THE
JOURNAL
OF
DESIGN
+ MANAGEMENT

PARSONS THE NEW SCHOOL FOR DESIGN

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Parsons focuses on creating engaged citizens and outstanding artists, designers, scholars, and business leaders through a design-based professional and liberal arts education.

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The school embraces curricular innovation, pioneering uses of technology, collaborative methods, and global perspectives on the future of design.

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LETTER FROM THE DEAN

I am very pleased to introduce the third issue of the *Journal of Design + Management*. This year's theme, Technology and Everyday Life, touches a range of issues of concern to everyone—issues that grow more urgent as existing technologies are refined and new ones emerge.

As has frequently been observed, the role of technology in our everyday lives is fraught with paradox. Technology promises to make our lives more convenient, yet at the same time forces us to sift through an ever-increasing number of choices, options, and settings. It promises to make us more "connected," yet draws attention away from the people in our immediate vicinity. It promises vastly enhanced diagnostic powers with respect to actual and potential disease, yet leaves us wondering who should have access to the resulting knowledge, under what conditions, and whether maximizing information is always and everywhere a good thing. Today, technology is increasingly held up as the solution to the enormous challenge posed by climate change; yet every major new technology of the last century, from cars to communications to computers, has made everyday life within the industrialized nations significantly more energy-intensive.

Parsons The New School for Design engages the opportunities and complex problems posed by technology on many levels: in discussion stimulated in our degree programs, through interdisciplinary and external projects, and in programs and publications such as the Stephan Weiss Lecture Series and this related journal. We are very grateful to the Karan-Weiss Foundation for their support of this kind of meaningful design discourse. I am also grateful to—and quite proud of—our faculty and students for their intrepid and thoughtful engagement with some of the confounding issues of our time.

Tim Marshall
Dean

While it has been claimed that the impact of design on everyday life is so pervasive as to shape our very sense of place, identity, and society, much the same could be said about the impact of technology. The discussion is most interesting, and cuts across the greatest number of disciplines, when "design" and "technology" are understood in their most expansive senses.

This issue of the *Journal of Design + Management* explores some of the myriad impacts of new technologies on everyday life. In the past, philosophers have analyzed technologies as extensions of the human body and its functions. Social historians, meanwhile, have studied the impact of emergent technologies on social practices. But one thing that these various scholars—as well as regulatory agencies, consumers, and hackers of all ages and intents—have come to understand is that technologies generate both intended and unintended consequences. The articles in this issue consider how emerging technologies, particularly the digital technologies of computing and mobile communications, shape existing practices and give rise to new ones—in both predictable and surprising ways.

Apple's newest iPhone will be available in 72 countries by the end of 2008, opening up a whole landscape of potential unintended consequences. There are reports of the iPhone being introduced to Cuba, albeit at a cost equivalent to half a year's average salary. Moreover, last month the U.S. government approved its citizens' sending cell phones to Cuba. Given that widespread text-messaging was cited as a causal factor in pushing the unpopular Filipino president Joseph Estrada from office in 2001, there is a precedent for the sociopolitical leverage that mobile communications technologies can apply.

The conundrums surrounding the U.S. decision regarding Cuba exemplify in a political context the "uncertain times" Matthew Robb discusses in his commentary elaborating on Anthony Dunne's lecture "From Applications to Implications: Designs for Fragile Personalities in Uncertain Times." Similarly, the other contributors to this issue of the *Journal* examine the promise and perils associated with various existing or emerging technologies. Thus, in his review and critique of the work of Steven Berlin Johnson, Cameron Tonkinwise investigates whether the Internet—which today functions primarily as a vast repository that allows for storage and retrieval (i.e. that re-instantiates existing practices)—might someday be used to encourage the conceptualization of new ideas, paradigms, and practices as successfully searchable content. Johnson's recent focus has been on the relevance of geographically specific, local information for Web content.

Tonkinwise exposes some of the challenges facing any Web-based service founded on such "geotagging" technology. Laura Forlano, meanwhile, reviews Michelle Addington's talk "Architecture of the Unfamiliar," which articulated the need for designers (specifically architects) to understand their work as part of a larger ecosystem. Complex interdependence is a relatively foreign notion to many architects and designers, who have traditionally been taught to understand their work in terms of well-bounded problems with clearly defined parameters. And Jinsook Erin Cho explores the use of virtual avatars and their impact on behavior both online and in the real world. The contributors to this issue of the *Journal of Design + Management*, then, frame technology's impact on everyday life within the context of responsible design, production, and consumption, as these are integrated within innovative business practices.

Lisa DeBenedittis
Executive Editor

Technology and Everyday Life

From Applications to Implications:
Designs for Fragile Personalities in Uncertain Times
Anthony Dunne

Lecture Review by Matthew Robb

Each year, the Design and Management program 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, Moet Hennessy Louis Vuitton.

Past Weiss lecturers have included Leonard Lauder, chairman of The Estée Lauder Companies Inc.; Fred Dust, leader of IDEO's environmental design practice; Paco Underhill, CEO of Envirosell Inc. and author of *Why We Buy*; and Jean Rogers, who leads sustainability planning and design projects for the design and business consultancy Ove Arup and Partners.

Like Stephan, these leaders will show us that the most successful businesses aren't born by traditional methods; they're born of innovative thinking. — Donna Karan

This year's speakers were invited to address the theme of "Technology and Everyday Life" from the perspective of their work. Anthony Dunne showcased projects that illustrate a new role for design as a stimulus for debate about the social, cultural, and ethical implications of existing and emerging technologies. John Maeda discussed various ways of balancing the conflicting needs for simplicity and complexity in design, technology, and business. Steven Berlin Johnson described emerging business and social networking trends linking Internet search capabilities to geographically specific locations. Michelle Addington diagnosed the legal and conceptual barriers to interdisciplinary thinking in architecture and indicated some ways that more a holistic approach is gaining traction in areas including lighting and energy use. Finally, Danny Forster explained how he makes his technical training as an architect, and general appreciation for great design, accessible to nonspecialists—whether they are clients of his own firm, or the audience of his hit Discovery Channel program *Build It Bigger*.

This year's inaugural Stephan Weiss Lecture was delivered on September 12, 2007, by Anthony Dunne, head of the Design Interactions Department at the Royal College of Art in London. Through his work at RCA and with long-time collaborator Fiona Raby, Dunne has emerged as a leading advocate of the practice they have termed critical design—a practice dedicated to rethinking the role of designers in the 21st century.

Dunne began his lecture with a historical observation, noting that in the industrial era a primary role of the design profession has been to "ease the transition into new technologies," in large part by wrapping those technologies in appealing forms and packaging. In Dunne's view, this is no longer a viable role for designers. For one thing, it has helped bring about an energy-intensive lifestyle in the industrialized nations, now widely recognized as unsustainable. For another, new biotechnologies and nanotechnologies just beginning to emerge promise to affect the nature and meaning of human life in the deepest and most intimate ways—making these technologies an even less appropriate vehicle for the thoughtless application of commercial imperatives than the mechanical and electronic technologies that have already filled the "developed" world with mass-produced consumer goods. Of course, the uncertainties facing the design profession merely reflect the uncertainties facing our culture as a whole. We indeed live in uncertain times: confronting the possibility of technologically driven catastrophes both environmental and political, and unsure in any case what we want our technologies to do. It is in this period of pervasive cultural anxiety that the traditional role of designers as de facto servants of the industrial corporate agenda is becoming less and less acceptable. Critical design, then, seeks to establish a new role for the design disciplines, by provoking debate and discussion about the kinds of relationships we would, or should, like to have with technology. It accomplishes this effect through the design, presentation, and explanation of what Dunne calls "speculative products," some of which he went on to describe in the remainder of his lecture.

One area to which Dunne and Raby have devoted considerable attention is the domain of consumer electronics, including the cordless and cellular phones, televisions, stereo systems, and computers now jostling for space and attention in households around the world. Instead of focusing, like many cultural critics, on the content of the communications that these devices mediate, the designers investigated the devices themselves—and in particular, the electromagnetic radiation that all such objects generate as a byproduct of their intended use. This radiation, invisible and therefore unnoticed in daily life,

is nevertheless real, and given the number of electronic devices in daily use, is now so all-encompassing as to constitute in effect a new dimension of human existence, which Dunne and Raby call "Hertzian space." The constant presence of radiation caused by telecommunications devices has consequences ranging from threats to personal privacy to potential health concerns. Dunne and Raby concretized these consequences with a series of projects including the *Faraday Chair* (1998), which uses ceramic-coated panels to create a tiny box-like niche, ostensibly free of electromagnetic radiation. The very awkwardness and uncomfortableness of this putative piece of furniture testify both to the sheer difficulty of escaping the ubiquitous radiation caused by electronic equipment and to the enormous expense of doing so on a larger scale—for example, on the scale of an entire house. Thus, the *Faraday Chair* elicits some disturbing questions: Are the people of the industrialized world even aware that they spend their lives swimming in a sea of overlapping radiation fields? Do they understand the ways the "leakage" of this radiation from their cell phones and computers can compromise their privacy? What is known about the health risks that may be associated with constant low-level exposure to electromagnetic radiation? Should the ability to opt out of Hertzian space, even temporarily, be a right accorded to all, or a luxury available only to the wealthy?

A second project that Dunne discussed involves an exhibit at the Science Museum in London, which focuses on the looming energy crisis and explores various ways of addressing it. Intended for children 7 to 14 years of age, Dunne and Raby's project, entitled *Is This Your Future?* (2004), comprises three scenarios, each represented by a poster with accompanying prototypes. The scenarios seek to explore the social, cultural, and moral implications of adopting a non-hydrocarbon-based energy source as the main one for powering our lives and economies. In one, a "hydrogen future" envisions an energy sector that has been radically decentralized, with thousands of hydrogen production facilities replacing the gigantic power plants run by utilities today. Such a scenario, Dunne claimed, might plausibly lead to a "re-agriculturalization" of the economy, with children being drafted into labor in the family hydrogen business just as children were required to help work the family farms of a century ago. Dunne and Raby further speculate that, with different families competing to supply the power grid, a decentralized energy sector might also conceivably lead to a corporatization of the family—an idea explored in the poster, which shows the members of a family all wearing identical uniforms bearing the logo of the family business. The second scenario imagines the massive cultural changes that would necessarily be involved in adopting human waste as a primary energy source, including: opting out of municipal sewage systems; dissociating human waste with culturally reinforced feelings of privacy, shame, and disgust; and instead, coming to recognize "poo" as something precious, to be carefully preserved and perhaps even offered as a gift. The third scenario explores the concept of the "gastrobot," a bio-mechanical device powered by organic matter such as blood or meat, and encourages the viewer to ask where that blood or meat might come from: for example, might a family raise pets such as mice or hamsters to feed to a gastrobot television as its power source? The idea is likely to be off-putting to many—but is it really different, ethically, than humans' use of animals for food or clothing? These three scenarios neither promote nor discourage the futures they imagine; rather, they seek to stimulate reflection on what it would mean for modern societies to move, as they eventually must, beyond economies powered by fossil fuels.

Turning to biotechnology—an area of research whose human implications are only now coming into view—Dunne and Raby developed a project called *Evidence Dolls* (2005) for an exhibit at the Centre Pompidou in Paris. The project consisted of 100 identical figurines in white plastic, each equipped with three small drawers, any one of which can be slid into the seated figurine's groin area; helpfully and amusingly, the three drawers are distinguished by three different penis sizes—small, medium, and large—which also form the drawers' handles. As a "speculative product," the *Evidence Dolls* are intended for use by unmarried, sexually active women: by collecting samples of biological material (hair, fingernail clippings, saliva, semen, etc.) and storing the samples in the drawers, the women may keep track of their lovers; an included marker encourages further indication of identifying details about a lover on his assigned figurine. More generally, the project encourages viewers to consider the nature of love, sex, and romance in an age when genetic testing can render both past behavior and certain future possibilities transparent. Would the dolls be used for forensic or insurance purposes, to provide proof of paternity in the event of a pregnancy? Would they instead be used to support the disclosure of future potentialities—for example, a genetic predisposition to certain diseases—as opposed to establishing facts about the past? Meanwhile, how are the lovers (men, according to the somewhat hetero-normative conception imposed by the dolls' anatomy) supposed to react to the possibility of these tracking and testing regimes? Might a time come when such genetic disclosures are offered and expected by potential partners as a matter of course? Shall the protocol of the pickup be altered by technology, such that a biological sample is demanded in return for a phone number, as a demonstration of good health and intentions? Will the spontaneity of romance—of being swept off one's feet and falling in love—be able to survive the scientification of sex? These are the sorts of questions that the *Evidence Dolls* help bring into focus.

The cultural provocations embodied in projects such as these point up an obvious parallel between Dunne and Raby's work and various avant-garde art movements that have similarly sought to disrupt comfortable assumptions about the appropriateness and legitimacy of the viewer's place in the world. What distinguishes their approach from that of the fine arts is their constant reference to familiar, everyday products and systems: never lapsing into simplistic utopian or dystopian fantasy, they always concretize their ideas, physically and phenomenologically, in a definite product or scenario that is at once familiar and strange. It is this merging of the quotidian and the alien that invites the viewer to engage with the various issues crystallized in Dunne and Raby's "speculative products." Thus, it is by imagining actually sitting in the uncomfortable *Faraday Chair*, actually living in a post-hydrocarbon economy, and actually using the *Evidence Dolls* to help negotiate one's intimate life that Dunne and Raby's work gains its unique resonance. That work, therefore, is no better understood as a fine art defined by its emancipation from everyday concerns than as conventional product design in the service of global capitalism. Rather, it inhabits a rich zone in between those practices. And it is precisely by remaining in this zone that the work of Dunne and Raby, and of their students at the Royal College of Art, can be both critical and design-oriented. It is by maintaining a practice, in other words, that draws on both industrial design and the fine arts, while identifying wholly with neither, that they have been able to develop a mode of genuinely critical design. ■

The Complexity of Simplicity
John Maeda

Lecture Review by Scott Pobiner

John Maeda's contribution to the Weiss Lecture Series on November 14, 2007, was the personal narrative of a polymath, organized under the rubric of "simplicity." The celebrated artist, designer, former MIT Media Lab professor, and current president of the Rhode Island School of Design presented a series of his projects, relating them to the theme of his book, *The Laws of Simplicity*.[1] The book contains ten "laws" and three "keys," all bearing primarily on the issue of simplicity in design. Maeda's book argues that as makers, we have adopted an overly complex approach to the design of things; as consumers, we have asked for (or at least accepted) a market full of overly complex products; and as users, we have been content to manage complexity rather than refusing it. Maeda's lecture offered a glimpse behind these general claims, exposing some of his own struggles with the complexity, and opportunities for simplicity, that he has found in the world.

