline. Monitoring and reflecting strategies over time may be facilitated by new regulatory requirements for managing products over their entire lifecycle.²¹

In industrial design education emphasizing sustainability, the last phase, evaluating, is crucial.

18. Tony Fry, *A New Design Philosophy, an Introduction to Defuturing*, (Sydney: University of New South Wales, 1999).

This example can be contrasted with that of the Chrysler Airflow (1934–1937), whose failure in the market has been blamed on the radical styling of its streamlined shape.

19. Jamie Lerner, "Cities Climate Change Summit," in *C20: The World Cities Leadership Climate Change Summit* (London's City Hall, Queen's Walk: London Government, 2005), 47. Emphasis added.

20. Francois Jégou et al., "Sustainable Everyday Project," www.sustainable-everyday.net.



FIGURE 3: Mod-U-Home

Sustainable design cannot be achieved in a one-off solution; it has to adapt over time through continual reflection and what Manzini describes as a “social learning process.”²² Sharing reflections on sustainable design (both successes and failures) is required to build our knowledge of this emerging discipline.

VOCATIONAL APPLICATIONS OF DESIGN FOR BEHAVIORAL CHANGE

Design informed by the behavioral change tactics of CBSM is thus a sound way of enhancing industrial design students' ability to develop sustainable products, systems, and lifestyles. The employment of CBSM by industrial design practitioners could go in several directions, here presented in three possible vocational variations for industrial design students. The need to clarify possible vocational roles emerged from my four years of experience teaching DfS,

during which time I observed a disconnect between the students' conceptual design solutions and the way those solutions might be employed in the students' future careers.

The three identified trajectories for design vocations are (1) designers applying creative skills to generate DfS product concepts (the role most similar to traditional industrial design practice), (2) designers extending their skill set to manage entrepreneurial

21. Alice Castell, Roland Clift, and Chris Franca, “Extended Producer Responsibility Policy in the European Union: A Horse or a Camel?” *Journal of Industrial Ecology* 8, no. 1–2 (2006).

22. Ezio Manzini, “A New Generation of Designers: Perspectives for Education and Training in the Field of Sustainable Design. Experiences and Projects at the Politecnico Di Milano University,” *Journal of Cleaner Production* 11, no. 1 (2003); Ezio Manzini, “Scenarios of Sustainable Well-Being,” *Design Philosophy Papers*, no. 1 (2003), 1.

We like Mod-U-Home because its so easy to renovate. When we decided to update, we simply swapped modules - it only took a day! The old modules went back to the factory for recycling, so its all good.



The wife's family is coming for six months! Although the house is full, our Mod-U-Home lets us rent a room. This means we save money, and less impact on the environment - we only have a spare room when we need it.



ventures for sustainability, and (3) designers operating as specialised DFS consultants. These vocational variations are not entirely new; rather, they are based on existing vocations that industrial design pedagogy may benefit from embracing and making explicit.²³

²³. Habermas has noted that vocational preparation for professions is one role of the university. For DFS, the university has a role in generating these vocations, through industry sponsorship of scholarships and piloting projects. Jurgen Habermas, *Toward a Rational Society: Student Protest, Science and Politics*, trans. Jeremy Shapiro (Boston: Beacon Press, 1971); Jurgen Habermas, *The New Conservatism*, ed. Sherry Weber Nicholsen, trans. Sherry Weber Nicholsen (Massachusetts: The MIT Press, 1989).

²⁴. Laurence Stenhouse, *An Introduction to Curriculum Research and Development* (London: Heinemann, 1975).

Industrial design education for sustainability benefits from clarifying these vocational variants through appropriate pedagogy. In particular, the entrepreneurship and consultant vocations encourage students to make their own careers, enabling the growth of the discipline based on an appropriate application of industrial design skills. Insofar as leadership roles are implicitly present in the entrepreneurial and consultancy vocations, encouraging the development of such roles challenges the culture of design as a profession that simply serves clients' needs.

From a pedagogical perspective, it is also beneficial to present sustainability as an opportunity instead of a responsibility. It undoes the sense students may have of sustainability as a purely moral obligation or rhetorical stance. However, in vocational terms, emphasizing sustainability may not seem plausible. If the vocational role appears improbable to students, then it may be perceived as irrelevant, particularly in a client-serving, brief-driven discipline like industrial design. Stenhouse suggests that what is not seen as relevant will tend to be disregarded—the polar opposite of the objective of educating industrial designers for sustainability.²⁴

CONCLUSION

This article has shown that design for behavioral change has an important role to play in bringing about a sustainable society, and has indicated a process for encouraging design students to engage in design for behavioral change. The outcome of this process is an altered understanding of the vocational roles that designers could adopt as agents of large-scale behavioral change. Any attempt to further enhance designers' skills to design such solutions as outlined above may be in vain, however, if the reasons for applying these skills are not further explored and appropriate vocational pathways are not developed.

CLOSING THE DESIGN GAP

Elliot Felix

INTRODUCTION

Not long ago, I found myself in an airport, utterly confused and stressed. Though I was flying international, it turned out I would be leaving from the domestic side of the terminal, meaning I'd just walked about half a mile in the wrong direction and would have to walk double that to get to the right gate. When I finally got there, having missed the flight, there was little I could do while waiting for the next one. The food options were awful, the space was anything but inspiring, and there was not an electrical outlet in sight, save one that several travelers were desperately huddled around as if it were some 21st-century campfire.

Contrast this with what I experience at JetBlue's Terminal 5 at JFK airport: I enter the airport and am greeted by abundant security lanes. Moving quickly through security, I can see what the options are and where I need to go as I walk down a ramp to the central hub where the wings of the terminal converge. At this hub, there are a variety of shops and services available, with others near the gates as well. Soaring spaces, clear signage, great food, comfortable seating, and power outlets abound, not to mention free WiFi. All in all, it's a much better place to be delayed in.

The first airport exemplifies a common problem with many of the places in which we live, learn, work, and play: There is a gap between our needs and the way our environments accommodate them—let's call this the “design gap.” At Terminal 5, however, the design was guided by JetBlue's business strategy of making flying fun and creating

what they call a “people-port.”¹ So, the building meets the needs both of the people who use it, and JetBlue's bottom line. This is an example of how design strategy—a way of simultaneously focusing the design process on user needs and business objectives—can help close the design gap while creating value for customers and businesses alike.

CAUSES OF THE DESIGN GAP

How does the design gap come to be? How is it that our environments so often underperform, functionally and even emotionally,² leaving a range of basic human needs unmet? And why are fundamental business goals such as cost-effectiveness, communication, and innovation not better supported by our spaces?

The design gap results from flaws in the design process involving the participants, their communication with one another, and the way the design problem is defined. Clients may not know or be able to express their needs. New to the design process and its terminology, they may understandably fumble through it. Their vision might be unclear; for example, they may know they need new office space but have no sense of how they want to work

1. JetBlue's press release for the terminal's opening illustrates their design and business goals well: <http://investor.jetblue.com/phoenix.zhtml?c=131045&p=irol-newsArticle&ID=1199481&highlight>.

2. The pairing of functional and emotional needs is derived from Don Norman's extensive writing on how products can fail to meet user needs; see for example *The Design of Everyday Things* (New York: Basic Books, 2002) and *Emotional Design: Why We Love (or Hate) Everyday Things* (New York: Basic Books, 2003).

in the future. On the other side, architects may not be good listeners, or may be listening for the wrong things. This could be because of a preoccupation with styling, a bias toward novelty rather than refinement, or a degree of specialization that makes them unable to see the big picture. Most significantly, architects and other designers may come to view design as an end in itself as opposed to a means for fulfilling the needs of the end-users.

A building's eventual occupants or users often don't have a voice in the design process that establishes how the building will look, work, and feel. Design ideas may not be made concrete through examples, stories, tours, and mock-ups or prototypes—all tools that enable people to experience the design in progress and provide feedback. Multiple options may not be considered in parallel so that ideas can compete. Design decisions might be based on abstract design ideas, values, or metaphors rather than on evidence. Finally, the design problem may have been defined long before the design process began, precluding the discovery of the real issue. This often has unfortunate consequences, as when a recently renovated bank branch closes because it is in the wrong location.