It is clear that this theme has been central to his own work. Each slide in the presentation was accompanied by a personal reflection about an event or person that had provoked some insight for Maeda regarding the idea of simplicity. The examples included Maeda's often tongue-in-cheek explorations of products and technologies. In one case, Maeda described his use of pieces of food (Frito-Lay Cheetos, French fried potatoes, etc.) in combination with a flatbed scanner to create compound images that resemble landscapes, people, and butterflies (he called the latter "butter-frys"). The butter-frys were produced by manipulating the scanned images with a graphic editing application, in an apparent playful reference to the "shape grammar" theories developed in part by Maeda's MIT colleague George Stiny. Other examples of his work represent a critique of the interactions that our technology-infused products have with one another. In one, an infrared mouse has been duct-taped to a CRT computer monitor, thus allowing the mouse to "read" a video of someone drawing and, in turn, to "draw" the same image on the computer to which the mouse is attached. The result is a potent metaphorical description of the way in which we (as designers, consumers, and users) tend to over-complicate things.

Somewhat paradoxically, the sum total of Maeda's observations and explorations was revealed in his talk as a very complex set of approaches, ideas, and media. And this left the impression that his support for simplicity comes from an argument that is based more in philosophical aesthetics than in any practical notions that can be directly translated to a particular design (or management) activity. Despite Maeda's entertaining

lecture style and wealth of knowledge in a wide range of fields (he'll be getting his law degree shortly), which allow him to relate both to technical specialists and to a general audience, there is something odd about presenting such a quirky body of work on the one hand, and explaining that work in terms of "laws" of simplicity on the other. Indeed, Maeda's presentation could leave one wondering whether it is even reasonable to posit *laws* of simplicity from the resolutely personal standpoint on the world that an artist presumably must have. Meanwhile, it is not entirely clear that advocating for "design simplicity" or "simple design" is a productive way of dealing with the diverse patchwork of societies, languages, cultures, and governments of the world. The members of these groups want in many cases to preserve their unique customs, traditions, and laws, and so it seems critical that simplicity as a design goal not hide or suppress important differences that might otherwise yield useful criteria for good design.

One of Maeda's own examples helps to clarify this point. In his talk, Maeda compared the owner's manual for his car to that for his digital camera. He decried the thickness of the camera's manual as against the car's, given the complexity of the car in comparison to the camera. But the logic of Maeda's argument appears flawed when we examine the ways in which regulations and markets across the globe affect the two product types differently. The automobile is a highly regulated piece of equipment, with each model developed for a particular segment of the world's population. First and foremost, cars are primarily marketed and sold in areas of the world that have road systems established for their use. Many other laws and regulations accompany the provision of roads by the state; and these vary widely between countries and regions. The result of this complex geographical and legal landscape is a product that requires relatively little explanation in a single manual, because knowledge about and responsibility for its use and maintenance is shared across a variety of documents and agencies, be they regulatory (traffic codes, speed limits, emissions laws, etc.), educational (driver education and licensing), or related to specific functions (farming, high-performance racing, family transportation, etc.). The digital camera, by contrast, requires almost no regulation and very little protocol for its use, so a single make and model can be marketed to almost anyone, almost anywhere in the world, in more or less the same way. This results in an instruction manual for the camera that is superficially more complex but is part of a simpler system of application. In fact, the digital camera is a triumph of simplification when one considers the complex development processes involved with traditional film photography. Thus, comparing the two manuals in the ways Maeda does obscures important differences in the ways these two products are developed, marketed, and used.

If there is a general consideration we might take from Maeda's argument, perhaps it is that simplicity is a convenience, even a luxury, which those in the developed world may want to cultivate as we continue to make and use things. But as designers and managers, it also seems prudent to consider the potential impact that an arbitrary emphasis on simplicity could have on our ability to understand the needs and desires of other people around the globe. ■

Note

1. Maeda, John, *The Laws of Simplicity*, Cambridge: MIT Press, 2006.

The Urban Web:
When Real and Virtual Worlds Collide
Steven Berlin Johnson

Lecture Review by Cameron Tonkinwise

It always seems strange to me when someone answers the question "What do you want to be?" with "A writer." I want to ask in reply, "So what do you feel the need to write about?" To be truly a writer, however, does not just entail using writing as a means of communication, as if you already know what you want to say; rather, being a writer means having a way of finding what needs to be said. Writers discern; being a writer means having a method for revealing things that others have so far failed to notice. In Roman rhetoric, this is called *inventio:* the process of discovering what to say.

Steven Berlin Johnson is many things, at once and over time. He is currently best known as a nonfiction writer: most famously for *Emergence* (on how self-reinforcing co-evolutionary processes can explain both the human brain and the growth of cities); most controversially for *Everything Bad Is Good for You* (on the intelligence and educational power of much popular culture); and most recently for *The Ghost Map* (on the relation between designed visualizations and epidemiology in relation to a mid-19th-century cholera outbreak in London). In other words, Johnson is one of those annoying experts on an absurdly wide range of topics.

However, he is also currently the founder and principal of Outside.in, a going commercial website that aggregates blog postings according to physical location. Johnson's talk for the Stephan Weiss Lecture Series on March 13, 2008, was mostly about this work—less specifically about Outside.in itself than about how "geotagging" more generally will direct the next phase in the maturation of the Internet.

Johnson's entrepreneurial side is not new. He was doing dot.com innovation from the very moment Mozilla first offered graphical interfaces for what was then not-yet-the-Internet. While pursuing graduate studies in postmodern cultural theory, he founded one of the first e-zines, Feed. Feed, and another e-zine with which it merged after the dot.com crash, Suck, played a pivotal role in setting the agenda and tone of what we now call blogging. The merged entity, Plastic, which only survived commercially for a year after the crash, was one of the first technical systems for fully reader-generated and -controlled content, pioneering the process of tagging which is now the basis of so much social networking software.

Johnson's biography raises the question of the relation between being a nonfiction writer and being an entrepreneur—a relation that traverses what it means to be a designer. Both

writers and entrepreneurs are always on the lookout for new and different ideas, but both still have to get other people to buy those ideas. So perhaps we could say that both scour the world for the new*ish*, the *somewhat* different; they hunt for things that are semi-conscious rather than unconscious, on the way but not yet apparent. Fernando Flores, a Heideggerian management guru, has often described entrepreneurs as writerly types because they are adept at listening to the conversations that are going on around them.[1] It is less that they have an "ear for dialogue" than that entrepreneurs hear beyond what is being explicitly talked about to what is implicitly trying to be said. Eugene Gendlin, an existential psychotherapist, similarly refers to the "… ," that moment in a conversation when someone trails off, indicating that there is something that they are trying to articulate, but cannot yet.[2]

This phenomenon also suggests an important aspect of design research, in its difference from conventional market research: if you ask customers what they want, they will not often have a good idea; they do not know what is possible, nor, if they did, how to determine if it is desirable—let alone the drawbacks that always accompany what might be possible and desirable. At best, they can identify what they do not like about the current setup. The designer's job is to listen, counterfactually as it were, for what users *would* want if it could be shown to them. Clues to the nature of these conditional wants lie just beyond or beneath what customers explicitly talk about, in their "…"s.

If writers and entrepreneurs—and designers—all have an ear out for such subjunctive ideas, what is the difference between them? Is it just that one puts his or her money where his or her mouth is, whereas the other gets paid for his or her mouth? You would not want to say that nonfiction writers are more about diagnosing the present than prescribing the future in the way entrepreneurs do, because the former also engage in prognosis. Perhaps a better distinction is between the ways writers try to *suggest* futures, as opposed to the ways entrepreneurs try to *decide* futures. Writers try to reveal to us what is of concern, whereas entrepreneurs go a step further, making us notice specific concerns only insofar as there is a business that can relieve us of them.

I am working through these distinctions because they point to something at the heart of Johnson's entrepreneurial work over the last decade and a half—namely, listening for what explicitly concerns people, for what people might be prepared to pay for, rather than just read about. Moreover, because Johnson has been at the forefront of Web developments, these distinctions also raise a parallel question regarding the development of the Internet over that time: is the Internet merely a medium for accessing what is already known, a large-scale mechanism for finding answers to questions that we can already articulate; or is it instead a tool for accessing new knowledge, an environment through which we can learn to articulate new questions? Speaking of the advent of radio, Bertholt Brecht noted that "it was suddenly possible to say everything to everybody but, thinking about it, there was nothing to say."[3] Is the Internet just more noise, reiterating what is already sayable, or is it a new sort of listening device, allowing us to hear concerns that we cannot otherwise articulate?

By initiating Feed, Johnson signaled that the Web was not just about an increase in the quantity of information, but a new way of discerning and registering concerns and interests, presents and futures. As with the major search engines of the time (Yahoo and Looksmart), Feed was about a few perceptive people filtering the web for you; the entrepreneurial idea was to add writers, as listening mouths for hire, to the internet. Plastic signaled a different way of filtering the Web: it was similar to Google, aggregating the conversations that people were having on the Internet to determine what was satisfying or important. The result was less the intelligence of a few perceptive writers than the massed intelligence of lots of not-so-perceptive writers. At this stage, the Internet was less about listening to what lies below what this or that person is trying to say, and more about listening to what is going on above or through these people.

Outside.in is an attempt to be much better at revealing what is of concern to people by adding another dimension to this filtering. Rather than just parsing information in the neutral space of quantity, geotagging allows conversations to have a locational quality. Johnson's lecture focused on the fact that the things of most concern to you are often things that are physically proximate: infrastructural decline or property developments right outside your house; an odd criminal act or rare bird around your place of work; the principles and principals guiding the local school. This seems like a sensible assumption. But what sort of local conversations should one listen to: are they blogs and more formal journalistic sources, such as Outside.in parses; or are they local government statistics and directives, such as Everyblock.com, for example, parses in addition to the other content?

Another issue needing resolution in this context is the appropriate scale of what constitutes "locality." In his lecture, Johnson made a very writerly perception, referring to something he calls the "Pothole Paradox." There are two major aspects to this insight. The first is that potholes and other infrastructural aberrations are only interesting to me if they are very close to me (or at least to my route), whereas things like crime or major zoning changes are likely to interest me even if they are a suburb or two away. We do not "live" in any one specifiable place, particularly not the sort of place arbitrarily identified by a suburb name or postcode; each of us lives in many different places and at various scales.

The second aspect of the Pothole Paradox is that while something like road repairs outside my apartment might be very important to me, they are often utterly unimportant and completely uninteresting to someone only one street away, or to the cyclists in my building whose more sustainable means of transport allows them to navigate more easily around potholes.

The Pothole Paradox, in short, illustrates the enormous challenges facing location-specific Web initiatives. Such sites can be quite interesting or very, very boring; and the difference often lies in a level of customizability (regarding what counts as "local" and hence of concern to me) that at present is not technically feasible.

A further difficulty for location-tagged initiatives like Outside.in—and one that will definitively determine whether this is an example of entrepreneurship or just more,

more or less perceptive, writing on the Internet—is of course finding a revenue stream. Marketers today are dreaming of locationally specific advertising, and major media companies are fearing localizable news sources. It does seem, though, that there are more than mere technical difficulties limiting access to these rivers of gold. To be "better than free,"[4] as Kevin Kelly recently called the challenge confronting Web 2.0 businesses, geotagging must provide ways for us to discover and deal with the concerns we did not realize we shared with those around us, rather than just allowing each of us to be further isolated in our own little local concerns.

It may well be that what makes the difference in this case between writing and entrepreneurship is design, in the physical artifact sense. Locationally specific Web filters could probably be more useful to us when mobile than when sitting at home. After all, we have adequate ways of finding out what is important locally—namely by being good neighbors, talking over fences or on stoops as we pass by, exchanging helpful information while patronizing local businesses, going to community meetings, and the like. It is when we are not in our own communities that we are perhaps more in need of ways of accessing local intelligence about what is interesting or important. Johnson's lecture did address a few scenarios in which a service like Outside.in usefully allows you to listen in on the local conversations of places one is visiting. However, further developing such uses of geotagged information would depend as much on smart mobile devices as on smart Internet algorithms; certainly we would need much better-designed palm-scale information technologies than the communication products currently on the market.

Outside.in's ongoing attempt to negotiate the Pothole Paradox is part of a wider trend now called "urban informatics"—the combination of pervasive computing and mobility throughout cities. But whether this new field will generate viable, sustainable business models remains to be seen. To date, the "better than free" value propositions emerging from urban informatics services always seem to target greenhouse gas-emitting business travelers who are time poor—and, it would seem, quite socially inept.

The above references to sustainability and greenhouse gas emissions point to a final issue, highly relevant to Johnson's business but not mentioned during his lecture. As Adam Greenfield notes at the beginning of his book *Everyware*, his argument is "at root predicated on the continuing existence and vitality of our highly energy-intensive technological civilization. This book should not be construed as a statement of belief that our current way of life is in fact sustainable."[5] Perhaps this is what we should be concerned about, as writers, as entrepreneurs, and as designers. ■

Notes

1. See http://www.fernandoflores.cl.

2. See http://www.focusing.org.

3. Brecht, Bertolt. "Radio as a Means of Communication: A Talk on the Function of Radio," Stuart Hood, trans., *Screen* 20: 3/4 (Winter 1979-80), 24.

4. See http://www.kk.org/thetechnium/archives/2008/01/better_than_fre.php.

5. Greenfield, Adam. *Everyware: The Dawning Age of Ubiquitous Computing.* Berkeley: New Riders, 2006.

The Architecture of the Unfamiliar

D. Michelle Addington

Lecture Review by Laura Forlano

"Innovation often relies on encounters with the unfamiliar," said Parsons faculty member John Roach as he introduced Michelle Addington, Associate Professor of Architecture at Yale, before her Stephan Weiss lecture on April 17, 2008. Addington, who also holds an appointment in the Yale School of Forestry and Environmental Science, had come to speak on "The Architecture of the Unfamiliar."

With energy use by buildings—especially new buildings—soaring, there is a great need to re-examine questions about sustainability and design. "Architecture has been very solution-focused in the past. We need to rethink questions about collaboration, innovation and architecture," said Addington. Her lecture sought to underscore the importance of fostering interdisciplinary connections and conversations among designers, social scientists, and engineers, to name just a few.

Addington's own path has been anything but familiar. She began her career working at the NASA/Goddard Space Flight Center, and spent a decade as a power plant engineer before leaving to study architecture. Addington, co-author of *Smart Materials and Technologies for the Architecture and Design Professions*, has written about energy, environmental systems, lighting, and materials. She taught at Harvard for ten years before beginning her current position at Yale.

A primary reason for the profession's inability to control energy use in buildings, explained Addington, is that architects are trained to think and work in terms of discrete "parcels." The parcel could be a room, a project, a building, or an entire city; in most cases, the parcel is whatever private property a prospective client might own. Addington's claim is that this framework limits architects, preventing them from thinking of their projects as connected to outside ecosystems.

It is especially vital to question these conceptual and legal categories in a time when new media and information technologies have blurred the boundaries between private and public, individual and community, local and global, and online and offline. Open-source software projects have transformed models of collaboration and innovation while contradicting current intellectual property rights regimes. Mobile phone conversations in public spaces alter our ideas of privacy. Rather than allowing mere ownership and property boundaries to drive projects, architects must move towards holistic, systems-based modes of thinking about their work in order to design more sustainable buildings.

Another problem Addington discussed is that many of the algorithms used by architects to calculate appropriate lighting, heating, and air circulation for buildings were developed almost 100 years ago. These guidelines have been applied, more or less unchanged and untested, ever since. Making matters worse, architects themselves are not generally well-equipped to test these equations, derived as they are from specialized fields of science and engineering such as physics.

So systems-based, cross-disciplinary thinking is more urgently needed than ever before, yet the training and conceptual regimes of most architects (and of most of the other relevant professions as well) make this need almost impossible even to recognize, let alone answer. Nevertheless, this is precisely what Addington's adept doctoral students have started to do. Collaborating with a wide range of scientists and engineers, Addington's students have countered conventional architectural wisdom by conducting in situ experiments with people to test concepts and ideas.

"Many phenomena are counterintuitive," said Addington, summarizing her students' work. For example, it is necessary to make a room darker in order to allow the people inside it to see better; and the most efficient way to warm the body is to heat the neck, whereas the most efficient way to lower body temperature is to cool the fingers. In order to uncover these nonobvious or counterintuitive phenomena, architects need to draw on a variety of quantitative and qualitative research methods.

Currently, some of the most interesting research—on topics ranging from electronic dust to new systems of heating and cooling—is conducted at the Defense Advanced Research Projects Agency (DARPA), the 50-year-old research and development organization for the U.S. Department of Defense. "There is a real problem in what we look to for authority in research," commented Addington.

Despite its national security mission, DARPA has been credited with the invention of a wide range of commercially successful and useful technologies, including the Internet, which was created during the Cold War as a decentralized communications system for the purpose of withstanding a nuclear attack on the nation's telecommunications infrastructure. Addington's lecture illustrated the importance of continually questioning whether or not society's interests and values are being served by design, technology, business, and government alike. ■

Prime Time Architecture
Danny Forster

Lecture Review by Sarah Garza

Danny Forster is the host of *Build It Bigger*, shown on the Discovery Channel, and owner of the architecture firm dkfARCHITECTURE, based in Brooklyn, New York. For his Stephan Weiss Lecture on April 28, 2008, Forster discussed his path from real estate to design education at Harvard, and to his present dual role as both television host and architect. The common thread among these diverse experiences is Forster's desire to communicate the relevance and impact of design to non-designers—a constituency which ranges from his private clients to the mass audiences who watch his television program.

While today 97 percent of new buildings are designed by developers and only 3 percent by architects, Forster claimed that only architects have the necessary skills to effectively relate the characteristics of a building site to the specific needs of the client, thereby achieving the most successful design. Forster described buildings as "living museums," in which the social and political temperatures of the time of their conception can be seen in the ways that the buildings succeed or fail to support the activities and aspirations of the people inside them. One of his firm's latest projects has been a "green" vacation home in Michigan, where Forster focused on having the clients actively participate in the home's redesign process. Forster spent a week with them in their existing space, observing their behavior and discussing at length their priorities for the new home. "My agenda is their agenda," he said. "One should talk to the client in the simplest way possible." The result of the collaboration is a home in which the owners actively "work" the space, opening certain windows at specific times of day in order to optimize the functioning of the structure's environmental systems.

Forster's work on *Build It Bigger* involves him, along with a single cameraman, in tracking the construction of the world's tallest and most monumental structures, in such far-flung places as Malaysia, Spain, New Orleans, Russia, and South Korea—not to mention aircraft carriers in undisclosed locations. Despite Forster's admitted fear of heights, the program frequently shows him hanging from a tower several hundred feet in the air. The program's producers encourage Forster to maintain his passion for how structures function while talking to his audience—but to tighten his delivery, omitting the "archi-talk" he learned at Harvard and rendering his insights in a way that a general audience can understand. Currently, Forster is focused on making even more people excited about architecture through a spin-off that will showcase collaborative projects between designers and nonprofessionals, with an emphasis on sustainability and green design.

To launch the new program, *Build It Greener*, Forster went to Greenburg, Kansas, one year after 97 percent of the town was destroyed by a tornado, to record the unveiling of the town's first rebuilt public structure, a community arts center. This building was designed and constructed by the architecture students of Studio 804, a design/build program based at the University of Kansas School of Architecture and Urban Planning. The episode will document the students' design process within their team as well as their working relationship with the clients, the citizens of Greenburg. Even more impressive than Greenburg's decision to engage this young design team is the town's determination not just to rebuild on the same site but to rebuild to the highest standards of sustainability: every new home will be LEED-certified, and every new public building will have a LEED Platinum rating. Forster's new program, therefore, will be an opportunity for the world to witness the power of students who wish to implement design in a public way and to see how sustainable design is possible in even the smallest of towns. ■

Stephan Weiss Visiting Lecture Series

1. Steven Johnson
2. Danny Forster
3. Anthony Dunne
4. D. Michelle Addington
5. John Maeda

Interpretation, Collaboration, and Critique:
Interview with Anthony Dunne

by Raoul Rickenberg

In the weeks following Anthony Dunne's Stephan Weiss lecture, Design and Management faculty member Raoul Rickenberg conducted the following interview with Dunne, in which they expand on several themes that arose in the lecture itself. Among the topics discussed are the hermeneutical context within which Dunne situates his body of work—which spans the domains of art, science, and politics—and the nature of Dunne's collaboration with Fiona Raby and his colleagues and students in the Design Interactions Department at the Royal College of Art.

Raoul Rickenberg (RR): When reflecting on commonalities in the work that you presented in your talk, it's difficult to miss the fact that many of the projects directly address the contextual environment in which design occurs. More specifically, it seems that they challenge the immutability of this context. The resonance of the *Compass Table*, for example, stems from dynamics in the exogenous electronic environment and the manner in which it obliges one to account for such dynamics. Likewise, the *Evidence Dolls* are animated by the various and varying social mores of those that use (or view) the dolls. In both cases, engagement with the work inherently extends to the environment(s) in which it is situated, and this forces one to address context as an active force in the design process. Such interaction, it seems to me, extends well beyond the sort of reflection that is typically generated by site-specific art or the forms of inquiry that are embodied in "contextual design." That said, I'm wondering how you would describe your approach to context and the role of contextual dynamics in the process of design. How do you conceive the role of environ-

ment? And how is the designer situated in this formulation?

Anthony Dunne (AD): The things we design are usually not intended for the world as it is today, so context plays a very important and dual role. Firstly, there's the imagined context where the work could or should exist, and secondly, there's the context in which the work is actually shown—or, sometimes, encountered.

Much of today's design derives its cultural value and meaning from "narratives of production." How it was made and how the designer exploited new materials and processes drives everything. The stories told about many objects stop at the point the object actually comes into being. With our work, that's exactly when the story begins. We're far more interested in "narratives of consumption": how objects enter people's lives and the meanings that arise from their interactions with those objects. But as we are not interested in designing for how the world is today, that part of our work is highly speculative. And that's where context enters, imagined contexts of use and interaction.

The context in which our work is shown is also important. When we started out, we were absolutely against showing work in white cube galleries and we experimented with all sorts of different settings: shop windows, cafes, streets, abandoned shops, gardens, homes, historical museum collections; but the work started to become about the context itself and this is not what we are interested in. Later we accepted that galleries are more like reporting spaces—places we

can show the results of our research and experimentation. So over the last few years we have shown mainly in museums and galleries, and accepted that these places are quite good for presenting work as long as it is clear it is research rather than art objects. In fact, museums are very interesting, as they are more public than galleries, and in some cases, MoMA for example, many thousands of people get to see the work and it is almost a form of mass media.

There is another aspect of our work that connects with context, and that is the role we see for design: a questioning and critical process rather than one that solves problems and provides answers. Once you turn your back on mainstream design, there are few places to go. We have found academia to be a natural home for what we do. It provides a context where conceptual and critical design can take on a usefulness; it can generate insights and understanding that can be used in teaching, developing new research methods, and possibly influencing commercial practices too. That doesn't mean it is escapist and turning its back on the real world, but simply that the usefulness of our work is in generating knowledge, methods, and insights.

As I was writing this, I realized that there is also the intellectual context within which our work sits, which is quite complex. Part design, part art, part social science. This messy space influences how we work and present our ideas. It helps us develop new working methods and approaches and puts us under a lot of pressure to make sure our ideas are understandable and relevant to other fields beyond design.

RR: With regard to the imagined, encountered, and intellectual contexts in which your work operates: how do you address the differing demands that such contexts place on your work (the plasticity that is necessary to absorb people's narratives and the rigor that is required of a critical statement, for example, or the ability to engage in individual-level interactions while operating in the realm of mass media)?

AD: We don't have any systems for this. Once a project is complete, we evaluate it informally and

discuss what we think worked and what didn't, what went as we anticipated and what didn't. Over time you develop a sense of what works. That's not a very satisfying answer, but in operating as we do, in a fuzzy in-between space, there aren't really any guidelines; you have to improvise, make it up as you go along, and be alert to the peculiarities of each context.

In whatever we do, though, there are four key elements that we try to keep balanced: rigor, imagination, tangibility, and relevance. There has to be a rigor behind the work; this usually emerges through a constant questioning and doubting of what we are doing, searching for holes, contradictions, weaknesses, and so on. We address this as we develop the project, through discussion. It's a bit painful, as you are always questioning the validity of your own work, and obviously there are times when all you can see are the weaknesses. Imagination is tricky, too. For us, it means trying to find ideas and ways of thinking that will lead to unusual and surprising outcomes—not for novelty's sake, but because it's important to appeal to people's imaginations as well as engaging their intellects. To charm and seduce through imaginative combinations of theory, methods, interactions, forms, and the like. Tangibility is quite obvious, I guess, especially for designers. It is essential that our ideas make their way into the material world in some way; it's not enough that they end up as pure thoughts. They must be embodied in object typologies that we understand: furniture, products, clothing, buildings .... And finally, relevance. This is the one we struggle with most: how to ensure our work has relevance and value beyond itself. It could be that it introduces new methods for other people working in this area, or it could get people to think about relationships between technology and everyday life they may not have considered before, or it might just simply inspire.

RR: Is your work instantiated in all of these contexts (or discourses) at the same time? Or does the work undergo transformative processes across time, as it is consumed and/or mediated?

AD: Across time. But it always carries traces of the original context it was conceived for.

RR: How—as researchers, designers, and artists—do you exert control over the ways in which your work is contextualized?

AD: Well, we can't always do that, and we don't always want to. Once the work leaves the studio, it is out of our control. Unless we are working very closely with a curator or publisher, we accept that our work will often be contextualized in relation to a different agenda. As long as we agree with the agenda, then we are happy to let go.

RR: How do you situate your work in such a way that it can serve as a meaningful provocation without being overdetermined?

We don't view [our work] as a transmitter of meaning to be decoded by a viewer, but as a prompt, a thing to be engaged with.

AD: Ambiguity and openness are the keys. We don't view the object as a transmitter of meaning to be decoded by a viewer, but as a prompt, a thing to be engaged with. We think about the experience of physically encountering the work: its size, scale, materiality, degrees of perfection, mass, relationship to the body, etc., and how these might make a person feel and what associations they might trigger. Then we spend quite a lot of time seeking out wrongness. Things have to be not quite right; this awkwardness is a way into the object, an invitation to explain why it is the way it is, why it's not quite right. If it was too correct and as expected, they would glance once and move on. If the object is too open-ended in terms of meaning, then it can seem empty. One thing that we have noticed over time is that compared to artworks, our idea of provocation is pretty mild. I think this is because if we make things too wild, they alienate and end up being categorized as wacky and irrelevant. We hope that people believe our pieces could be part of this

world, and that their subtle strangeness intrigues rather than repels.

RR: Does such subtle intrigue occur when the work is exhibited in the context of a gallery or when it is discussed in an editorial context?
AD: Both, ideally, and sometimes in lectures.

RR: If so, how do you address the shift from intrigue to polemic? At what point does the work become an overdetermined history?

AD: As soon as it leaves the studio, even in the form of a digital image for a magazine. From that point on, it is history and open to use, misuse, and abuse by others. Lectures are very important for us; they allow us to present our work in relation to its intended context. Making our own publications is something we don't do as much as we'd like to, but they too ensure that the original intellectual context for the work is clear.

RR: With respect to the specific relationship(s) of your work to social science: while many artists and designers attempt to position their work in the realm of the sciences, such efforts rarely extend beyond simplistic appropriations of scientific methodology (as in the context of "ethnographic" approaches to market segmentation and product testing). Perhaps this fact reflects a fundamental difference between the practice of science and those of art and design: to paraphrase [Richard] Buchanan, the sciences concern ways of revealing existing structure, while design concerns the construction of that which does not yet exist—but if this is true, it is a fundamental difference that you have navigated successfully nonetheless. How do you reconcile the practice of design (or art) with that of social science? In what ways does your work address the differences between these practices?

AD: I'm glad you think we are successfully navigating this fundamental difference! This is something we are wrestling with right now. You might want to ask Fiona about this. She is currently a visiting scholar at Lancaster University, where she is working

with a small group of our recent graduates and the Institute for Advanced Studies on a project called New Sciences of Protection: Designing Safe Living. They've been using the graduate projects as platforms to explore how designers, and political and social scientists can work together. And the issue that causes the most confusion and misunderstanding is the difference pointed out by Buchanan in your question. The Institute for Advanced Studies approached us over a year ago and are very interested in what, if anything, can be learned from critical design in relation to designing social policy. And we're interested in speculative politics and how to develop design-driven future scenarios that embrace political and economic complexity, how design might connect with social scientists, and who the audience for such scenarios might be. The project consists of several workshops leading to a conference in July; there's a blog as well. It's a very exciting project and full of interesting challenges.

We are absolutely committed to speculative design. But we are painfully aware of the pitfalls: on the one hand, escapist utopias that may or may not be entertainingly satirical, and on the other, design thinking being hijacked for social engineering projects.

RR: I'd like to learn more about Fiona's thoughts on the intersection(s) of design and the sciences; the fact that she is working on the New Sciences of Protection project raises a number of questions pertaining to cross-disciplinary collaboration and the role that you would like to play in such efforts. But before addressing this, I'd like to focus on the nature of your collaboration with Fiona. You have been responding to most of my questions in the first-person plural; I'm wondering how interaction with Fiona informs your work. Do the two of you approach your work from substantively different perspectives? In what ways do your interests, knowledges, and competencies differ? Is the degree of difference decreasing as your collaboration matures and, if so, how is this affecting your work?