IMPLICATIONS OF THE DESIGN GAP

In recent years, fields from medicine to media have benefited from an increased focus on user-centered design. Yet architecture has been left behind, becoming both more specialized and less functional. The design process is also becoming increasingly complex, with more participants addressing ever-more difficult design challenges. Compare designing a library a few hundred years ago, when patrons could not even browse books, to today's libraries, which must support hundreds of different types of media and technologies, enable people to access all of them physically and virtually, and incorporate a variety of spaces for them to work in—not only to retrieve information but also to create, share, combine, and refine it.

With occasional exceptions in retail and health-care environments, architectural design today lacks a user-centered mandate as well as a culture of performance assessment during and after design. Too many design decisions are made with insufficient

evidence, too few spaces include rigorous post-occupancy assessment, and most buildings are mistakenly thought of as finished the moment the client moves in, rather than as something that will have to adapt over time. Contrast this disregard for use and users with Apple's strategy behind the iPod

In recent years, fields from medicine to media have benefited from an increased focus on user-centered design. Yet architecture has been left behind, becoming both more specialized and less functional.

and iTunes: having elegantly designed the device, the user interface, *and* the content delivery service with users in mind, their business is booming and evolving.

CLOSING THE DESIGN GAP WITH DESIGN STRATEGY

Our built environments need a business-focused, user-centered design revolution. Design strategy is a way of focusing and guiding the design process, reconciling user needs with business goals through a mix of empirical research and structured, measured experimentation.

Design strategy is currently the purview of specialists—design strategists—who are often hired by the client organization as third-party advisors and facilitators. To illustrate design strategy in practice, I'll use some examples from recent work at DEGW, a strategic consultancy focused on the relationship between the design of spaces and the performance of people within them.³

Faced with rapid, global growth, Google needed a way to quickly convey their design goals and requirements to different architects around the world while at the same time enabling diverse, innovative design solutions. Based on a research process involving interviews, surveys, observations, and workshops, DEGW developed

³ See www.degw.com. The author is an associate director in DEGW's New York office.

global design guidelines for Google's offices that communicated design principles, performance criteria, and best-practice examples. For example, one of principles in the guidelines is that ideas are not just generated in offices but also in the social spaces in between. This guideline may be interpreted differently around the world, but fostering casual interaction within every workplace is a goal now actively pursued throughout the company.

The University at Buffalo sought to improve how they support learning with physical and virtual services, spaces, and technologies. Drawn from technology surveys, workshops, observations, path studies, and campus tours, one of DEGW's research findings was that hallways were a crucial part of the campus, particularly given the winter climate, and were also the most popular places on campus for students to use laptops. Working with students, staff, and faculty, we developed a strategy to transform bleak institutional hallways into "learning corridors." More than just pathways connecting endpoints, these corridors are places for students to do things like study, chat, eat, collaborate, present, and discuss. Guided by this overall strategy, the university has started creating learning corridors, in each case interpreting and applying the concept in response to the specific needs and possibilities of a particular location.

For many corporations whose work involves a great deal of technical know-how and equipment, the workplace is structured by the specific technical requirements of the work process. In such situations, the actual users of the equipment know more about how they work than a designer ever could. These users should have a hand in shaping their own space, but they rarely do. To address this problem, DEGW in conjunction with the Canadian Broadcasting Corporation developed a tool called the "Sandbox." The Sandbox brings users and designers to the same table, makes design opportunities and constraints visible, and enables them to co-create a design for their space during a workshop session. The Sandbox and the collaborative design process it supports were subsequently tested and refined in a series of highly successful pilot projects leading to a comprehensive workplace strategy for the broadcaster to improve its use of space.⁴

PRACTICING DESIGN STRATEGY

Design strategy has both inner and outer aspects, existing as both a mindset or characteristic way of seeing the world and as an associated toolkit of relevant skills and competencies. The design strategy mindset interprets design as a way of defining and solving problems using a process that is iterative, participatory, and integrative.⁵ The design strategist is "empathic,"⁶ self-aware, curious, and inquisitive, with a high tolerance for ambiguity. The design strategist is driven by a desire to make ideas tangible in order to get feedback on those ideas from the people who will have to live with their consequences. This approach involves thinking in terms of systems and relationships. If you look at a design strategist's notepad, you are likely to find a map of words and doodles with lots of arrows and circles linking them, rather than an ordered list of terms.

The design strategy toolkit, as the means for putting design thinking into practice, includes such skills as observation, facilitation, visualization, and clear communication. A design strategist must be able to consider multiple options simultaneously: Brainstorming, scenario, planning and prototyping skills are critical as is the ability to subsequently edit and organize ideas. Throughout the process, one must be able to convey information in ways everyone involved can relate to. For instance, no matter how many floor plans or photorealistic views are shown, really understanding the design of a space may continue to elude clients until they are told a story about how the space could be used, thereby getting a sense of a "day in the life" of different users.

To close the design gap, design strategy must become embedded in the architectural design process.

4. For more information on the Sandbox, see http://images.businessweek.com/ss/08/09/0911_inshort/index.htm.

5. Considering multiple constraints and solutions simultaneously and resolving them without making trade-offs is the essence of what Roger Martin has defined as "integrative thinking." See Roger Martin, *The Opposable Mind* (Boston: Harvard Business School Press, 2007), 6.

6. On the subject of "empathic design," see Dorothy Leonard and Jeffrey F. Rayport, "Spark Innovation Through Empathic Design," *Harvard Business Review*, Nov-Dec 1997, 102.

Design strategy—a way of simultaneously focusing the design process on user needs and business objectives—can create value for customers and businesses alike.

There are two ways to achieve this. The first way is for designers and client organizations to incorporate design strategy in consultation with domain experts, as in the examples above. In this mode, consultants focus on teaching a way of addressing design problems through collaborative practice,⁷ rather than delivering one-time recommendations. The second way to embed design strategy into architectural practice is to embed it into the curricula of architecture and design schools. As part of the academic curriculum in a wide variety of fields—starting with those that directly engage with the design process, later moving into disciplines as diverse as engineering, physical and social sciences, and business—design strategy will help graduates better understand the potential of their environments. Design strategy will also allow graduates to apply the problem-solving approach to other aspects of their jobs (for instance, how to design an effective meeting). Classes related to design strategy are already being offered in a number of institutions, including The Rotman School of Management, Stanford University's D.School, California College of the Arts, and Parsons The New School For Design, with more institutions currently developing curricula in this area.⁸

THE WAY FORWARD

Widespread dissemination of the design strategy mindset and toolkit, whether in the field or as part of a degree program, will help to close the design gap in our environments. While there will always be value in consulting with a neutral third-party expert, in general design strategy is a specialty whose success will in part be measured by the speed of its obsolescence. This is analogous to what has

happened with sustainable design: When sustainability began to garner attention as a design goal, it was solely the purview of outside experts, either to deliver solutions directly or to educate and advise on building sustainably. Fast-forward ten years: Through design education and professional practice in working with these experts, clients and architects alike now commonly have this expertise and leadership in-house. They can now handle all but the most complex or novel projects on their own. At the moment when there is no longer a difference between “design” and “sustainable design,” this specialty all but vanishes. And so it may be with design strategy: When all design is user-centered and business-enhancing, the design gap will, for the most part, be closed. Any remaining exceptions will prove the validity of the strategic approach through their failings as functional spaces.

The barriers to the adoption of design strategy are cultural and procedural. First, a cultural shift is required within the architectural-design profession to focus on user requirements and business goals as primary design drivers. With this shift would come another: seeking the refinement of existing design ideas, as opposed to novelty and uniqueness for their own sakes. These shifts, in turn, are prerequisites for an even more important one—the routinization of post-occupancy measurement of design performance. Currently, the design of health-care facilities is at the forefront of this shift; it is here, in a field where rapidly escalating costs are raising the stakes for all parties, that “evidence-based design” is being most enthusiastically embraced.

Overcoming the second barrier to widespread adoption of design strategy will require changing the design process itself to include a more diverse set of stakeholders; structuring design processes so as to get meaningful feedback along the way; and allowing design to play a strategic role not only in solving problems but also in defining problems. Fifty years ago, faced with a booming population and a plague

7. For a description of consulting that builds the capacities of the client by focusing on the process, see Edgar H. Schein, *Process Consultation Revisited*, (Reading: Addison-Wesley, 1999).

8. Curricular change at the Rotman School of Business and other schools was recently covered by *The New York Times*: www.nytimes.com/2010/01/10/business/10mba.html?sudsredirect=true.

of maintenance problems, America's national parks were headed for disaster. As part of its Mission 66 program,⁹ the National Park Service used the design process as a way to clarify the real problem to be solved: how to sustain the parks while enabling more people to experience them. In doing so, they created a new way to experience the parks: visitor centers that gave people a taste of a park without letting them overrun it. The centers integrated services, administrative functions, and educational programs in attractive structures with expansive views, accommodating the masses but limiting their impact.