AD: We do have different skills and interests. Fiona's background is in architecture, mine is in

industrial design, and both of us drifted into interaction design later via CRD (Computer Related Design) at the RCA where we both did research degrees (Fiona an MPhil and me a PhD) and then worked as senior research fellows. I would say that Fiona is more interested in the big picture: narrative, systems, networks, and scenarios. Although I'm interested in these, too, my main focus is on objects, things, products. I'm probably more interested in theory, while Fiona keeps her eye on what's happening in the real world via TV and newspapers. I'd say she is more of a collaborator than I am; I like to hide away in the studio (when I can!), while she loves getting out and about and meeting people. We both love ideas and teaching, find the narrowness of mainstream design practice and thinking oppressive and frustrating, and we are both nontechnical and very idealistic.

Every project we do is a collaboration between us; this doesn't mean we both design everything, however. We spend a lot of time talking and discussing ideas, and the tangible outcome can be just the tip of the iceberg. But we have found that one of us always has to be the boss of a project—manage it, have the final say, liaise with the client, and so on. This usually happens once the project is underway and in the practical phase. The other person acts as a sort of consultant.

I would say the degree of difference is increasing. I think as we get better at working together, we free each other up to do the bits we enjoy.

RR: How do the roles that the two of you play differ over the course of a project?

AD: I think I answered that above.

RR: And how does this impact your ability to reflect on work in process (as distinct from the post hoc evaluations that you have already mentioned)?

AD: Well, as we constantly discuss everything, this happens fairly naturally. And the fact that one of us will always be leading a project means the other can

provide a slightly more objective viewpoint or sometimes even take on the role of devil's advocate.

RR: How does this change when you bring additional collaborators, even students, into the fold?

AD: Usually when we collaborate with others, they have very different and quite specific skills that we don't: programming, electronics, graphics, photography, music, video. Our roles are quite clearly defined from the start. The amount of creative input varies, and we try to ensure that we are clear about the edges of our authorship in relation to what others bring to the mix. Fiona and I usually have the idea and know what we want in terms of main concept before we start working with others; but once others are on board, we're fairly open to how that idea manifests itself in other media. We always brief the people we work with. The exception is with Michael Anastassiades, who is also a designer, where all three of us come up with the idea together and even most of the objects. It takes a lot of trust, as we don't define precise roles for one another. It can get messy at times, but ultimately, it is more satisfying to just be yourself and do what you enjoy doing. I don't think any of us could pinpoint exactly which bit of what idea is whose, or who had the idea for a particular form or material. We sit around talking and passing each other sketches that we all work on and modify.

Recently, as I mentioned before, we have started to collaborate with people from other academic disciplines like social science. The biggest hurdles here seem to concern language, terminology, and methodology. I think it is much harder to collaborate across academic disciplines; the aim is to create strangely beautiful chimeras, but it can so easily result in grotesque monsters. In art and design, collaboration is all about authorship; in academia, it seems to be about territories.

With students it is different. In that case, I guess we are more like curators or editors: we set out a general space, establish loose criteria, and then step back.

RR: In addition to satisfying my curiosity about the particular dynamics of the collaboration that you've forged with Fiona, I'm asking these questions in the hope that they will provide further insight into broader issues of cross-disciplinary collaboration. You've mentioned that you operate "in a fuzzy in-between space" where "you have to improvise," and while I would assume that the form of such improvisation has much to do with the character of that which you are between, I'm wondering how you define and maintain the space for such investigation.

AD: We don't define it at all. It's not by choice that we find ourselves operating in this space but because of the role for design that we are interested in pursuing. We believe design can be used as a reflective and critical medium, which is at odds with the current understanding of design as a way of making things sexy and consumable, at least in relation to new technology. Once you decouple design from the marketplace, it has nowhere to go. A lot of our career so far has been about finding a home, or context, for this kind of design, on every level: economic, intellectual, physical, cultural, academic, commercial ....

RR: How do you know when you are escaping into the realm of utopia? How do you avoid being "hijacked" by social engineers? How do you maintain your critical sensibility when your work space is defined by the dynamics of collaborative improvisation?

AD: We spend quite a bit of time discussing fiction, utopias, and futurology. But I think what we are interested in more is the idea of thought experiments—imaginative exercises that help us understand something, expose assumptions, and challenge us to think differently about what is possible. As long as we use projects as tools for exploring an idea and not as ends in themselves, we feel happy that we are not proposing utopias. The critical sensibility, at its most basic, is simply about not taking things for granted, questioning and looking beneath the surface. This is not new and is common in other

fields; what is new is trying to use design as a tool for doing this.

When I mentioned social engineering earlier, it was not in relation to our own work; I don't think anyone is interested in hijacking us! What I meant was that "design thinking" seems to be drifting that way, at least in the U.K. There's a lot of talk about how design can be used to engage with and re-design existing organisations as opposed to thinking up new but possibly utopian ones. I think it has been called transformation design. When people talk about applying it to government institutions like the National Health Service or Prison Service, I wonder if design isn't being used to make social engineering more user-friendly and acceptable.

The mechanical age gave rise to ergonomics, the information age to user-friendliness, and emerging technologies like bio- and nanotech, to ethics. Good design today ensures that products embody an ethic, a view of what it means to be human.

RR: I'm interested in your use of the term "user-friendly" in the context of social engineering. This term is often used to describe designs that require little but common sense in order to be of use, and by extension, it connotes an association between the agency of design and egalitarian values. Rarely are questions asked about the ways in which user-friendly design may impact common sense itself or perspectives that deviate from this norm. Clearly, your work poses such questions. But in doing so, does it impugn the alignment of user-friendly design with an egalitarian agenda per se?

AD: I think user-friendliness is a valid goal for design, but mainly in highly functional situations. Clearly, if you are designing controls they should be user-friendly, or an everyday product where we just need to be able to use it. In reality, very few digital products are user-friendly, so there is lots of

work to be done there; mobile phones are a classic example. For all the rhetoric and hype, most people still struggle to use technology. I don't think this is a design issue: the knowledge is there—all good designers are taught how to make things user-friendly—[the problem] is that their power is so minimal in reality that their role is limited to designing appearances.

I think user-centered design is different; and this I have problems with, especially when it concerns content. Cinema has long gone that way: we get user-centered films these days, often tweaked and changed in response to focus group testing. The problem I have with it is that we simply see ourselves reflected back. When it becomes a doctrine, which I believe it has, it encourages an extremely narrow view of the possibilities for new experiences. It is related to the cult of the amateur: just because we can cook a nice meal at home for our friends, for example, does not mean we no longer need highly skilled chefs who can produce a truly special meal that surprises and thrills us. Somehow, people who support the cult of the amateur argue as though all specialists and experts will no longer be required. In my opinion, this is a highly functional and sad view of life and culture, where we want to do everything ourselves and dismiss the efforts of highly trained specialists, whether journalists, filmmakers, designers or artists. I am not interested in user-centeredness at all. Resonance and relevance are far more interesting: how do you design something that isn't just an expression of your own interests and ego, but resonates with others and has relevance to their lives?

Just the existence of terms like "user-centered" or "user-friendly" tells us a lot about our view of people. If people are reduced to being "users," then we definitely need to remind ourselves that things should be friendly and people should be at the center; maybe these terms are for engineers. Designers, who view "users" as people, do not need to be reminded. Apple is a good example of this. They are not user-centered, but they do understand people.

RR: Or is it the tacit manner in which social relations are engineered by design that is of concern? And, if the latter, are there attributes of this dynamic that you find particularly intriguing or difficult to unpack when using design as your tool?

AD: When I did my BA in Industrial Design in the '80s, ergonomics was big. We had to do endless exercises exploring how the body physically fit the environment; it was all about physiology. During the '90s, user-friendliness emerged, and everyone was more concerned with cognitive models and the fit between the mind and the designed environment. These days, I think, we are more concerned with the sense of what it means to be human and how these ideas manifest themselves, or don't, in large systems. I think this is closer to ethics. I can see a development from ergonomics through user-friendliness to ethics, especially in relation to design for technology. The mechanical age gave rise to ergonomics, the information age to user-friendliness, and emerging technologies like biotech and nanotech to ethics. Good design today ensures that products embody an ethic, a view of what it means to be human. It's all about values. On a slightly banal level, iTunes does this well. It isn't just about user-friendliness, but embodying a specific idea of human nature—a recognition of how we like to live, what we like to do, how we really are.

I think that today designers are more aware that products can be political and can shape and influence our behaviour. But we are only beginning to explore new methods and conceptual tools that allow us to address these complexities. Critical design is one way of doing this, but I am sure there are other ways. We're moving from designing a better fit between body and technology, and mind and technology, to a better fit between humanity and technology. We're zooming out. ∎

Education in a Transdisciplinary World:
Interview with John Maeda

by Cynthia Lawson and Miodrag Mitrasinovic

In April, Parsons faculty members Cynthia Lawson and Miodrag Mitrasinovic interviewed Stephen Weiss lecturer John Maeda, as he was preparing to move into his new role as president of the Rhode Island School of Design. The asked Maeda about his views on the state of design education today; on the relations and potential synergies between design, art, and business education; on the prospects for "transdisciplinary" teaching and research; and on how he teaches his concept of "simplicity."

Cynthia Lawson (CL) and Miodrag Mitrasinovic (MM): Thank you for taking the time to talk to us, and congratulations on becoming the president of RISD [Rhode Island School of Design].

John Maeda (JM): Thank you. Well, I haven't begun yet. It begins in June. I'm sort of a pre-president. I'm picking up things as I go along, but I start in June.

CL: Can you talk a little about your educational path, moving from technology and engineering through design, fine arts, management, business, and law? Can you describe very briefly how you see all of these disciplines connect and how they are activated through your teaching and your engagement now as the president of RISD?

JM: In high school, I was good at math and art. I went to MIT, where I studied computer science and electrical engineering. I got my master's degree in semiconductor device simulation, the device physics of the chips that we use today. I went to art school after that and studied fine art and graphic design.

Then I came back to MIT as a professor. I got my MBA while I was a professor, and that's how I got here. I think the lesson of the story is that I like to learn, and I have also had the chance to continually learn new things. It appears today that we could learn forever and we can change who we are forever, and that's a good opportunity for all of us to pursue.

MM: Does that mean that the educational environment that we create for our students will have to change in order to enable them to seek the same kind of path in life?

JM: I don't know. It's like people think public schools are bad, but I'm a product of public school and it did okay for me. I'm also a product of the university, and universities are [seen as] somehow nonrelevant today, but it did well for me. I'm just saying that the world has changed; information has been democratized: you can access it anytime, anywhere, at any age. We can learn something all the time, and that wasn't possible before. That's the difference. Now, what that difference means for a university is the question we are all asking right now. If I had all the answers, I'd be done with my life already.

CL: Can you talk a little bit about what led you to your interest in simplicity?

JM: I was fascinated by how art is sometimes messy and is also sometimes clean; design is messy and design is also clean; a computer program is always very clean, but it gets very messy and it makes messy things. So I was thinking how there is always

an in-between: in design, we always talk about how more is less and less is more. I was never sure what that meant. I was raised with "form follows function" or "function follows form," and I was looking for clarity, for a way of looking at the world that made sense to me at the time.

CL: Can you talk about how you teach simplicity?

Information has been democratized: you can access it anytime, anywhere, at any age. We can learn something all the time, and that wasn't possible before. … Now, what that difference means for a university is the question we are all asking right now.

JM: Well, I confuse the heck out of people! I find that confusion works very well. I try to explain the laws of simplicity, but in the end I'm not trying to impose my own definition. In a sort of Aristotelian way, I think that students are supposed to find out what it means, and I listen to what they think simplicity is about.

MM: What MIT Media Lab educational experiences do you think are transferable to RISD and to other educational settings?

JM: I think that risk taking, fun loving and working hard in an individualistic environment are transferable in that sense.

MM: What is your position on the relationship between art, design, and the liberal arts, particularly with regard to the ongoing collaboration between RISD and Brown University?

JM: I think that liberal arts create a foundation for a student's way of thinking, built upon the history of the world and the way that people work with each other. It's the base, like bread. I think design and art add different dimensions, but you need both to have a great burger. Technology is a special

sauce right now. It's unclear if it is a good sauce, but sometimes it is a good sauce. I mean, all technology becomes art and design in the end because technology becomes normalized, normal for our lives, so the sauce goes inside the burger.

CL: Can you maybe list some trends in art, design, and business education that excite you today?

JM: There is a professor at CMU [Carnegie Mellon University] who is dying. He is a really good friend of mine, and he has been all over the news lately because of something he called "My Last Lecture." If you go to our.risd.edu, I posted a snapshot from *TIME* magazine where he was interviewed, and they asked him what he thought universities should do for students. His response was that universities should make more time for kids to do things outside of their major. I think that if there is one single nugget in education today, that to me is a big one.

MM: Does that, perhaps, signify a move away from expertise, professionalism, and the view of university education as vocational training?

JM: No, I think we need to have both. We have to acknowledge the fact that the world needs both kinds of people, [those who desire a general education and] also those who want to be experts, and that is fine. But if everyone is forced to be an expert, then you give up the whole opportunity for diversity.

MM: Since this is an interview for the *Journal of Design + Management*, I would like to ask you what possible relationships you see between management, art, and design?

JM: First, it's a great acronym: MAD (management, art, and design), but also DAM (design, art, and management), the other way around! Seriously though, [we have been hearing] for the past five years people reference the work of Daniel Pink, sort of a nice tree of ideas: the MFA is the new MBA; you hear this all the time. I don't really believe it. I think that MBA is MBA, and MFA is MFA.

Something new has to happen that is different from both of these degrees, and that is the real challenge we face. The question is: who will get it first?

MM: In relation to that, the next question: there has been a lot of talk about transdisciplinary design here at Parsons. We are currently searching for new faculty members in transdisciplinary design, and we are trying to conceptualize our first transdisciplinary design graduate program. What is your opinion about transdisciplinary design and programs? What does the discourse on transdisciplinarity mean to you?

JM: It's impossible. I think such an attempt creates a system of people that are not disciplinary in the first place, and also people who are by necessity stuck in a discipline. For instance, if you find faculty members and bring them in, they will want to get tenure or promotion, and the way you get promotion is you have more "transdisciplinary" people out there who will vouch that they are good, and if they don't, then your new faculty don't go on. Then you put them across two or three fields, and they have to fit the criteria of each field, which in turn creates three times the amount of work for them. Thus, you condemn the faculty by making a special transdisciplinary program, because then they have to become transdisciplinary. The real transdisciplinary faculty are the ones who don't even have to think about it when they work. It's like blood-type: if you're type O, you can give your blood to everyone, but as an administrator you can't put all the O's in the same department.

MM: Basically, what you're saying is that being transdisciplinary indicates a particular mindset and way of being, rather than having an institutionally (pre)determined expertise in transdisciplinarity?

JM: Yes, exactly; that is what I think. I could be wrong. I have been observing these trends for a while, and that is my new conclusion. How many places are there in the world where a transdisciplinary program emerged? At MIT, it happened because of a lot of things, particularly because of a

man named Jerome Wiesner, who was a visionary, one of the great professors at MIT, who made it happen there. The technology boom was coming, and technology became a glue that connected disciplines at the right time. Now it is not a big deal anymore. Technology is everywhere: your grandmother can Google you; it's a fact. How to find ways to build the mentality that will create more fluid relationships between the disciplines is the question, but that requires a whole revamping of academic structure, promotional structure, motivational structure, and that isn't easy.

I think that when you are an academic, you are taking on a different kind of job: you are a teacher, a knowledge creator, a knowledge builder; you are not a businessperson. I find it ironic when professors are made into employees. It's a different mode! The problem emerges when professors act like employees, and that is too bad. I'm curious how when a faculty person gets older, they have more opportunities to do more with their knowledge. That is the balance. What I'm saying is that it may not matter anymore if the program is transdisciplinary or not, because the world is transdisciplinary. Students will leave Parsons becoming all kinds of things; you can make a program a certain way, but they are going to be what they want to be. ■

The Architecture of the Unfamiliar
D. Michelle Addington

The field of architecture is a remarkably small one given its influence. Architects are involved in less than 10 percent of the buildings constructed annually, and hold primary responsibility for even fewer. Architects are certainly the lead designers for most high-profile and large capital investment projects, such as museums and signature skyscrapers, and for one-off projects such as high-end housing. Architects are also frequently involved in city and urban planning; and many organizations, from the GSA (Government Services Administration) to large construction companies, employ architects as part of their staff. The built environment however, comprises much more than what is commonly called "architecture": warehouses; industrial and service buildings; commercial buildings, from those in suburban office parks to strip malls to grocery stores; and the housing in which most of us reside. Nevertheless, architecture, as a practice and a product, is the most visible representation of the public's understanding of our built environment, and as such, it is the focus of concerted activity in this arena and the vehicle that drives most of the governing decisions.

The "green" building is one of the manifestations of this iconic representation of architecture as the stand-in for the built environment. It fits in well with the romantic ideal of the gifted architect who designs and delivers a "perfect" building that is a singular, and thus complete, entity. The architects that the public can name—from Frank Lloyd Wright to Frank Gehry—all match this image, as do their iconic buildings, from the Guggenheim Museum in New York to the Guggenheim Museum in Bilbao, Spain. It makes sense, then, that as public and institutional attention has turned to the environmental impact of buildings, the issues have been treated as building-centric—that is, it has been presumed that the building, as a singular entity, could be considered as completely bounding the problems and consequences, particularly of energy use. Hence the widespread generalization that an energy balance—the matching of generation and consumption—can be achieved at the level of a single building. But a building is a collection of often incongruous artifacts and systems whose primary relationship to one another is simply that they are within the bounds of a private property. Artifacts and behaviors are added up at the property line, and systems are truncated at the same line. If one were to describe this scenario to engineers and scientists and omit the word "building," they would pull the constituent systems apart, examining some aspects at scales much smaller, and some at scales much larger, than that of a building. The decision as to where to draw the boundary would depend upon physical behaviors, including thermodynamic ones, and not upon ownership. The suggestion that a single balance could occur at such an arbitrary location as a property line would be laughable; but when that location is called a building, personal experience and belief supersede fundamental knowledge. Scholars and practitioners who should possess the necessary knowledge to analyze the physical behaviors are all too quick to abandon their own disciplines when it comes to buildings.

The public understands that environmental issues are extraordinarily complex. The building, however, means two things for the public: it is presumed to be a microcosm of the global issues made manifest in all of their complexity at a small and comprehensible level; and, perhaps more importantly, its utility meters are the means to measure progress. Buildings therefore serve not only as a surrogate for the global issues, but also as a direct and tangible arena for action.

The image of building as microcosm extends to any parcel identified as a "project." The property line—the boundaries of the microcosm—can thus be as small as a fishing shack or as large as a city. The persistent belief that a well-designed parcel with all systems optimized is always a positive contribution is based on the assumption that the world can be divided into autonomous, self-sufficient units, in which optimization of the unit or parcel is a de facto optimization of the greater whole. All systems that are not wholly contained within the parcel—including energy—are prorated, and all contexts that are not directly attributable to causal elements within the boundary of the parcel are neglected. This severing of problem from context allows architects to leave out issues regarding human welfare—other than those, of course, of the property owner.

One common upshot of this conceptual and legal parcelization is the idea of the zero-energy building. When the larger systems of energy supply are collapsed and the smaller individual instances of energy use are assumed to be coincident with the parcel boundary, a simple accounting system arises in which private energy generation within the property lines erases a commensurate amount of energy used. Located at the high end of the scale but still treated as a parcel are large development projects such as DestiNY USA in upstate New York or Masdar City in the United Arab Emirates, which treat the earth as a tabula rasa, with the new development appearing as complete and self-contained as a spaceship, hermetically sealed and fully disconnected from its greater contexts and from the larger environment. Many of these developments have been trumpeted as "carbon neutral" and, in some cases, have been advertised as "positive" producers in that they are projected to house enough energy generation to cover more than their own requirements.

Regardless of who pays for the energy, or where the generation system has been placed, every building and every project accrues an energy debt: its construction consumed energy and its systems continue to consume energy on a daily basis. This energy debt has impacts far beyond an accountability driven solely by ownership. The design of a building and its operation fundamentally determine how fast that debt grows; they do not determine how the debt is paid off. The building's private energy debt results in the withdrawal of public energy supplies, or "funds." Energy funds are never private, even insofar as they may be purchased by a building's owner and located on a building's site. Geothermal, photovoltaic, micro-turbines, fuel cells, wind turbines, hydropower, fossil fuel combustion, and nuclear energy must be understood as sourcing back to larger physical processes and systems, to what we could loosely describe as a public trust. As an analogy, one could consider a building owner who installs a geothermal system as essentially borrowing funds from a credit union, whereas the owner who uses coal-generated electricity as borrowing from a loan shark. The building is responsible for the quantity taken; the larger public trust is responsible for managing the content of the supply.

The concept that a building or project can be "green" and, even more problematically, that it can be zero-energy, takes a complex and multi-modal problem and isolates it from some of the most difficult of its circumstances. The generation of electricity is truncated from the grid, produced by photovoltaics or micro-turbines, and then added back in as if each slice could be accounted for independently from the context of the grid. The materials, with the exception of wood products, are treated as primarily having consequences once they cross the property line; thus, materials with high embodied energy and severe environmental impacts can be justified if they save operating energy at the building level. With all of the intractable elements removed, an energy balance around a building is

straightforward, and this straightforwardness allows simple comparisons between alternatives.

The results of this simplification are profound. Quick analyses can determine which alternatives are desirable, leading to lists of strategies and solutions that are in themselves labeled "green." The clarity and commonsense appearance of these solutions has pushed many to champion them and, furthermore, to produce legislation that requires their use. One of the most widely recognized checklists for evaluating the environmental aspects of a new project is LEED (Leadership in Energy and Environmental Design). Originally a tool intended to facilitate discussion about choices and alternatives during the design process, LEED has since been developed into a certification system that is increasingly being mandated. LEED certification is required for most buildings constructed by the GSA in the United States, and the cities of Boston and Washington, D.C., have recently decreed that all new municipal buildings must be certified as well. The city of London has taken this even further by enacting some of the strongest legislation: new buildings must now generate 10 percent of their energy use with "renewable" systems located on their property, and the amount is soon to increase to 20 percent. The consequences of adding so much generation in a dense urban area, particularly in regard to the urban heat island effect, are treated as separate and unrelated problems that will be addressed by different legislation (for example, one would imagine that there will soon be legislation banning the use of the most popular, and most harmful, "renewable" source currently being installed in buildings to meet the new guidelines, biomass combustion).

Perhaps the greatest challenge is that there are limited means for determining the effectiveness of these implementations. The multi-modal and interdependent nature of building processes has effectively prevented any straightforward physical analysis. In regard to the thermal area alone, the behaviors taking place in a building represent the most difficult problems in heat transfer and fluid mechanics. Unlike most other thermal problems,

in which one or two mechanisms may dominate, building air flow—particularly when centralized systems are factored in—is a mix of behaviors: wide-ranging velocities; temperature/density stratifications; transient indoor and outdoor conditions; laminar and turbulent flows; conductive, convective, and radiative transfer; buoyant plumes; mass transfer; and randomly moving objects. This mix of mechanisms has effectively prevented any substantial empirical data collection on air movement within buildings. Nevertheless, the public and the profession alike assume that there are objective measures that determine how well a given building design will perform in relation to existing buildings. Prima facie authority is delegated to consulting firms, who are anointed as the cultivators and custodians of the measures and the resulting best practices. This assignation of authority to practitioners is unheard of in other disciplines; but in the profession of architecture there are woefully few alternatives. Numerical data and empirical measurements of building performance develop an aura of truth, as they provide a tangible and singular representation of complex physical processes. Today, the reliance on collected data is so pervasive that discussions of the underlying physical behaviors are dismissed unless there is some documented correlation between the measurements and the scientific theories. The data are seen as meaningful; the physics is not. The idea that empirical data represent truth has also led to the push for sustainability indicators, performance indices, and measurable targets. Policy makers need this data to make informed decisions; architects need it to specify products and choose materials. Information trumps knowledge.

Architects have long been accused of less than wholehearted support for green buildings. If the information—the strategies, best practices, case studies, metrics, and guidelines—is assumed to be readily available, then the lack of full integration must be due to a lack of will. Thus, there continues to be a concerted push to adopt energy codes and standards to force compliance. The architecture profession, which is inherently multi-disciplinary and thus should understand the complexities, has now

largely fallen in step with the singular and isolated idea of the green building. It is easy to do, it makes the public happy, and it is now required in most jurisdictions.

The concept that a building or project can be "green," and, even more problematically, that it can be zero-energy, takes a complex and multi-modal problem and isolates it from some of the most difficult of its circumstances.

As the profession is well aware, however, the cumulative strategies of the pro forma green building have not only been ineffective but in many cases had adverse consequences. Not only is energy use by buildings rising at a rate faster than that of any other sector, including transportation, agriculture, and industry, it is rising faster than the rate of new construction. Furthermore, the rise is even more pronounced in newer buildings, including many of those that adopted the best practices and adhered to the most stringent guidelines. The continuing ambivalence that several in the profession have toward "green" is no longer due to a lack of commitment to sustainable principles; indeed, the architecture profession has embraced its role as steward of the built environment. Rather, the ambivalence stems from the frustration of seeing so little progress from so much concerted and well-intentioned effort. Moreover, although there is a growing awareness that the accepted best practices and strategies of today will not stem the rapid rise in energy use by buildings, the field of architecture is ill-equipped to develop more solutions. While architecture integrates many disciplines in the course of design—history, sociology, economics, law, planning, psychology, engineering, materials science, aesthetics—it has no disciplinary ownership of any of these fields. Basic research essentially does not exist, and applied research occurs at negligible levels. And additional knowledge must now be brought in from fields including physics, ecology, environmental science,

physiology, biology, hydrology, geology, energy systems—all areas to which there is but a rudimentary nod in architectural education. The expanding scope of architecture forces the trade-off: knowledge and understanding for information and awareness.

How can the field of architecture take knowledge from another discipline yet apply it from within? In the past, the approach has been one of extension: the umbrella of the discipline was extended to overlap with other fields such as structural engineering and construction. But the disciplines that must be looked to today in order to make any substantial headway are far beyond the usual collaborative partners.

The new strategies that must be developed in order to substantially reduce the energy and environmental impacts of buildings will likely in themselves be simple and straightforward in their form and implementation. Regardless of the ideal scale and location of interventions, architecture can take action only through the process of building; and the most effective solutions will be the ones that can be readily implemented. Determining the right problem to solve, however, is extraordinarily complex. For example, the single largest energy user in buildings is electric lighting. The solution would seem to be self-evident: improve the efficiency of the light fixture. This is indeed where most of the attention has been placed. But improving the efficiency of the light fixture provides only a marginal reduction in energy, as it comes at the end of a long series of energy conversion processes. Furthermore, the total delivered quantity of lighting has increased significantly over the last several decades, not only because of the steady rise in floor area per capita, which has been occurring in the developed countries and more recently in China and India, but also because of the adoption of lighting standards that push up the required lumens per square meter in developing countries. As a result, the energy consumed by lighting is increasing a rate faster than that of any other area of building energy use, in spite of the "efficiency" improvements. The focus on a solution has obscured the real problem, which should be how

best to produce the visual interpretation of images. Solving such a problem, however, is far outside the realm of architecture—even though the necessary actions must be implemented through the practice of architecture.

Architects could not and probably should not develop an understanding of how the human neurobiological system functions, but they do need to have a deeper knowledge of those aspects that relate to the body's interaction with its surrounding environment.

In the case of lighting, physicists best understand light; neurobiologists and visual psychologists understand the performance of the eye; electrical engineers understand microtechnologies and the electrical distribution needed to deliver light; materials scientists understand the surface properties that manipulate light; historians of technology and culture would be aware of the lineage of the decisions that resulted in today's accepted lighting systems. Architects, however, bear full responsibility for the consequences of installing such systems. The need is in one discipline, but the knowledge belongs to many others.

Many other fields must wrestle with increasing complexity and yet still manage to develop the means to take strategic action regarding environmental issues. Public health crosses into many of the same domains as does architecture; indeed, public policy in general weaves through multiple, and often incompatible, systems and hierarchies. The primary difference between architecture and these fields is the lack of research in architecture and, consequently, the lack of method. Method tends to be borrowed from the areas that look most like the subject at hand: a question of architectural history calls for historiography; a question of theory calls for literary criticism; a question of construction calls for case studies; a question of occupant behavior calls for social science methods; a question of tech-

nology calls for experimental or analytical methods. This type of contingency in method allows the field of architecture to participate in and incorporate an astonishing array of concepts and practices, perhaps more than any other discipline—but it simultaneously severs rigor, objectivity, and thoroughness from the investigations.

The field of architecture is well aware that the decisions being made and the steps being taken in regard to our buildings have far-reaching consequences, not just affecting multiple domains but also extending into the future. Yet there has been no path on which to move forward other than to continue the trial and error of implementing specific strategies. Given that the field is not likely to develop an overarching expertise to address the full complement of issues, how can architecture think through the processes inherent to its domain while strategically bringing in sophisticated knowledge from other disciplines? Given that the field is not likely to develop a significant body of research, how can it step into a more subordinate and collaborative role with those disciplines that are producing the substantive research? The necessary knowledge from these other disciplines cannot be gleaned from a broad sweep through them; rather it should be mined from strategically chosen deep segments. Architects cannot be expected to develop an understanding of how the human neurobiological system functions, but they do need to have a deeper knowledge of those aspects that relate to the body's interaction with its surrounding environment.