Resulting from a design process focused at once on user goals (i.e. to experience the national parks) and business goals (i.e. to manage the parks for all Americans), these visitor centers created value. So should all our spaces. Value is ultimately determined by customers—clients, users, and the public—and may be measured in metrics like satisfaction, engagement, loyalty, patient outcomes, safety, speed to market, traffic throughput, sales, and environmental impact. Whatever the metric, we can close the design gap by better defining the problem and structuring a participatory, iterative, integrative design process. This is the role design strategy can play in the design of buildings and of the information, products, and services within them—a role that is sorely needed if our environments are to enable people and businesses to thrive.

9. For additional information on Mission 66, see www.mission66.com/mission.html.

RECOVERING FROM AN ANNUS HORRIBILIS

Book Review by Denise Ramzy

**Bryan Bell and Katie Wakeford, eds.,
Expanding Architecture: Design as Activism
(New York: Metropolis Books, 2008).**

2009 turned out to be architecture's *annus horribilis*. The starchitecture bubble officially burst. The world's tallest building, Burj Khalifa (originally Burj Dubai), needed a bailout by neighbor Abu Dhabi. American housing starts were the lowest of the post-war period, while the number of foreclosures reached a record high; commercial rents plummeted as companies laid off workers; condo buildings sat empty or, worse, half-finished. The profession itself suffered more job losses than most industries. Despite government stimulus, the sustained credit freeze and specter of rising inflation evoked a shrinking industry.

In all this gloom, *Expanding Architecture: Design as Activism*, a collection of case studies edited by Bryan Bell and Katie Wakeford, offers a glimmer of hope. Bell explains in his preface, "To make design more relevant is to reconsider what 'design' issues are. Rejecting the limits we have defined for ourselves, we should instead assume that design can play a positive role in seeking answers to many different kinds of challenges. We have limited our potential by seeing most major human concerns

**Making design more relevant to
needy communities represents
an opportunity to resuscitate a
troubled profession.**

as unrelated to our work" (p. 15). Making design more relevant is something Bell understands well: He is the founder of Design Corps, an organization committed to effecting change in needy communities through architecture and planning. Implicit in this redirection is an opportunity to resuscitate a troubled profession.

This is not a theoretical book. Lacking an index, neither is it a reference. Instead, it provides a broad overview of the latent potential in current architectural practice. But the eight loose sections dividing the thirty case studies, including "Participatory Design," "Housing for the 98%," and "Prefabricating Affordability," overlap too much to be meaningful. While some of the essays extract best practices, such as using asset-based approaches to identify community resources, they rarely offer a road map and tend to ignore the financial issues inherent in the work they depict. Nevertheless,

Expanding Architecture serves its purpose by making the case for action. If short on detail, it is long on inspiration. The design is engaging, with extensive use of pull quotes and colorful sidebars highlighting key points. While some of the drawings are too small to be legible, the photos are descriptive and persuasive.

Introducing the book at a recent panel in New York, Bell outlined three ways to expand the practice of architecture: first, by serving more of the public; second, by taking on a greater range of issues; and third, by offering a larger scope of services. These strategies offer a framework for considering the diverse projects.

In his forward, Thomas Fisher, dean of the University of Minnesota College of Design, reminds the reader of “the gap [that] continues to grow between what millions of people need and what the current system of housing and building provides” (p. 9). Compounding the problem is a profession that services only those in the very

The 21st-century architect needs to be more than an artist, draftsman, engineer, LEED Accredited Professional, or generalist. She or he must also be a facilitator, an agitator, and, crucially, an active citizen.

highest (and occasionally, very lowest) income brackets who can afford customized solutions—the often-cited 2% of the population. In this light, the editors have identified projects for “the other 98%.” Lance Hosey writes about the simple yet brilliant Q-drum, a plastic cylinder for transporting water designed by South African architects to be rolled easily across various terrains. Barbara Wilson describes the Social, Economic, and Environmental Design (SEED) Network, a group whose mission “is to advance the right of every person to live in a socially, economically, and environmentally healthy community” (p. 29), and the work they did in post-Katrina New Orleans. About a quarter of the case studies are dedicated to affordable housing projects.

The studies address thorny issues of community and politics alongside the cost implications of using prefabricated materials, rehabilitation versus new construction, and sustainable design.

Beyond proposing a new client model, *Expanding Architecture* calls for the practice of architecture to become more proactive. Sean Donahue, a graphic designer who chose to work with the low-vision population, states it eloquently: “These expanded relationships and perspectives have become the foundations for my practice, allowing the graphic-design contribution to move away from the reactionary position of ‘solving problems’ and shift instead into the proactive position of design leadership by enabling design and the designer to identify areas where they can make a significant contribution It ascribes the design inquiry a value not dependent on solving a preexisting inadequacy as defined by others and instead positions it as a vehicle for exploration, articulation, and advancement” (p. 139).


Russell Katz explains his decision to both design and develop residential buildings in Washington, D.C., as a way of being in control of his work rather than waiting for the perfect client, “in order to focus on what I considered to be the three most important aspects of building: beautiful design, environmental sustainability, and financial success” (p. 223). Instead of relying on commissioned work, Chris Krager formed the design/build firm KRDB in Austin, Texas, to create affordable modern housing. He reasons that, “if we want to make a lasting impact on society and culture at large, we must begin to transform the mediocre built environment. To accomplish this, architects and building designers must act as businesspeople, civic leaders, and activists. Our obligation is simple: Our built environment must be improved, and we must lead the way” (p. 244).

Architects today frequently reminisce about the good old days of the architect-as-generalist. *Expanding Architecture*, too, champions a broader job description, but it insists that the 21st-century architect needs to be more than an artist, draftsman, engineer, LEED Accredited Professional, or generalist. She or he must also be a facilitator, an agitator, and, crucially, an active citizen. As Laura Shipman, a recent architecture graduate, recounts in “Migrant Housing,” she was surprised by her

experience on the Design Corps team rebuilding after the devastating 2004 hurricane season in Florida: “The most eye-opening part of this experience was learning just how many non-design factors are involved in producing this type of housing. Collaborating with advocates in other fields, going through the funding and approval processes, and interacting with farmworkers all broadened my perspective on the varied roles the designer must play in order to provide responsive and effective architectural advocacy” (p. 192).

Rather than assuming every architect wants to—or can—take on the various roles Shipman observed, we must emphasize collaboration. While architectural degree programs teach teamwork as a core value, the teams themselves tend to be composed of fellow architects. Complex problems with multiple stakeholders require solutions that draw on a variety of resources and skills, often outside the realm of design. The book’s final section, “The Transformative Power of Architectural Education,” proposes a shift in pedagogical priorities to prepare students for a broader, more active practice; its pages include initiatives and curricula that deal with real-world concerns related to the built environment, rather than theoretical scenarios. The proposed initiatives utilize transdisciplinary project teams made up of architecture, film, medical, and law students, for example.

This type of work and its cooperative emphasis is often labeled community design, public-interest architecture, or activism. It tends to be marginalized as a feel-good exercise. But reinforcing silos within design misses the larger point. As the recent earthquake in Haiti and our struggle to respond has demonstrated so powerfully, making architecture sustainable in the largest sense of the word has never before been so necessary.



NEW ROLES IN THE ORGANIZATIONAL DESIGN OF HIGH SOCIAL VALUE-CREATIVE BUSINESS MODELS

Jonatan Jelen and
Kaleem Kamboj

INTRODUCTION

Sustainable change in business and organizational life has become a global pursuit. Ideas need to be addressed to a postindustrial context, a situation that calls for radical redesign of many organizational systems, processes, and products. Traditionally, however, the discipline of “industrial organizational design” has made little mention of design processes or an actual role for designers. Indeed, the phrase sounds almost oxymoronic: While the nomenclature of design suggests an *a priori*, generative enterprise of specifying a layout or blueprint for an organization, institution, or bureaucracy, “organizational design” is generally used to describe actual, organically evolved, organizational practices. From this highly pragmatic, *ex post* perspective on the design of an organization, seen as the result of an evolutionary social structuration process, “design” appears to be developmental, incremental, incidental, or even just

a natural consequence of a well-crafted strategy. In the mainstream literature of “organizational design,” the role of designers seems residual or even parasitic when compared to the activities of strategists, managers, and leaders.

This pragmatic perspective may have been sufficient to capture the phenomena of organizational design in the industrial age, with its associated technologies of transformation, transportation, and energy generation as well as distribution, coordination, and communication—that is, during an era when the advent of such technologies prompted their own use and the concomitant development of productive entities to harness them. Throughout the 19th and 20th centuries, the need for automating and even informing the firm was all too obvious. Knowledge of what to do and how to do it was paramount.¹ These ideas need to be revisited in the context of the new imperative to promote sustainable human activities, yielding an existence that is

in harmony with the environment and not solely centered on human needs, yet that does not ignore such needs altogether.

The advent of the information-based digital economy requires a new understanding of the phenomena of organizational design. Current information technologies are spectacularly different from all previous incarnations—in particular, language and print. Information technology is not merely pragmatic. It is also paradigmatic in nature: It has its own transformative impact upon those who produce and consume it. For firms, it is important not only to adapt and adopt, but to become—that is, to entirely change their character. In the new information economy, organizational design cannot be taken for granted and left to develop “by itself.” One outcome of the shift to a postindustrial context has been the emergence of a new category of firms, the complex information technology-intensive firms such as Google, eBay, Amazon, YouTube, MySpace, Facebook, Yahoo, Craigslist, as well as some foreign counterparts such as the Chinese search engine Baidu. These firms can be seen as models for the creative implementation of new, sustainable organizations.

The productive elements of the “sustainable experience economy” need to be designed intentionally and deliberately. While the currently ascendant information business models may look like products of uncoordinated, incremental accidents, in reality they are carefully crafted experiments. And while we may adhere to evolutionary theory in the physical, biological world, the virtual, intangible world of organizations is highly constructed. It calls instead for the pursuit of “intelligent design” that is unlike the messy, unstructured environments of the natural world that lead to speciation through mutation. Thus, we recommend a more cognitively motivated, proactive enterprise of design for organizations, in order to properly capture and harness the transformative impact of information and information

technology on the increasingly necessary efforts for creating sustainable global change.

More specifically, in this article we analyze the prevalent understanding and conceptualization of organizational design, which is still dominated by the pragmatism of industrial technologies. We then make the argument for a novel approach to organizational design, inspired by a new breed of firms—complex, information technology-intensive firms—that prefigure a new role for designers in the organizational design process. These firms are remarkable not only for their framework and business mode (i.e. the quantity of the information that

The advent of the information-based digital economy requires a new understanding of the phenomena of organizational design.

they produce or the quality with which they harness, process, and create it), but even more for their distinctive adaptability in generating sustainable business models.

In light of the need to develop sustainable activities, organizations, and economies, these firms, with their inherently complex, information technology-intensive cores, illustrate that design, in the broadest sense, is more and more indispensable to the constructive engagement with 21st-century problems and opportunities. They suggest that organizations that fail to leverage the range of skills, knowledges, procedures, and methods characteristic of the design disciplines will increasingly do so at their peril.

TRADITIONAL ORGANIZATIONAL DESIGN— WITHOUT DESIGN, DESIGN MANAGERS, OR DESIGN METHODOLOGY

Traditional organizational design theory and literature rests on three major tenets: (1) It is dominated by an evolutionary, organic view of organizational design and a corresponding “interactionist” perspective emphasizing change, adaptation, and the reflexivity of the underlying system design;² (2) It

1. See N.J. Foss, “Misesian Ownership and Coasian Authority in Hayekian Settings: The Case of the Knowledge Economy,” *The Quarterly Journal of Austrian Economics* 4 no. 4, 3–24.

2. See W.J. Orlikowsky, “CASE Tools as Organizational Change: Investigating Incremental and Radical Changes in Systems Development,” *MIS Quarterly* 17 no. 2, 1993, 309–40; H. Mintzberg, *The Structuring of Organizations* (Upper Saddle River, New Jersey: Prentice Hall, 1979).

is focused on structure as the main design variable, at the neglect of other possible variables such as strategy, scale, scope, and social responsibility; (3) It is reductive, in that it primarily captures, analyzes, and assesses designs already in practice, all the while de-emphasizing design as a proactive, creative phenomenon, an architectural blueprint that precedes the actual systems in place, with global consequences. Most design phenomena are simply taken for granted, under the rubric of past best practices. The result of these tenets of the traditional theory of organizational design is a paradox. The Weberian bureaucratic as well as the Taylorian industrial model require the *visible hand*—that is, a top-down, hierarchical command approach. But in order to deliver results, they seemingly allow for an *invisible hand* to mysteriously govern the bottom-up, organic, self-managed process of configuring and conceptualizing the design that is to support the ensuing productive activity.

Exceptions to the mainstream view include such contributions as Allan Afuah's *Business Models: A Strategic Management Approach*, George Huber's *The Necessary Nature of Future Firms*, and Afuah and Tucci's *Internet Business Models and Strategies*, all of which advocate the necessity of a proactive cognitive stance emphasizing the creative design of new models of sustainable business development.³ A parallel breakthrough occurred in the early 1990s, when Carnegie Mellon's famed Software Engineering Institute introduced a formal curriculum that presented systems architecture as a part of the discipline of organizational information system design. Also representative of this "architectural" approach was Shaw and Garlan's *Software*

Architecture: Perspectives on an Emerging Discipline.⁴ Nevertheless, these developments were limited to the design of information systems as a subset of the organizational system. They did not extend design's collaborative approach to the development of an entire organizational or institutional entity.

The five factors of scale, scope, strategy, structure, and social position are design elements that can be used to generate new organizational entities.

In the mainstream of organization theory, design is reduced to five organizational components, comprising minimum requirements for defining an "organization" as distinct from a "group" or other system. General Taylorian organizational (i.e. production-intensive) or Weberian bureaucratic (i.e. administration-intensive) theory identifies these five variables as specialization (division of labor), departmentalization (compartmentalization of like activities), chain of command (hierarchy), authority-responsibility linkages (reporting relationships), and span of control (size of the organizational subunits or groups to be commanded). Originally there was a tendency to interpret these variables strictly, thus establishing the *mechanistic* form of organization on one end of the spectrum. Over time, however, this perspective was relaxed to allow for more flexible, responsive, and nimble interpretation and application of the variables. If all of them are relaxed at the same time, an entirely new concept emerges: the *organic* form of the organization. In this latter paradigm, organizations can choose where to position themselves in collaborative response to the imperative of sustainability, rather than having to gravitate towards the mechanistic form or to be conflicted when departing from it.⁵

What follows is Kantarelis' characterization of the four major influences on the above framework for the design of businesses.⁶

The Neoclassical Theory of the firm, in its basic form, views the firm as a black-box, rational entity.

3. A. Afuah, *Business Models: A Strategic Management Approach* (New York: McGraw-Hill/Irwin, 2003); G.P. Huber, *The Necessary Nature of Future Firms: Attributes of Survivors in a Changing World* (Thousand Oaks, California: Sage, 2003); A. Afuah and C.L. Tucci, *Internet Business Models and Strategies: Text and Cases* (New York: McGraw-Hill/Irwin, 2002).

4. M. Shaw and D. Garlan, *Software Architecture: Perspectives on an Emerging Discipline* (Upper Saddle River, New Jersey: Prentice Hall, 1996).

5. For a representative example of the mainstream view, see J.R. Schermerhorn, J.G. Hunt, and R.N. Osborn, *Organizational Behavior* (New York: Wiley, 2008).

6. Demetri Kantarelis, *Theories of the Firm* (Inderscience Publishers: www.inderscience.com, 2007).

The theory is built on imaginary but plausible production and demand functions. It establishes the principle of profit maximization, in which profit is maximized when marginal revenue is equal to marginal cost. Among other things, the theory may be used to describe various market structures, regulation issues, strategic pricing, barriers to entry, economies of scale and scope, and even optimum portfolio selection of risky assets. The main weakness of the theory is that it assumes complete information and, as a result, there is no agency problem or concern for transaction costs due to conflict between owners and suppliers of inputs—conflict that might, and often does, complicate collaborative interactions within a global market system. Another weakness of the theory is that it allows only for minimal firm evolution in response to creative needs.

The Transactions Cost Theory of the firm focuses on problems of asymmetric information involved in transactions. The firm, according to this theory, comes into existence because it successfully minimizes “make” inputs costs (through vertical integration) and “buy” inputs costs (using available markets). The more specific the firm’s input requirements are, the more likely it is that it will produce them internally and/or acquire them through joint ventures and alliances. The weakness of this theory is that it does not take into consideration agency costs or firm evolution or explain how vertical integration should take place when it comes to making necessary investments in human assets, with unobservable value, that cannot be transferred.