Serving the human body is essentially why buildings and building systems exist. But what indeed are the needs of the human body? Today's building systems have their origins in the 19th century and have been little changed since. In regard to heating, cooling and ventilation, the 19th century precedents were premised on the idea of the building as a container of the ideal environment and the concomitant assumption that humans were problematic perturbations. Hence the concept of dilution—which led to the air handler-based HVAC system—was developed to absorb the heat and contaminants

that the noxious human body emitted. At the turn of the 20th century, the air handler-based system for conditioning air was state-of-the-art. But why, 100 years later, would one continue to use a system that is predicated on the idea of the body as giving off toxins? The hegemony of this thinking is so profound that we continue to rely on these large and clumsy indirect systems—even given current knowledge of the body's discrete and transient heat exchange mechanisms, and even though advances in technologies, particularly micro-technologies, allow direct and discrete action at specific locations when needed. Electric lighting, which has relevance only for the eye, also has its origins as a homogeneous building system, because the infrastructure for the early, and quite unwieldy, technologies required significant structural support. Today's technologies, such as light-emitting diodes, require very little infrastructure and could easily be placed to manipulate light only in the field of view, but the current approach for their implementation is to simply substitute them in conventional systems. An opportunity for an order-of-magnitude reduction is missed because the technologies are misapplied and the visual needs not understood. Who, then, can the field of architecture turn to for help in asking the right questions?

This is unfamiliar terrain. But if there is one field that is capable of slipping into multiple contexts to incorporate diverse areas of knowledge, it is architecture. ■

Good Ideas Call for Culture Mapping
Tim Stock and Marie Lena Tupot

A discussion of technology and everyday life cannot be complete without taking a hard look at the consumer—one of their main points of intersection. Technology certainly gives the design community one-on-one access to the consumer, yet too often technology becomes an unintended crutch that gets in the way of human interaction—and ultimately squelches insight. A better approach is to view technology as a multi-layered tool to analyze and understand human behavior. On the surface, technology is a tool that can be used to monitor consumers. At a deeper level, the technology itself can be investigated for how it is used by consumers to build and strengthen the social networks that connect them with likeminded peers.

To place social networking in context: it wasn't too long ago that consumers used landlines to connect with friends. In turn, marketers used those landlines to connect with consumers. Now, however, communication platforms, from cell phone to computer and beyond, are infinitely more robust—and mobile. No longer are consumers tethered to their homes. They're kinetic beings, and increasingly elusive, making it increasingly difficult to define them. Yet defining them and understanding the culture of the consumer is critical to successful product development and brand identity.

So where to begin? Considering that the most compelling information comes from the most passionate consumers, the logical place to start is wherever there are pockets of intense social networking activity. That includes social networking in all its forms, both online and offline. The strongest consumer passions can be found within these flourishing networks. Here's where the design industry needs to be looking—at the ties that bind, not at the mass consensus resulting from quantitative studies. Consensus does not help a brand know what a consumer wants next. Indeed, what they want next usually can't be vocalized by consumers. Using technology in the right way to understand consumers can help build a sustainable narrative and inspire a design that's just what the consumer wanted.

Gone is the silver bullet that once led to mass market penetration. Today's big ideas and forecasting pertain to fast-multiplying niches that are transforming global culture. Culture mapping harnesses the information surrounding these niches so that it's useful in developing design and planning strategies.

A New Link
However, before we set out to map cultures, we need to change the way we execute and look at research. The problem we face currently is that the system we've relied on for research and planning is broken. No longer can we count on demographics to yield rigorous market information, and no longer are we planning for the 20-second television spot. The playing field is fractured and the media channels themselves are viewed as agnostic vehicles by most consumers under 35. There is no longer a hierarchy of how consumers want their information. Consequently, planning involves thinking about a whole universe of ideas, from design to marketing. It also touches the way a brand plays out partnerships and alliances among the communities within which it intends to live and thrive.

To make sure that the ideas we propose will work and be commercially sustainable means plugging into a culture network that is wholly people-driven. But simply finding these networks is not sufficient. The distinguishing characteristic of effective market research has to do with how the people in the study are grouped, segmented, and contextualized. Understanding these people's relationships and polarities allows us to group them into clusters defined by behavior and level of technology adoption.

Using technology in the right way to understand consumers can help build a sustainable narrative and inspire a design that's just what the consumer wanted.

Cultural narratives come to life through the technique of persona development. A persona is a description of an archetypal user synthesized from a series of interviews with the real people in the underlying niches. You don't want to act on a roller girl strategy alone, because the threads—say, the "retro adrenaline" focus for one—that connect roller girls to synergistic groups like bike messengers will create a strong concept with a powerful national reach, which singling out the one group would not. Out of that mindset of retro adrenaline, one would then develop a persona. When incorporating personas into the process, research teams can focus on the persona's drivers, both emotional and rational, to develop a product that satisfies the needs of many users, not just roller derby girls. To take another example, when American Greetings launched its Kiwee social network in 2007, mapping consumers by behavioral personas allowed the company to build out its network correctly, offering targeted ranges of plug-and-play widgets that fueled a range of behavioral personas.

As the designated planning team on that project, our brand strategy consultancy, scenarioDNA, developed three personas for Kiwee, each related to its customers' various levels of involvement with technology: those who go online only to fuel offline experiences; those who straddle both online and offline worlds; and those who are diving deeper and deeper into online worlds as technology evolves, splitting their personalities and identities. The implication is that eventually there will be a chasm between those remaining offline and those moving more online. It was important for Kiwee to lock in brand awareness among all these groups, so that all users could take the brand with them as they delved deeper into their respective worlds.

It is much more informative to define consumers by behavior than by demographics or "lifestyle." From this standpoint, one can create a matrix that allows you to position behavior in clusters. The matrix breaks apart the behaviors and places them in a modular setting that a brand can feed, shift, and build upon over time.

Culture Mapping
Culture mapping begins with a series of conversations involving about twenty-five consumers representing a high level of commitment to a social activity that aligns with a given brand. The group should include relative newcomers to the activity, as well as old-timers. Conversations should be a mix of one to one, friend pairs, and groups. And there should be time for observation of their social networking. The questions asked typically center around their social engagements, their credibility as a friend, and how they connect and communicate with friends within as well as outside their particular activity. We capture these conversations on video.

From there, we branch the conversation out, surveying panels of 100 people who exhibit the same behaviors. We use mobile polling at this stage in order to engage consumers closest to their point of social networking or to a point of purchase, depending upon where we are with the research. Research via mobile polling gives a quick and easy way to understand critical marketing nuances. Consumers are prompted to participate while they are "in the moment" and ready to receive and answer questions. Simultaneously, we are also monitoring their online presence by trolling the Internet for conversations.

Then, we literally map the behaviors onto a lifestyle matrix. A cultural overlay, defined by a narrative of passion, segments today's youth and young adults. Their affinities are connected by what drives them.

The fundamental goal of culture mapping is to recognize, celebrate and support the diversity of the emerging niches, and to find the actionable data within them. Among other things, a culture map can be used to convey:

- The basis of identity within a given community
- The elements that make a community unique
- The language of the community
- The beliefs of the community
- Its totems
- Its signs
- Its technologies

Culture mapping is defined by its holistic approach and involves looking at all aspects of consumer engagement. If it's done right, it can't help but encourage the generation of new marketing strategies, since the results of culture mapping clearly show how different clusters of consumers will behave in relation to different messaging, and identifies ways to seed the brand effectively in the marketplace.

It is much more informative to define consumers by behavior than by demographics or "lifestyle."

Mapping the culture is a powerful tool for building strong brands. With brands being spread across various targets, it's important for strategies to be proactive about having multiple starting points. The trick is to execute multiple strategies while still staying true to the core provenance of the brand. Mapping takes much of the guesswork out of the process.

The Rise of Subcultures
It's essential for a brand to be able to weather wherever the consumer decides to take it, particularly if one wants to reach Gen Y. This is the Transformer generation. Its members expect to be able to mold, craft, and morph brands as it suits them. On a smaller scale, these threads of compelling consumers have existed for decades, remaining subversive, underground, countercultural. But now the subcultures are the driving forces behind brand choices, as consumers choose not to be spoon-fed brands. Thanks to the pervasiveness of technology, the current generation of consumers is the first whose subcultures have been allowed to rise into public awareness, thereby permitting granular nuances at local levels to quickly become macro-level trends. Adding to the complexity of the situation, not all subcultures are alike. For example, what drives skateboarders does not move roller derby girls; indeed, roller derby girls are likely to have more in common with bike messengers.

What's most interesting is that the technologies that have helped make the rise of subcultures possible, make culture mapping itself possible for the first time.

The Necessity of a Layered Approach
Using the same technology that empowers today's consumers to understand them means using technology to dissect consumers layer by layer. It's virtually impossible to understand consumers by looking at them from a single vantage point alone.

Once all the data have been gathered, compared, and contrasted, you have to think beyond the data to promote and nurture those ideas that transcend channels and delight people. By extrapolating the migration of today's diverse consumers into behaviorally driven niches we can see five or ten years down the line, as we see the underpinnings of their future identities.

As a case in point, we envision the future of luxury to be stealth—the polar opposite of conspicuous consumption. And based on current culture mapping, we see stealth luxury heading into two aspirational directions: Nano Stealth and Retro Stealth. Nano Stealth Luxury will emerge as a level of luxury that's not quite as hidden as true stealth luxury. It will be focused primarily on "me-too" technology: the consumer codes and drivers will be about being in the race, in the know, and having a need for confirmation by those they respect who are higher up the status ladder. Retro Stealth Luxury, by contrast, will demonstrate a return to old school non-tech off-the-grid luxury. The consumer codes and drivers will be about checking out of the race, seeking knowledge and finding solace in solidarity.

Without mapping, you can't see this. Tapping into people's passion points gives us a solid foundation to foretell directions.

Mapping Defines What is Authentic
If you begin to map the culture of roller derby, you'll find immediately that it's an amazing source of girl power, not just in the sport itself, but in its underpinnings. It takes extraordinary team effort simply to sustain the operation alone—never mind that they're practicing at least twice a week, playing once and socializing in between. They live and breathe the sport. Even at work or school, their communication mode of choice is to text and IM their derby friends. The network is quite intensive, which is something hard to find today.

Recently, roller derby junior leagues have begun cropping up around the country. The first brat league was formed in Tucson by a group of kids who had been following the Tucson Roller Derby adult league. The girls are from 10 to 18 and they play by modified rules. The girls enjoy the same solidarity as their elder counterparts, as one would expect. Yet, one thing has come up for discussion during our visits with New York's own junior roller derby league, the Gotham Girls—namely, the emotional impact of injuries.

It's fabulous to see young girls enjoy the solidarity and empowerment that the older women find in roller derby. But because of that intensity, the impact of an injury hits very hard. Suddenly, a girl is jolted out of her element. That is difficult enough for women over 18; and it is even more complicated for girls in their teens and pre-teens who are in the formative stages of their identities. It also raises the pressure on the older women, who now play yet another role of supporting the younger girls, even as they pass the torch to the next generation.

The trick for roller derby as a community, and for brands like Arnicare that are interwoven into the life of a roller derby girl, is to maintain the authenticity of the younger set without losing the essence of what it means to be a roller derby girl.

In a similar vein, think about what defines Amy Winehouse as authentic and separates her from, say, Gwen Stefani. It's not just the beehive and the eyeliner or even the sultry 1960s voice. Winehouse taps into the roots of subculture female archetypes like Pinup Girls and Painted Ladies.

Mapping Reveals Unspoken Opportunities
What defines luxury today? The "luxury industry" is thriving in the midst of a wavering economy—but not all of it; only what is truly authentic is thriving as luxury. The fact is, the consumer code for luxury has changed. In the 1980s, excess and exclusion were the drivers for the 21 Club/Alan Flusser set. Then came the 1990s, and a standard was established for luxury. Once a standard sets in for aspirationals, exclusivity is lost, as the drivers of aspiration shift to status and belonging. Think McMansions and designer counterfeits.

Nowadays, with access to funds via credit, one's net worth matters less than ever. Ultimate luxury then becomes a cerebral experience. It's not what you've got. It's what you know. It's about understanding provenance. The new drivers have evolved to be about design and functionality, as in Blackberry and Diane von Furstenberg, making all market segments—from couture to custom to manufactured—rise to the surface to play an equal role in defining what luxury is today.

This democratization of luxury results in four diverse luxury personas to study:

- The Purists—respect icons, seek contemporary themes
- The Guilted Lilies—not content with leisure, shamed by their access to money, want brand involvement
- The Passport Posse—absorb culture, lean toward irreverence
- The Brand New Heavies—old school luxury, conspicuous consumption

Mapping Dynamically Connects Subcultures
If you begin to map the culture that lies behind Islamic comic book fans, you might be surprised to have the map lead to hijabi girls attending "cosplay" events. This would place those fans in a networked intelligentsia position, which provokes the question: could cosplay become the common ground the world needs? Spirituality already underlies many a Manga. Can kids who think change the universe? In our own research, we've found the cosplay kids to be some of the most open-minded, serious global thinkers. It belies the common initial impression by which they are viewed simply as kids in costume. And how do they communicate? Through online cosplay forums and social networking sites where they can upload photographs.

Last year, *Frontline/World* ran a story that introduced viewers to the fastest-selling comic book in the Arab world, *The 99*. The comic features characters with super powers based on the concept of Allah's 99 attributes, including wisdom and generosity, as taught in the Koran. Its creator, Naif al-Mutawa, is a 36-year-old from Kuwait who was educated in the United States and who, as a boy, devoured Marvel comics and the Hardy Boys mysteries.

Mapping Defines Appropriateness
Is a smile synonymous with a good picture? The idea that a smile is equivalent to good photography is something that lives in the minds of boomers and silents—and something that is not necessarily trans-

lating well to the most influential Gen X and Y consumers. Yet Sony has been banking on the toothy grin connection with its new Cyber-Shot cameras featuring Smile Shutter technology. Certainly, this effort could have benefited from culture mapping.

Sometimes photos are best when the subject is at his or her most contemplative. Maybe Sony can retrofit their cameras with a Brood Button? This is a case of technology thinking that it is ahead of the consumer, when in fact it has missed the nuance. It has not correctly connected with a consumer value.

After all, photos without smiles are not so provocative—considering that the first successful picture was produced in 1827 by Niépce and required an exposure of eight hours. Who could have possibly smiled that long? Things didn't get snappy until about a century later.

Mapping Connects Partners
Häagen-Dazs demonstrates some interesting and relevant green marketing with its "Help the Honeybees" campaign, which is highly appealing to consumers. Häagen-Dazs uses the campaign to warn that the decline of the honeybee could become a big problem for the premium ice cream maker's business. According to Häagen-Dazs, one-third of the U.S. food supply—including a variety of fruits, vegetables, and even nuts—depends on pollination from bees.