The Principal-Agent Theory of the firm extends the neoclassical theory by adding agents to the firm. The theory is concerned with friction between owners of firms and their stakeholders, or managers and employees, due to information asymmetries; the friction between agent and principal requires precise measurement of agent performance and the engineering of incentive mechanisms. The weaknesses of the theory are many: It is difficult to engineer incentive mechanisms, it relies on complicated incomplete contracts (which can be all but unenforceable), it ignores transaction costs (both external and internal), and it does not allow for firm evolution.

Finally, the Evolutionary Theory of the firm lays the primary emphasis on production capabilities

and processes as well as on product innovation. The firm, according to this theory, possesses unique and at least semi-permanent resources and capabilities, which can be classified into four categories: financial, physical, human, and organizational. The theory sees the firm as both a reactor to and a creator of change, always seeking to gain a competitive advantage. The firm, as a creator of change, may cause creative destruction, which in turn may give birth to new industries and enable the growth of new sectors or entire new economies. Although many countries, on the basis of the evolutionary theory, have established architectures to support entrepreneurial endeavors, a weakness of the theory remains: Process and product innovation (especially the latter) are seen as mostly due to serendipity. As a result, “entrepreneurship” is a very expensive factor of production; in the pursuit of profit and general well-being, it cannot be easily programmed within a firm or a nation.

Aside from their individual weaknesses, these theoretical foundations for the design of the organization share another weakness. All of them completely ignore the necessary preceding architectural act and the associated configuration of the design variables, which are the first frame of the ensuing productive system. In a word, they do not account for the “design” in “organizational design.”

THE CASE FOR A CENTRAL ROLE FOR DESIGN, DESIGN MANAGERS, AND DESIGN METHODOLOGY IN ORGANIZATIONAL DESIGN

We make the case for fully emancipated incorporation of design, design managers, and design methodology into the development of socially responsible and globally sustainable business organizations. Our proposal is based on three observations: (1) Limiting the design variables to organizational structure—as is currently the case—is an insufficiently narrow and reductive perspective on design. (2) A richer and more adequate role for design can be seen in the new spatial and temporal collaborative constructs of the complex information technology-intensive firm. (3) The oxymoronic bypassing of design in mainstream organizational design theory can be redeemed by recognizing the potential roles for design, design managers, and design methodology in

building sustainable, cooperative, creative solutions for meeting global and local needs.

FROM MERE STRUCTURAL COMPONENTS TO RESPONSIVE DESIGN VARIABLES

In order to demonstrate our proposition, we must first separate the pragmatic from the paradigmatic aspect of the firm.

We are encouraged by similar developments that have previously expanded our understanding of the firm: For example, Porter's value chain⁷ has been extended to include the value shop and the value network; bureaucratic, hierarchical organizations have been joined to flat network structures; and finally, the initial construct of productive organizations based on rigid mechanistic forms has evolved, prompting the recognition of a continuum spanning mechanistic and organic structures. It is this last example that particularly informs our research proposition.

Adding our research to this movement, we now identify five variables—scale, scope, strategy, structure, and social position—as our proposed design elements for firms.

From a *pragmatic* vantage point, firms are practical productive enterprises. Their purpose is value creation; their activity, production of goods and services through processes; their objective, profits. These factors pertain to what we call the business *mode*.

But firms also have a paradigmatic aspect. They represent the most sophisticated models yet devised for understanding the generation of productive assets, elegantly sidestepping some of the infamous shortcomings of individual production, peer production, and statism. The business model can be broken down into its functional components,⁸ on the one hand, and what we will label its design elements, defining the “nature of the firm,” on the other. This latter terminology was originally proposed by Ronald Coase, and has been further refined by the New Institutional school of economic thought.⁹ Coase used the notion of “the nature of the firm” to identify the particular capabilities of firms to make better decisions about their scope of activities than markets could be expected to do. His claim was that the true nature of the firm was its predisposition to control which activities it would

integrate and which activities it would release back into the market based on the transaction cost (rather than on production cost) associated with such integration. Since markets already assumed production cost-allocative decisions, a novel justification for the co-existence of firms with markets was needed. Coase's theory was intended to answer this need.

Chandler expanded on the defining elements of the model, adding “scale” to “scope,” and including “strategy” and “structure.” And most recent work has also identified “social position,” through the creation of cultural and social value, as an element of the model in its own right.¹⁰ We hold that these five elements of scale, scope, strategy, structure, and social position not only constitute a model that can be used to describe and analyze the firm in terms of its outcomes, behaviors, and change processes, but are also design elements that can be used to generate new organizational entities.

Since we are interested in novel emergent firms existing in a volatile and turbulent environment, we are not interested in treating these variables as the result of an evolutionary, bottom-up process driven by information technology. A new characterization of these variables informs our research, one that has been reinterpreted on the basis of new information technology for purposes of top-down design—as exemplified by the complex information technology-intensive firm. We hold, then, that certain combinations of these newly defined elements may yield firm designs beyond the interpretive and integrative capacity of the framework that holds sway today. As we identify how information technology's influence may generate new combinations, we find that the

7. See Michael E. Porter, “What is Strategy?” *Harvard Business Review*, 74 no. 6, (1996), 61–79; Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (New York: Free Press, 1998).

8. See Afuah, 2003; Afuah and Tucci, 2002.

9. R.H. Coase, “The Nature of the Firm,” *Economica*, 4(n.s.) (1937), 386–405; O. Williamson and S. Winter, eds., *The Nature of the Firm: Origins, Evolution and Development* (New York: Oxford University Press, 1991).

10. See, e.g., R.Y. Arakji and K.-R. Lang, “Digital Consumer Networks and Producer-Consumer Collaboration: Innovation and Product Development in the Digital Entertainment Industry,” *Proceedings of the 40th-Annual Hawaii International Conference on System Sciences 2007 (HICSS'07)*; J. Hughes and K.-R. Lang, “Transmutability: Digital Decontextualization, Manipulation, and Recontextualization as a New Source of Value in the Production and Consumption of Culture Products,” *Proceedings of the 39th-Annual Hawaii International Conference on System Sciences 2006 (HICSS'06)*.

current conceptual framework for understanding the firm unduly limits the study of the formative forces acting on firms. The current framework is experiential, too epistemologically grounded, and moreover represents its various components as independent elements rather than as integrated factors. Recognizing the possibilities of a more cognitive and “ontological” top-down design approach would provide greater insights and benefits. But this suggestion highlights a vacuum in the theoretical understanding of such firms. While the century-old formal discipline of management and the recently renewed quest for leadership greatly support the

In the new context, we can finally see a role for design management in its own right.

practice and the governance of existing organizations, they do little to explain the origin of the firm in the form of a blueprint, an architecture—that is, as the design of a framework in which such organizational activities can occur.

THE NOTION OF THE COMPLEX INFORMATION TECHNOLOGY-INTENSIVE FIRM

While the pragmatism of previous industrial technologies masked the absence of an ontological anchor for the design of particular productive systems, the advent of information technology in its most recent incarnation makes any further oversight impossible. For now we are confronted with a new breed of digital-economy firms that do not simply use information and information technology as yet one more technology among all the others. Rather, these are “complex” systems; many, for example, serve multiple constituencies at a time. They exhibit community-based, social value-oriented, and network-centric models of organizational activity. Of an entirely new character, they do not merely represent a speciation or an evolution from previous business models. In order to configure and sustainably maintain such volatile and inherently unstable social networking models of social organization,

a serious and sustained application of deliberate, intelligent design is required. This is especially true when—as is the case with these types of firms—the variables of strategy, structure, scale, scope, and social position have been radically deconstructed, reconfigured, and reconstructed in a Schumpeterian process of creative destruction.

Therefore, our perspective diverges from previous treatments of the subject. Most of the business literature concerned with information technology since the mid-1990s deals with the pragmatic impact of information technology on organizational design, being primarily concerned with epistemological problems and transactional aspects. On one hand, the literature focuses on structuration issues; on harnessing the potential of information technology through optimization; and on the impact of information technology on firms’ activities, decision-making processes, and management effectiveness.¹¹ On the other hand, it focuses on the necessary attributes for functioning under the new environmental conditions brought about by information technology.¹² Our concern, however, is ontological, in that we wish to explore the very reason for existence of such firms, their new nature, and their fundamentally redefined character as productive elements of the economic complex. Indeed, these firms have been designed *sui generis*, *ex nihilo*, *ex ante*, and *de novo*—the design variables of strategy, structure, scale, scope, and social position revealing entirely new meanings and requiring entirely new understandings of the potential role of the firm in the 21st century. In the new landscape, strategy is no longer competitive but cooperative; structure is no longer bureaucratic-hierarchical but network-flat; scope is no longer driven by transaction cost, but by transaction profits; size is no longer a quantified measure, but a qualitative result of dominance; finally, the social position of the

11. See, e.g., E. Brynjolfsson and L.M. Hitt, “Information Technology and Internal Firm Organization: An Exploratory Analysis,” *Journal of Management Information Systems* 14, no. 2, (1997), 81–101; E. Brynjolfsson, et al, “Does Information Technology Lead to Smaller Firms?” *Management Science* 40, no. 12, (1994), 1628–50.

12. See Huber, 2003.

firm is no longer “across the table” from its users, consumers, and clients, in zero-sum negotiation, but instead implicates them as partners in a collaborative process of co-producing and co-generating the products, experiences, and contents comprising the firm’s business offerings. However, the resulting new business models of social networks, transmutability,¹³ and community models have not evolved spontaneously and organically.

IMPERATIVE AND MANDATE TO THE DESIGN DISCIPLINE AND DESIGN MANAGERS TO FILL THE VOID

In the new context, we can finally see a role for design management in its own right. Traditional industrial firms that coalesced around different technologies were understood to be sufficient to superimpose the leadership, governance, and management control structures as integrative mechanisms onto organically evolved organizational practices. But new firms require an *a priori* conceptual design and configuration of the above-named five variables, much like the blueprint for an architectural project. Unlike the historical industrial technologies of transformation, transportation, energy generation, distribution, coordination, and communication, the current epistemic form of information technology is without precedent or prior models. Previously, technologies needed to promote, and to exhibit, efficiency; if they didn’t, the companies relying on them would be eliminated through an evolutionary process. Information and information technology are different. Information exists even if it is wrong or absurd. It cannot be destroyed, but continues to propagate. It appreciates with increased use, and can be generated by producers and consumers alike. Information is infinitely expandable and replicable and free to distributable. Information-based firms, then, need to be deliberately imagined, carefully crafted, and intentionally implemented in order to be able to manage and profit from these new ontological attributes of their stock in trade. While these responsibilities have been assumed as a matter of course to be the domain of strategists and managers, a more careful look reveals that such assignments are increasingly imprecise and ineffectual. They belong instead with a new category of strategist: the design manager.¹⁴

¹³. See Arakji and Lang, 2007; Hughes and Lang, 2005.

¹⁴. A note on methodology: The findings and conclusions of this article are supported through a composite methodology. While the main thesis represents a critical-theoretical vantage point, we generated the supporting evidence through an analysis of interviews conducted with two dozen influential and qualified practitioners, professionals, and executives, mainly from the New York metro area. They were selected from a pool of contacts, mainly through the Baruch College Field Center for Entrepreneurship, in the context of a larger inquiry into “the new nature of the firm,” as we were studying the aforementioned category of complex information technology-intensive firms.

DESIGN MANAGEMENT AS CORE COMPETENCY: From “Design You Can See” to “Design You Can’t See”

—
Brigitte Borja de Mozota
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INTRODUCTION: CHANGES IN DESIGN ACTIVITY ARE LINKED TO CHANGES IN THE ENVIRONMENTAL CONTEXT

Designers have always been “agents of change” in society. Studying both the history of design and the history of organizations demonstrates how the environment simultaneously shapes the activities of designers and managers. Historical phases in organization theory exhibit the same patterns as design theories and processes. There are no changes in design or business that are not influenced by other changes—whether social, technological, or cultural.

Consequently, there is a constant tension between the *reality* of design activity (through concrete design projects classified under many design disciplines, namely “tangible design,” or “design you can see”) and the *definition* of

design activity (variously identified as design science, design ethics, or design theory—all intangible things, or “design you can’t see”).

As an example of this tension, consider the present failure of “eco-design,” which has not been sufficiently powerful to change an economic system predicated on overconsumption. Few environmentally aware designers find a way to follow their “Victor Papanek” consciences; instead, they are obliged to apply their skills to market forces.¹ Designers should be playing a greater role in transforming society in the direction of social, environmental, and economic sustainability—but how?

Managers and designers alike research changes in the world. Out of this research, designers discover new trends in technology and culture and new needs in and for human behavior. They proceed to embed those trends and needs in innovative artifacts, whether products, services, or systems. Managers agree to develop these artifacts insofar

1. See Victor Papanek, *Design for the Real World: Human Ecology and Social Change*, 2nd ed. (Chicago: Academy Chicago Publishers, 1985).

as they cohere with their own prior research on the global context of change. Just as designers are making new cultural possibilities tangible through their work, managers develop new strategic possibilities according to emerging challenges and opportunities in the environment.

So what new challenges and opportunities does the contemporary context pose for all decision makers in design and management? And what is its potential for, and impact on, design? Several new demands and opportunities for design managers are becoming increasingly evident:

- *Managing complexity: To succeed in business today requires applying design thinking as both a holistic view and as “information design”; visualization skills are used to simplify complex environments and to build scenarios for system change.*
- *Globalization and innovation: In the present context, more and more companies have to be international in their sourcing, distribution, and general outlook; designers can be involved here, as design teams are used to multicultural working environments and creativity itself has no borders.*
- *Process-oriented companies: Companies have to become more human-centred, customer-driven, and process-oriented; new information systems have to be invented for Customer Experience Management. Designers have to take a wider view of “user-centered design,” in which customers are not the only focus. “Users” include employees, shareholders, suppliers and all other stakeholders in addition to customers.*
- *Socially Responsible Enterprises: This business model is spreading, and methods are needed in order to implement it more widely, as “sensemaking,” in Karl Weick’s phrase.² Designers’ input can go beyond projects in eco-design or community design, towards inventing and implementing standard processes for change in an SRE enterprise.*

As a consequence of the challenges and opportunities inherent in the emerging historical and economic context, the design and design management communities now face two different potential directions for change: an incremental “meta-design” direction and a more radical “basic design”—or core competency—direction.

THE “META-DESIGN” DIRECTION: INCREMENTAL EXPANSION OF “DESIGN YOU CAN SEE”

Existing design disciplines have to redefine themselves according to global changes in what can be called the service- and aesthetics-based economies:

- *The service economy demands the development of (1) service portfolios within existing businesses and (2) entire service industries that define their activities in terms of customer experiences and customer relationships.*
- *The aesthetics-based economy demands the development of new design disciplines with greater sensitivity to design imaging, perception evaluation, cognitive psychology, and sensory design.*

The “experience economy” that emerges from an intensified focus on customer service and brand value is where new “meta-design” disciplines are needed, to help navigate among existing design-discipline silos in knitting together ever-more comprehensive and immersive customer experiences. This “meta-design” direction is an adaptation of design understood in terms of design outputs and solutions. The entry points for design in organizations remain the same. The demand for design starts with the company’s product and service portfolios; the design brief is to give the brands an emotional difference that customers can sense and respond to in the market.

This direction is based on the classic strategy definition of Michael Porter: strategy as “fit” in selecting a unique value chain in a specific market, after a SWOT analysis of internal strengths and weaknesses and external opportunities and competitive threats.³ In this context, design yields a tangible competitive advantage, registered through improved brand image, sales, and market share within a defined market.

Today, we have entered the “creative economy,” in which design itself is an industry that is part of the bigger picture of creative industries, and where creative industries are now giving competitive advantage at a national level. Postmodern organizations

2. See Karl E. Weick, *Sensemaking in Organizations: Foundations for Organizational Science* (Thousand Oaks, California: SAGE Publications, 1995).

3. See Michael E. Porter, *On Competition: Updated and Expanded Edition* (Cambridge: Harvard Business School Publishing Corp., 2008).

are collages that value creativity. Managers in postmodern organizations are reinventing management so as to enhance autonomy and individual creativity through processes such as co-design, user-centered design, and inclusive design. The postmodern design manager can be seen as an artist

The design and management communities now face two different potential directions for change: an incremental “meta-design” direction and a more radical “basic design”—or core competency—direction.

or theorist who focuses on creativity and freedom, self-entrepreneurship, and individual responsibility. Under such a management style, hierarchical power is deconstructed by way of a galaxy of projects. Design adds value by “giving voice to silence”—that is, to previously overlooked or unheard minorities.