The campaign works well in promoting a real environmental cause, while also emphasizing the premium and natural positioning of the brand. It is tied well to the value of the brand and reminds the consumer what goes into quality ice cream. It's pretty basic: real flavors need real fruits—and that requires honeybees. The campaign includes a new flavor launch called "Vanilla Honeybee" to further promote the cause.

Mapping Prevents Cringing
Verizon Wireless has started adding text message advertising to all photos uploaded from Verizon cellphone cameras to services like Flickr. It makes

you want to say "Ugh!" The unexpected advertising demonstrates an out-of-touch mobile carrier. Shouldn't mobile service providers be leaders in mobile best practices? Is someone looking through photos on Flickr supposed to read this badly written text and say, "Hey, maybe I should get a Verizon Phone"? The mobile communications industry needs to understand the experiences it is selling; it's not really about phone plans. If you mess up the vibe of those experiences you can never expect people to jump on to new services.

Similarly, both of New York's baseball stadiums are currently being rebuilt. The new Yankee Stadium will continue to be called Yankee Stadium. However, Shea Stadium, where the Mets play, will be revived as CitiStadium. The owners figured that fans are used to commercialism, so why would they care if Citibank was the logo on their stadium? Did anyone take a good long look at Mets fans? Shea was actually named for the lawyer who brought baseball back to the area after the Dodgers had abandoned the city for California. Once CitiStadium officially opens, it will emerge as a big corporate entity that the fans tolerate while they remain wistful for the grungy old Shea—swanky Jackie Robinson rotunda notwithstanding.

Mapping Uncovers Technology Patterns
Think of Twitter. Consumers have a love/hate relationship with it. Actually, it falls nicely in line with the stereotype that "girls blog and guys post video." An engine like Twitter offers the speed and ease of use that guys require—much as department stores used to be designed with menswear consolidated on the first floor and close to the exit, so that the guys would never have to walk through any of the girly stuff.

Because of the limited number of characters (140) and how sore thumbs can get pushing those little keys, Twitter postings are usually space-efficient and to the point. All that's missing is location-based functionality—ideally GPS.

If you can understand the essence of consumers and their choices, you can see where and how to build into the narrative that makes them who they are. ■

Avatars in the Virtual World
Jinsook Erin Cho

With wide user acceptance of computer-created virtual communities, the term "avatar" has become a critical component of today's online experience for many people. The word avatar comes from the Indian language Sanskrit, and means "the descent of god" or "a bodily manifestation of the Divine." This definition is based on India's ancient Vedas, which teach that an avatar is the personal form that the gods assume when they come down to the material world.[1] In line with the original meaning, "avatar" in the online context is used to indicate a pictorial representation or animated character of a user. In other words, it represents the "descent" of a human being from the real world to the virtual world of cyberspace.

An avatar can be a simple, crude image representing a user in Microsoft Messenger, a drop-dead gorgeous blond and blue-eyed woman with Barbie doll proportions, or a fantastical creature entirely unknown to the real world that can fly and shoot laser beams from its forehead in a "Massive Multiplayer Online Role Playing Game" (MMORPG) such as World of Warcraft or Second Life. In fact, an avatar in a virtual world can look like pretty much anything, since a user's choice of virtual identity comes with no boundaries in terms of gender, age, race, social class, or even species. Creating and changing an online identity is mostly at a user's will, and can be done with ease, a great deal of flexibility, and—within limits—ready acceptance by others. A user can even have multiple avatars, reflecting different aspects of the user's personality, as well as varying whims, moods, and fantasies.

Avatars as Projections of User Identity

Interestingly, however, even with all the freedom that the virtual world can provide—in particular, the chance to transcend the confines of specific social mores and values—avatars often replicate and even amplify those values, and only rarely deviate from them. In general, online representations of users tend to be "less ordinary" than the users' real selves: they are fitter, stronger, faster, and have powers that the users behind the avatars do not have in the real world.[2] Yet citizens of the virtual world tend to be "better" in ways that the users' societies define as desirable. In other words, the avatars people create are often similar in significant respects to the real users behind them. While some people create avatars to emphasize or explore totally different characteristics than others would recognize as their "real" selves, more often than not, avatars in the virtual world resemble their users in the real world.[3] Even when avatars look very different than their users, they still tend to resemble those users in some respects, such as general personality, interests, opinions, mannerisms, or preferences. Indeed, the more control users have in creating how their avatars look and act, the more likely it is that the users will end up with avatars that look and act like them.

Identity status theory can be used to explain this interesting phenomenon. Identity status theory hypothesizes that individuals form their identities through processes of exploration and commitment.[4] To the extent that users see the virtual world as different from the real world, they will try to define their avatars' identities by first identifying the beliefs, norms, and goals that are accepted by others in the virtual world. Commitment follows when the users decide what beliefs, norms, and goals they will adopt in that world. The more the users perceive the virtual world to be similar to the real world, the more their avatars will look like the respective users themselves in the real world. A related point has been developed by Sherry Turkle: when an individual creates a virtual identity that does not closely match his real identity, it requires a lot of psychological effort to maintain the artificial identity.[5] To the extent that the individual experiences a large gap between his real identity and his online, artificial identity, he will try to assimilate the stranger or more experimental identity to the one that he is more comfortable with—which is more likely to be the real one. Alternatively, a person may discard or use less frequently the identity that requires more psychological effort to maintain. As a result of these processes, virtual identity tends to become more authentic and truthful to the user behind it.[6]

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One thing that we are more likely to find in the virtual world than in the real world, however, is gender-bending (that is, experimenting with the opposite gender to oneself). Peculiarly, virtual gender-bending is more common among male users than among females.[7] In particular, older male participants are the most likely to experiment with the opposite gender identity. A couple of explanations have been advanced to explain this phenomenon. It may be that contemporary societies' understandings of gender roles and their respective boundaries are more restrictive for men; thus, men are more curious to know what it is like to be a woman than vice versa, which in turn motivates them to adopt female avatars in the virtual world. Or it may be that female avatars, even in the virtual world, are seen as weaker and inferior in skills and abilities, and as a result are treated better than male avatars—for example, being invited more frequently into MMORPG battles, and getting more freebees in relationship-oriented virtual games.

When it comes to users' treatment of their avatars—and more specifically, the extent to which they feel emotionally invested in their avatars—there are two notable patterns: one group of users appears to treat their avatars as their extended selves; while another group treats them as empty pawns or puppets. In the former case, users instill their own personalities into their avatars, relating to them as to idealized selves; in the latter, users see their avatars as objects detached from them, yet necessary in order to participate in a virtual game or world.

Studies have indicated that personality and demographic characteristics partly account for these differences in emotional involvement with one's avatar. Introverts, for example, have a higher tendency to treat their avatars as extended selves than do extroverts.[8] Introverts are more likely to be interested in and focused on their own inner world, and to enjoy exploring their thoughts and feelings. Such a self-focused tendency appears to extend to the treatment of online identities, thus increasing the chance of these users' employing these identities to express who they are or wish to be. There are also some distinctions in users' treatment of avatars in terms of gender and age. Female and older users (aged 35 and older) are more likely to project their real identity onto their avatars, thus treating them as idealized versions of themselves, than male and younger users (aged between 12 and 17). This can be seen by the types of online activities in which these users tend to engage. People who treat avatars as idealized selves are more likely to participate in relationship-oriented activities, as opposed to activities involving violence or battle. They also play for longer periods during each session, and stay longer in the virtual communities to which they belong. An explanation of these differences is that those who treat avatars as extended selves tend to have a greater emotional attachment and investment in their avatars, and to the online communities of which their avatars are members.

Avatar Behavior Online

A virtual space can be free of real-world rules, customs, constraints, and stereotypes. Yet the way avatars behave tends to replicate the ways their users behave in the real world. Tracy Spaight, co-author of *Alter Ego: Avatars and Their Creators*, observed in an interview on CNN that "we bring a lot of ourselves into the game space: the appropriate norms, what's considered proper and not proper…. I mean, if you just got up and logged off from the game, if you didn't wave or bow or say goodbye, that would be rude".[9] Such replication of prevailing social mores and norms is not limited to good ones, but also extends to hurtful or destructive attitudes. The same kinds of offensive words, slang, and gestures are used to insult and denigrate specific groups of people and behaviors in the virtual world as in the real one. We bring real-world prejudices and stereotypes into the virtual communities we visit.

A particularly interesting aspect of avatar behavior is that, as with many interactions in the real world, interactions in the virtual world are affected by how we believe we are seen by the other citizens of that world. In other words, user interaction online is greatly affected by how the users believe their avatars look to other people in the surrounding online community. This phenomenon has been examined from the perspective of behavioral conformity and self-perception theory. The theory of behavioral conformity posits that an actor tends to behave in a way that confirms the perceiver's expectations of the actor, and that these latter expectations are significantly influenced by the actor's appearance.[10] In a similar vein, self-perception theory argues that people look at themselves as if they are looking at other people, and judge their own behavior based on how they believe it may appear to others.[11]

For example, social psychologists Mark Frank and Thomas Gilovich have studied whether professional football and ice hockey teams wearing black uniforms play more aggressively than those with wearing white uniforms. Their analysis shows that teams with black uniforms tend to commit more fouls than those with white uniforms. The explanation offered is that the subjects used the color of their uniforms to make inferences about their own dispositions and expected behavior: "Just as observers see those in black uniforms as tough, mean, and aggressive, so too does the person wearing that uniform."[12] The subjects then conform to this new identity by behaving more aggressively. A similar result was found in an online environment; in one experiment, subjects assigned to avatars wearing black robes expressed a higher willingness to commit antisocial behaviors than those assigned to avatars in white robes.[13]

The lingering effects of online experiences on real-world behavior have generated attention in regard to their clinical, commercial, and educational potential.

Researchers have also studied how the appearance of avatars changes users' behavior online.[14] One experiment assigned two different groups of people to different types of avatars, one intended to be more attractive than the other. The researchers found that participants who had more attractive avatars exhibited increased self-disclosure and were more willing to approach opposite-gendered strangers. In other words, the attractiveness of their avatars affected the extent to which participants were willing to be intimate with a stranger. A second experiment revealed that participants who were given tall avatars were more willing to make unfair splits in negotiation tasks than those with short avatars, and the latter participants were more willing to accept unfair offers than the former participants. In a third experiment, the researchers found that when participants were asked to choose people they would like to approach from a mock dating website, people who had been assigned to attractive avatars during the experiment chose more attractive real partners. They named this phenomenon the "Proteus effect," after the shape-changing Greek god, to indicate the fact that users' real-world behavior tends to conform to the expected behavior of their avatars.

Users' virtual experiences by means of avatars spill over into behavior in real social interactions in other ways as well. While a doctoral student at Stanford University, Nick Yee conducted an experiment involving short and tall avatars, in order to examine whether the behavioral tendencies shaped by the appearance of their avatar online could be extrapolated to the users' behavior in real life.[15] As previously noted, people assigned to tall avatars tend to behave more aggressively in a virtual bargaining task than people with short avatars. An interesting finding was that when these same subjects later repeated the task with a real person, the subjects who had been assigned tall avatars continued to bargain more aggressively in real-world, face-to-face situations. Jesse Fox, another PhD candidate at Stanford, conducted a similar experiment, in which subjects whose avatars ran on a treadmill were more likely to exercise the next day than those who saw a stranger's avatar run on the treadmill, or whose avatars were just standing around in a virtual space.

Linking the Virtual World to the Real World

The lingering effects of online experiences on real-world behavior have generated a great deal of attention in regard to their clinical potential. Several attempts have been made to use online social environments to improve the lives of those suffering from various forms of psychological and mental disabilities.[16] For example, in Second Life, there is an island called "Brigadoon" where people who suffer from Asperger's syndrome (a form of adult autism) learn how to improve their interactions with other people in a virtual society.[17] Interacting anonymously with the virtual identities in Brigadoon can help these patients to overcome their social fears and to interact in normal ways that would be confusing or terrifying for them in real life. The clinical use of virtual interactions is not limited to people with psychological disorders. Patients immobilized by severe pain or physical disabilities can visit friends and family in different states or overseas, and enjoy physically challenging activities that they could never do in real life. Such uses of the virtual world can make a very significant difference in improving the lives and welfare of these people.

The link between the virtual world and the real world has other applications, beyond the attempt to utilize the Proteus effect to realize clinical benefits. Large corporations are making efforts to use the virtual world as a new tool to reach existing and potential customers. In cyberspace, of course, you do not need to eat or drink to survive, or to wear coats or boots to be warm; nevertheless, avatars buy groceries and other worldly goods, and often work to support such purchases.[18] In fact, commerce is already an integral part of many virtual environments. In Second Life, for example, you can easily spot avatars drinking Coke or Pepsi, working at McDonald's, holding Chanel handbags, wearing Gap clothing, getting money out of Bank of America ATM machines, and driving Mercedes cars. Small business is also popular. Avatar entrepreneurs have shops for fashion goods, love potions, meals, and real estate investment. In 2006, Anshe Chung became the first person to earn a million (real) dollars in this way, by purchasing lands and building homes and other living structures that she then rented out or sold to other residents of Second Life.[19]

Advertising is not the only avenue that multinational corporations are exploring in the virtual world. They have also been experimenting with different ways to use virtual communities to solve real problems that they face. For instance, IBM owns over forty islands in Second Life, which the company uses as places for business meetings, where employees from several countries can congregate and collaborate with one another and with clients.[20] Corporations such as GM and Dell have also been using virtual spaces for staff meetings for those who work at home, thereby providing an office away from the office. Microsoft and Verizon have been using the virtual world as a recruiting tool, allowing avatars to post their resumes and conducting virtual interviews.[21]

Educational institutions, meanwhile, have been at the forefront of exploring virtual communities as learning tools.[22] Because of their interactive nature, modern virtual environments can provide opportunities for intimate collaboration, instant com-

munication, and rich dialogue that first-generation Web-based classes could not offer. For instance, students studying architecture or product development can create and demonstrate their ideas with models of realistic-scale structures; business students can develop a business model and test it by setting up and operating a virtual business. Virtual space can now also support visual elements that make online classes a much more realistic quasi-classroom experience for students than hitherto. Harvard Law School has experimented with these possibilities, setting up a building in Second Life and offering a course called CyberOne: Law in the Court of Public Opinion. Avatars attend weekly lectures taught by Charles Nesson, a Harvard Law School professor, in the outdoor lecture pit adjacent to Austin Hall on Harvard Island.[23] In the winter of 2007, Nesson offered his intensive trial-procedure class in Second Life, where students were able to simulate cases in a virtual courtroom. Other universities, including New York University, Pepperdine University, Arizona State University, and Ohio State University have also offered classes in Second Life, in various attempts to explore opportunities for learning in a virtual community.