THE CORE COMPETENCY DIRECTION: RADICAL DESIGN STRATEGY AS “DESIGN YOU CAN’T SEE”

The traditional vision of strategy as “fit” is not helpful in solving the previously noted challenges of decision makers. Therefore, another strategic theory has emerged, emanating from a resource-based perspective and seeking to advance a collective-learning objective. This alternative view of strategy focuses on internal development, but it can also help push the traditional boundaries of organizations through processes of network management. The resource-based theory of building a sustained competitive advantage has been greatly developed since Birger Wernerfelt’s original article in 1984, which responded to contemporary changes in organizations’ environments.⁴

A “resource,” in this context, refers to an asset or input to production that an organization owns, controls, or has access to on at least a semi-permanent basis. Thus, design managers should understand the resource-based theory as a paradigm shift from the

structure–conduct–performance (S-C-P) paradigm, which sees competitive advantage as primarily determined by environmental factors, and involves differentiating the company from its competitors in an industry. The S-C-P view of design strategy is reactive. It is a concrete view of the company’s potential in the context of its competitive environment.

Resource-based management, by contrast, highlights how the possession of internal, valuable, rare, inimitable, and non-substitutable resources may result in sustained superior performance. The resource-based view of a firm’s competitive advantage emphasizes the importance of invisible internal assets, including the skills and values comprising “design you can’t see.”

Hamel and Prahalad argue that information-based, invisible assets—such as customer trust, brand image, corporate culture and management skills—are the real sources of competitive advantage, both because they are difficult and time-consuming to accumulate, and because they may be used in multiple ways simultaneously.⁵ To design managers, adopting a resource-based strategy means promoting design abilities as rare, inimitable, and non-substitutable; it also means managing design within a long-term perspective of sustained competitive advantage rather than a short-term, project management view. Resource-based management highlights design as involving skills that are pertinent—even essential—to developing a corporation’s intangible assets. And in adopting “a more process-oriented view of strategy, market boundaries and industries can be reconstructed [through the] actions and beliefs of industry players.”⁶

At this time of transition between two sociotechnical systems, the volatility in the frontiers dividing professional and industrial sections favors the emergence of so-called “Blue Ocean” strategies, as described by Kim and Mauborgne—that is, strategies that seek to create “uncontested market space” and which make any competition “irrelevant.”⁷ Strategy,

4. Birger Wernerfelt, “A Resource-based View of the Firm,” *Strategic Management Journal* 5, no. 2 (1984), 171–80.

5. Gary Hamel and C. K. Prahalad, *Competing for the Future* (Cambridge: Harvard Business School Press, 1994).

6. Ulla Johansson and Jill Wood-illa, “Towards an Epistemological Merger of Design Thinking, Strategy, and Innovation,” paper delivered at the Eighth European Academy of Design Conference, The Robert Gordon University, Aberdeen, Scotland, April 2009.

they argue, should be dynamic, rather than solely concentrated on the competitors; design management should focus on design process management rather than design project management (SEE FIGURE 1).

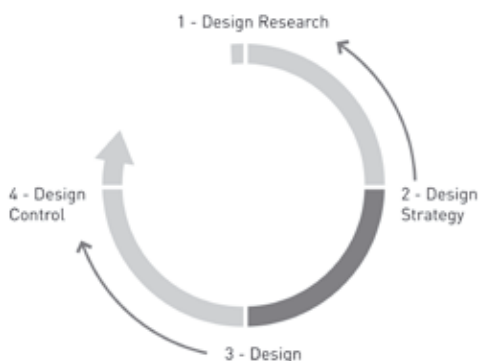


FIGURE 1: The design process in business—the design function⁸

The excitement surrounding design thinking and the “new MBA” (often praised by Roger Martin in the business media) further exemplify the currency of this radical design strategy. They emphasize that it is the skills of designers that will most help decision-makers face their current challenges. The input for design within organizations is not simply the object to be designed for the company portfolio, but also the specific skills of designers. FIGURE 2 is a map of designers’ skills and—in italics—the skills that are most relevant to the present context. Of particular importance is “holistic thinking”: the designer’s curiosity or open-mindedness, which transcends existing barriers presented by industrial silos.

The design agency IDEO has branded designers’ skills under the rubric of “design thinking.” Their global success—the Davos summit; Procter & Gamble; the D.school at Stanford University, headed by IDEO founder David Kelly—is evidence of the coherence between their discourse and the needs of both CEOs and politicians worldwide.

We now return to our introductory remark on the contradictions between the *reality* and the *definition* of the design profession. In the design community,

and particularly among academics in design, everyone is familiar with Herbert Simon’s “design science,” Donald Schön’s “reflective practitioner,” and Willemien Visser’s vision of design as a construction of representations.⁹ Writers such as Bryan Lawson or Nigel Cross have explained designers’ ways of knowing and of thinking.¹⁰ Indeed, every designer will probably refer to design activity in one or more of these ways: as problem solving, as part of the industrial process, as social engineering, as a question, as a research activity, as a discourse rather than a thing, as a label, as an art form, and so on. Why, then, does our current context require us to return to the most basic of design definitions?

Design science is what is needed to change the strategic process within companies. Strategy definition is also becoming a complex and “wicked problem”: Comparing and competing with one’s rivals on market-share targets in well-documented, static industrial sectors will provide no sustained

Today, we have entered the “creative economy,” in which design itself is an industry that is part of the bigger picture of creative industries, and where creative industries are now giving competitive advantage at a national level.

7. W. Chan Kim and Renée Mauborgne, *Blue Ocean Strategy: How to Create Uncontested Market Space and Make the Competition Irrelevant* (Cambridge: Harvard Business School Publishing Corp., 2005).

8. Source: Brigitte Borja de Mozota, “The Four Powers of Design: A Value Model in Design Management,” *Design Management Review*, 17 (Spring 2006), 42–53.

9. Herbert A. Simon, *The Sciences of the Artificial*, 3rd ed. (Cambridge: The MIT Press, 1996); Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action* (New York: Basic Books, 1984); Willemien Visser, *The Cognitive Artifacts of Designing* (Hillsdale, NJ: L. Erlbaum Associates), 2006.

10. Bryan Lawson, *How Designers Think: The Design Process Demystified*, 4th ed. (Oxford: Architectural Press, 2005); Nigel Cross, *Designers’ Ways of Knowing* (Basel: Birkhäuser, 2007).

KNOWLEDGE	VALUES	APPLIED SKILLS	UNDERSTANDING SKILLS
Design process	<i>Risk-taking,</i> <i>Managing uncertainty</i>	Practical design skills, <i>Prototyping, Drawing</i>	<i>Observation</i>
Material	Originality	Creative techniques, Lateral thinking	Research
Market	Anticipating future trends	Commercial skills	Logical thinking
Technology	Proactivity in developing relationships	Communication skills (presentation and report writing)	Analyzing, Prioritizing, Structuring problems
<i>User awareness</i>	Open-mindedness	Computer skills	<i>Scenario building,</i> <i>Narrative</i>
Culture	Understanding transdisciplinary context	Design for manufacture	Synthesizing, <i>Holistic thinking</i>
Aesthetic awareness	<i>Focusing on usability</i>	Project management	Intuitive thinking and action
<i>Human factors</i>	Attention to detail	Optimization	Consumer and stakeholder needs
Manufacturing process	<i>Learning from errors</i>	<i>Teamwork</i>	<i>Human empathy</i>

FIGURE 2: Design skills—in italics, the strategic skills most crucial today

advantage. Because of the digital revolution, the economy no longer works this way.

Where is your competition when industries' frontiers are blurring, when Amazon and Google are the new competition in traditional industries such as editing, publishing, and general commerce? Today, all strategic methods based on competition analysis—whether they are used by designers or managers—are losing relevance as decision-making tools.

In this transitional economic context, in which any individual on the Internet can challenge the role of the largest institutions, new skills are needed to innovate organizations' relationships to the world. Design activity becomes an agent of change for prototyping a new sociotechnical system and helping companies manage the transition between systems.

Recently, the way that designers think has become increasingly interesting to business managers, largely because it is seen as creative and holistic rather than specialized and bureaucratic (**SEE FIGURE 2:** Design skills). In accordance with the above-mentioned challenges posed by a complex world of diverse stakeholders, the emerging roles for designers in the 21st century include

- *Design as a facilitator of thinking: The designer in the 21st century will need to know how to mobilize and energize the thinking of others.*
- *Design as a visualizer of the intangible: Not a new role but an extended one—the designer must be able to visualize systems, relationships, emotions, experiences, and networks.*
- *Design as a navigator of complexity: Designers have*

to understand complexity theory in order to help others understand and manage complexity and ambiguity.

- *Design as a mediator among stakeholders: “Meta-design” with various visualization tools can allow multiple stakeholders to debate complex issues.*
- *Design as a coordinator of exploration: Designers must employ this technique among relevant technical sources in particular so as to maximize creativity in the early stages of a design.*¹¹

THE UTILITY OF DESIGN IN ADDRESSING NEW CHALLENGES

The link between design as a core competency and the new “person-centric” economy is well exemplified in the health-care industry and the travel industry.

How might design inform healthcare and vice versa? Design tends to be person-centric, while healthcare has tended to be pathology-centric. However, many individuals have less revenue for managing illness today, so they take care of themselves differently, often avoiding doctors and hospitals to the greatest possible extent. It is therefore no longer the illness or pathology—for instance, diabetes—that defines the medical industry, but rather the *individual* suffering from this long-term illness. How can he or she be helped to assume an entrepreneurial attitude in co-designing his or her own way of living with the disease, within a person-centric economic system? In private hospitals and national healthcare systems worldwide, the current rise of service design, co-design/inclusive design, system design, platform design, and related methodologies testifies to the increasing relevance and urgency of this question.

Another example can be seen in the travel industry. Traditionally this was organized by where you wanted to travel, how you wanted to travel—train, car, plane—and how much you wanted to pay for your hotel room. Now, you can find websites identifying these traditional segmentation criteria;

however the most frequently browsed travel websites also refer to a new criterion: traveling alone. So being alone is a new segmentation criterion for travel, one that could also be used to develop innovative ways of structuring service industries. After all, people may be alone at various times in their lives, for various reasons—hence the rise of “concierge service” business models.

Today, the individual is reconstructing many different industries and promoting new alliances between traditionally competing actors. Consequently, in this individual economy—the “down-up” economy, in contrast to the top-down decision-making process that characterized traditional managerial capitalism—the brand power of organizations is fundamental in shaping your notion that *this* brand, rather than another brand, is best for *you*, regardless of which products or services are offered. The power is in each human being—the power of individual choice.

The “complexity economy” requires adopting this down-up, person-centric perspective on strategy. This, therefore, is the reason for the increasing relevance of design thinking and of a user-centered design attitude, an empathetic attitude that gives designers new roles. Designers’ research skills and attitudes mean that the design profession can embrace larger issues such as social innovation and, in so

Resource-based management highlights design as involving skills that are pertinent—even essential—to developing a corporation’s intangible assets.

doing, invent new business models. Designers and strategists can come to share an entrepreneurial spirit.

Designers need to explore how their knowledge might be exported and imported across the traditional borders of the design disciplines. A key question to consider will be “Can designers industrialize socially responsible solutions?”¹² Designers need to understand the concepts and values behind their skills in order to work effectively across traditional boundaries.

¹¹ See Tom Inns, ed., *Designing for the 21st century: Interdisciplinary questions and insights* (Surrey: Gower, 2008), 21–26.

¹² Nicola Morelli, “Social innovation and new industrial contexts: Can designers ‘industrialize’ socially responsible solutions?” *Design Issues*, 23 (Autumn 2007), 3–21.

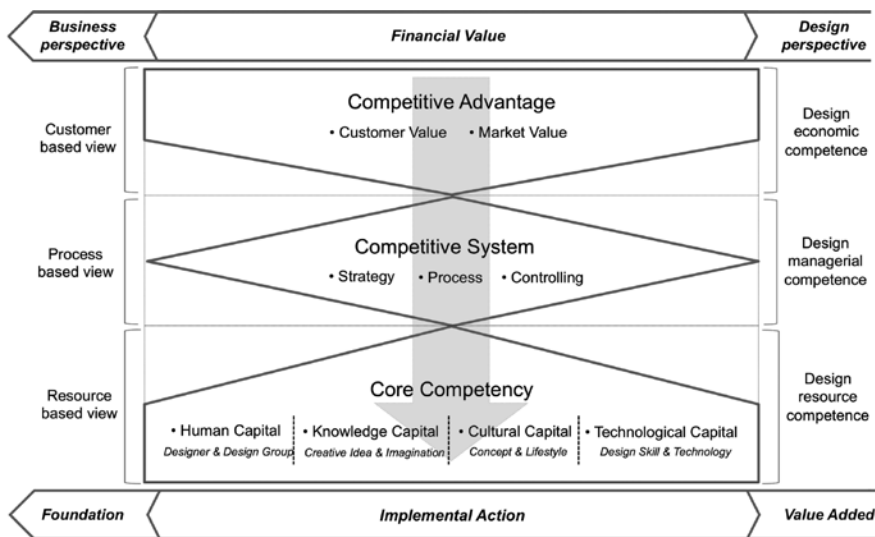


FIGURE 3: From design strategy as fit to design strategy as a resource¹⁵

DESIGN MANAGEMENT AS CORE COMPETENCY

What is the result of the transition from seeing design primarily in terms of design strategy and managing design projects to recognizing design as an integral function of all organizations? In becoming a function of organizations, design can now be selected as a core competency. This selection has several important implications:

- *Designers should expand their focus beyond product and service portfolios, product strategy, and perspectives centered exclusively on the design disciplines.*¹³
- *Design should play a greater role in the communication, promotion, and delivery of products and services as well as in the creation and communication of the business' identity.*
- *Design should be leveraged in the creation of new products and services.*
- *Design should be deployed within the business—e.g., in structuring the organization's operating environment, workplaces, business processes and systems, etc.*¹⁴

This view of design as a core competency is based on the design profession's myriad capabilities. Changes

on a global scale have created a new model for post-modern organizations and consequently, new roles for designers. Design is an asset that can give value to other intangible assets within existing organizations. It can also be brought to bear in inventing new business models.

The present system cannot be seen as a more complex version of a past one. On the contrary, the system itself now has to be reinvented. New business models and new industries will emerge that will change relationships within, and the overall the balance of, our socio-technical system. In this transition period, design thinking—a holistic and user-centered orientation to complex problems—will help facilitate the necessary changes. Designers' empathy is a key factor. But holistic, systemic thinking focused on inventing value for all stakeholders is

¹³ See James Moultrie, et al., "Design Funding in Firms: A Conceptual Model of the Role of Design in Industry," paper delivered at the International DMI Education Conference on Design Thinking, ESSEC Business School, CergyPontoise, France, April 2008.

¹⁴ See Borja de Mozota, 2006.

¹⁵ Source: Brigitte Borja de Mozota and Bo Young Kim, "Managing Design as a Core Competency: Lessons from Korea," *Design Management Review* 20, no. 2, (2009), 66–76.

most in alignment with the needed shift in strategy definition (**SEE FIGURE 3**).

In management, there has emerged a mental image of design as a horizontal function in organizations and institutions—a function based on skills (**FIGURE 1**), process (**FIGURE 2**), awareness, research and knowledge geared toward improving an organization's capital—whether human, knowledge, cultural, or technological (**FIGURE 3**).¹⁶

CONCLUSION

Unlike managing design for a competitive advantage, managing design as a core competency is high-risk and requires a long-term perspective; therefore many companies have been reluctant to invest in building design capabilities. However, some companies have understood that building a sustainable competitive advantage requires adopting a long-term, resource-based view of design management. This strategy raises the probability of success in the present chaotic business environment. Managers have to integrate design theories into their organizational theories. They must come to see design science, design theories, and conceptual models as sources of knowledge for designing their organizational platforms and structures.

The problem is that even though designers have this potential to work at higher strategic levels of organizations, they are not yet trained to do so. This is a challenge for design education. Designers have to reinvent the guilds and become more effective entrepreneurs in order to help society through this transitional period between two sociotechnical systems. They also have to design their profession as a fully-fledged member of the creative industries.

¹⁶. This focus on skills, process, awareness, research, and knowledge has been elaborated elsewhere as the SPARK model of design management. See Brigitte Borja de Mozota and Dong Hua, "Towards a Theory of Design Management: Can Theoretical Models Define its Territory? A Transcultural Conversation between Design and Business," paper delivered at D2B2: Design to Business Conference, Tsinghua University, Beijing, China, April 2009.

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