It remains to be seen how effective these applications really are. Their success is still difficult to assess, since they have just begun and many of them are still operating in a rather limited form. One thing, however, is certain: the virtual world is here to stay. With further advances in technology and user acceptance, the online world's communities of avatars may yet evolve into an invaluable set of tools to address real-world problems and to enhance the well-being of real people. ■

References

1. Vesna, Victoria. "Avatars on the World Wide Web: Marketing the Descent." *Intelligent Agent*, UCLA Publication, 2007; http://vv.arts.ucla.edu/publications/publications/95-97/intell/avatars_on_the_web.htm.

2. Cooper, Robbie, T. Spaight, and J. Dibbel. *Alter Ego: Avatars and Their Creators*. London: Christ Boot, Ltd., 2007.

3. Chan, Michelle Jana. "Identity in a Virtual World." CNN.com; http://edition.cnn.com/2007/TECH/06/07/virtual_identity/index.html.

4. Marcia, James E. "Development and Validation of Ego-Identity Status." *Journal of Personality and Social Psychology* 3:5 (1966): 551-558.

5. Turkle, Sherry. *Life on the Screen*. New York: Simon & Schuster, 1995.

6. Bailenson, Jeremy, N. Yee, D. Merget, and R. Schroeder. "The Effect of Behavioral Realism and Form Realism of Real-Time Avatar Faces on Verbal Disclosure, Nonverbal Disclosure, Emotion Recognition, and Copresence in Dyadic Interaction." *Presence* 15: 4: 2006: 359-372.

7. Yee, Nicholas. *The Daedalus Project* 1-3 (January 2003): 19-34.

8. Yee, Nicholas. *The Daedalus Project* 2-1 (February 2004): 1-12.

9. Chan, Michelle Jana. "Identity in a Virtual World."

10. Snyder, Mark, E. Tanke, and E. Berscheid. "Social Perception and Interpersonal Behavior: On the Self-Fulfilling Nature of Social Stereotypes." *Journal of Personality & Social Psychology* 35: 1977: 656–666.

11. Bem, Daryl. "Self-Perception Theory." In Leonard Berkowitz, ed., *Advances in Experimented Social Psychology*, New York: Academic Press, 1972.

12. Frank, Mark, and T. Gilovich. "The Dark Side of Self and Social Perception: Black Uniforms and Aggression in Professional Sports." *Journal of Personality and Social Psychology* 54: 74-85, p. 83.

13. Merola, Nick, J. Pena, and J. Hancock. "Avatar Color and Social Identity Effects: On Attitudes and Group Dynamics in Virtual Realities." Paper presented at the ICA 2006, Dresden, Germany, 2006.

14. Yee, Nick, and J. Bailenson. "The Proteus Effect: The Effect of Transformed Self-Representation on Behavior." *Human Communication Research* 33 (2007): 271–290.

15. Yee, Nick, "Behavioral Modification via Transformations of Digital Self-Representation." (PhD Dissertation, Stanford University, 2007).

16. Begley, Sharon. "Our Imaginary, Hotter Selves: Avatars Might Serve Therapeutic Purposes, Helping Those with Social Phobia Become More Confident." *Newsweek*, February 25, 2008, Science section.

17. Bennett, Jessica, and M. Beith, "Alternative Universe: Second Life Is Emerging as a Powerful New Medium for Social Interactions of All Sorts, from Romance to Making Money. It May Be the Internet's Next Big Thing." *Newsweek*, July 30, 2007, International edition.

18. Boss, Shira. "Even in a Virtual World, Stuff Matters." *The New York Times*, September 9, 2007, Eastern edition.

19. Hof, Rob. "Second Life's First Millionaire." *Business Week*, November 6, 2006.

20. Narayanan, Sriya. "Virtual Reality Is Serious Business." *The Hindu: Channel*, January 21, 2008.

21. Athavaley, Anjali. "A Job Interview You Don't Have to Show Up For; Microsoft, Verizon, Others Use Virtual Worlds to Recruit; Dressing Avatars for Success." *The Wall Street Journal*, June 20, 2007, Eastern edition.

22. Bennett, Jessica, and M. Beith, "Alternative Universe." *Newsweek*, July 30, 2007, International edition.

23. Lagorio, Christine. "Pepperdine in a Treehouse." *The New York Times*, January 7, 2007, Eastern edition.

Fashion to Help Us Flourish

Book Review by Cameron Tonkinwise

Kate Fletcher, *Sustainable Fashion and Textiles: Design Journeys.* **London: Earthscan, 2008.**

"It's human nature," they say, the "it" referring to compulsive shopping for an excess of clothes, a metonym for the sort of irrational conspicuous consumption that, goes the theory, will undermine all other developments in the drive toward more sustainable economies.

In fact, the fashion industry—the making and selling of apparel—is a relatively minor contributor to global unsustainability. Textile manufacturing accounts for only 0.4 percent of the U.K.'s annual greenhouse gas emissions. Admittedly, this is because only 20 percent of the U.K.'s textiles are manufactured in the U.K. So you could say that the clothing worn by the British represents the equivalent of 1 percent (because only 50 percent of those local and imported textiles become garments) of the U.K.'s total contribution to climate change.[1]

We are by all reports each buying more clothes—30 percent more items per year than four years ago by some calculations (p. 65). Even so, apparel (including watches and jewelry) represents only 4 percent of U.S. household spending.[2]

All of this means that while the fashion industry might be a very visible instance of wasteful consumerism, its net impacts are quite small compared to those of transport, buildings, and food, among others. Nevertheless, the scale and recalcitrance of the problem of societal unsustainability mean that every sector must make a contribution. So how can fashion become less unsustainable?

To date, efforts at introducing sustainability to fashion have been pretty embarrassing. The literalism that has characterized much sustainable fashion—organics equals brownish, rough, shapeless; waste reduction equals one-off, uncomfortable junk-wear—evidences both a lack of sophistication in regard to sustainability and an ignorance of the symbolic and use values driving the design of garments.

Kate Fletcher's *Sustainable Fashion and Textiles* should mark a major turning point in this discourse. It is a comprehensive and creative account of how fashion might enhance its contribution to the development of more sustainable societies. It is a "real" book with referenced prose arguments, as opposed to bullet-pointed principles decorated with too many poorly captioned photographs of speculative projects. As such, *Sustainable Fashion and Textiles* is not quite the textbook universities hope to hand fashion students in lieu of restructuring curricula and hiring new faculty.

Fletcher's book advances sustainable fashion in two crucial ways. As one would expect, issues of textile selection are prominent. Ways of identifying the least ecologically and socially damaging materials for garments are dealt with comprehensively in the opening two chapters. However, what is innovative is the recognition that the real problem lies with the economic systems governing the flow of such materials. Drawing on Donella Meadows' pioneering soft-systems work at the heart of the Club of Rome report *The Limits to Growth*,[3] Fletcher describes the socio-economic structures that allow small-scale sustainable alternatives to arise without ever impacting the hegemony of business-as-usual. This is why Fletcher is, refreshingly, not a strong advocate of recycling initiatives, which "can, for example, be bolted to an existing product manufacturing sequence without modifying the set-up …. They require no change in what consumers buy and allow consumption to continue unabated …. It is ultimately a transition strategy; useful while society is transformed into something more socially aware and less energy intensive" (p. 107).

Fletcher's systemic account of industrial volumes as the core problem leads her to advocate local diversity—that is, "developing a new and more sustainable way of thinking about materials that helps us move away from a dependency on a few fibers, to developing a portfolio of fibers, some with low resource intensity, others with rich cultural traditions, and all of which celebrate the range of skills, know-how and resources that are available to us" (p. 37). What we need to evolve is "a different production system, one where industry is made up of 'millions of markets of dozens' (a plethora of small volume products) rather than our present-day set-up of 'dozens of markets of millions' (a limited number of large volume products)" (p. 125). For Fletcher, such a fashion economy—or more accurately, such a range of non-industrial fashion economies—are not merely more materially sustainable but more socially sustainable:

> Diverse products do far more than just showcase lots of different materials; they can also sustain a sense of ourselves as human beings by being more likely to recognize a wide range of symbolic and material needs. Smaller makers with flexible production systems can produce products that are personal and specific and that are just right for us …. Sustainable fashion is about a strong and nurturing relationship between consumer and producer …. It is about designing confidence- and capability-inducing pieces that encourage versatility, inventiveness, personalization and individual participation …. Sustainable fashion must encourage our sense of ourselves as human beings and revitalize our relationships with others, including those who make our clothes (pp. 124-5).

I have quoted at length because this passage demonstrates the extent to which Fletcher is not working with an undefined or inherited sense of "sustainability," but with her own clearly articulated political vision. This is the great merit of her book, as it shows convincingly that one can only negotiate the confusion around whether this or that material is "more sustainable" by having a well-reasoned account of the whole toward which you are working. I will return below to Fletcher's "small is beautiful" vision.

The second and perhaps more significant argument that Fletcher makes stems from the recognition that most of the ecological impacts of clothing concern their use-phase rather than their initial production. The impacts of the materials one selects—their toxicity, energy intensity, renewability, and so on—are significant, but rarely as significant as the pollution associated with the ongoing care of the resulting garment. For most of the non-high-fashion items that are able to be domestically wet cleaned, the greenhouse gas emissions associated with all the washes each garment goes through over its use-life are normally around twice those associated with their original manufacture. There are many intriguing consequences to recognizing this fact.

For one thing, it means that different types of garments have very different ecological impact profiles: jackets (only occasionally dry cleaned) are quite different from pants (washed only after several wearings), which are in turn different from t-shirts (washed after every wearing), even if they are all pure cotton. It also means that the same sort of garment will have a very different ecological impact profile depending on a user's washing habits: hot washes will be more greenhouse gas-emitting than cold washes; using mechanical driers more emitting than air line drying; using less efficient domestic washing machines more emitting than using the more efficient washing machines at laundromats. Finally, it means that the longer the use-life of the garment, the greater the percentage of ecological impacts deriving from its use phase. This is not to say that shorter-life garments have less of an impact, but that if one is seeking to reduce fashion wastage by encouraging longer apparel life, one must in addition pay more attention to the impacts associated with the cleaning of such apparel. Fletcher responds to the range of potential use-lives with a set of scenarios that can guide different eco-design strategies: for example, Party Tops should be biodegradable or else rented durable garments that might need specialist cleaning; Utility Trousers should age with dignity and aim to have value as second-hand items; Plain Coats should be durable but modular to allow spot cleaning or repair.

These are important contributions to the future of sustainable fashion, finally bringing a more thorough approach to sustainability together with the typological thinking of fashion design. However, Fletcher's examples—garments whose look will tolerate stains, or historical references to removable collars—are probably insufficient to the challenge of incorporating things like ready-to-wear laundering into the process of fashion design. It is still relatively novel to have as a design focus the wearability of a garment, let alone its washing instruction labels. Where these are considered, it is generally by the non-designers in the supply chain. And then there are the ways these issues bleed beyond fashion design: into the industrial design of laundering equipment, and even the interior architecture of clothes storage.

This points to an implication that Fletcher only addresses very marginally (p. 127). Clothes-washing frequencies also depend on the daily routine of the wearer. Someone who must run for a train with a jacket stuffed in a backpack each day probably needs to do more washing than someone commuting alone in an air-conditioned car. This fact hints at another aspect of sustainable fashion, probably better titled "fashion for sustainability": clothes designed to facilitate more sustainable lifestyles, like office outfits for those who cycle to work.

Fletcher also notes in passing the contribution that "servicization" can make to ameliorating the ecological impacts of garments. This refers to shifting from the business of selling clothes to systems like wardrobe leasing. As closed-loop business offerings with internalized incentives for delivering ongoing reductions in ecological impacts, these sorts of initiatives seem, at first glance at least, to get at the heart of the problem—the fact that many significant ecologically damaging activities have been buried in household habits and devices that are resistant to rationalization.[4] However, although she discusses these options in a few places in her book (pp. 135, 155, 157–9), I suspect that they are not of primary interest to Fletcher, because they go against her core faith in decommodifying forms of local production.

As noted above, this faith is central to Fletcher's convivial version of sustainability. "[F]or most of us today, our everyday relationships with clothes are likely to be passive and probably a little disappointing …. Ready-made garments appear to offer us the promise of something better than we could make ourselves. [But] when we go down the route of buying into this perceived perfection, we end up forgoing an opportunity to learn how to make things and become better skilled" (pp. 186–7). Certainly for many, such a participatory economy would be truly fulfilling. But for many others, clothes may perhaps not be the aspect of the economy in which they most wish to participate. At these points, the value of Fletcher's book—that it is written with a very designerly disposition, rather than a technocentric one—risks becoming its liability: only a fashion designer would assume that everyone feels the need to be "emancipate[d] … from a submissive dependence on fashion" (p. 107). Thus, despite the other virtues of Fletcher's analysis, one can still wonder about the materials efficiencies of dispersed local co-production of garments—and specifically about the fact that such an approach is still a form of product-based well-being for individual consumers.

This criticism notwithstanding, it is clear that Fletcher has produced a pivotal book in the development of the sustainable fashion discourse. More in this direction—much more—is needed. ■

Notes

1. These statistics come from Allwood, Julian, S. Laurensen, C. Malvido de Rodriguez, and N. Bocken. *Well Dressed? The Present and Future Sustainability of Clothing and Textiles in the United Kingdom*. Cambridge: Institute of Manufacturing, University of Cambridge, 2006; http://www.ifm.eng.cam.ac.uk/sustainability/projects/mass/UK_textiles.pdf.

2. "All of Inflation's Little Parts." *The New York Times*, May 3, 2008; http://www.nytimes.com/interactive/2008/05/03/business/20080403_SPENDING_GRAPHIC.html.

3. Meadows, Donella H., D.L. Meadows, J. Randers, and W. Behrens. *The Limits to Growth*. New York: Universe Books, 1972.

4. See Shove, Elizabeth. *Comfort, Convenience and Cleanliness: The Social Organization of Normality*. Oxford: Berg, 2005.

Virtual Glue for Emotional Bonds
Book Review by Martin Zagorsek

Rich Ling, *New Tech, New Ties: How Mobile Communication Is Reshaping Social Cohesion*. Cambridge: The MIT Press, 2008.

Is modern technology weakening the fabric of society? The question often elicits violent responses in the popular press. Technophile magazines like *Wired* and *Fast Company* regularly proclaim the dawn of a great new social order, while conservative pundits complain that Internet-based "social networks" such as MySpace and Facebook devalue the very meaning of human relationship with their lists of hundreds of "friends," many of whom have never even met.

Into this debate has stepped Eric Ling, author of *New Tech, New Ties: How Mobile Communication Is Reshaping Social Cohesion*. Ling is a researcher for Telenor, a Norwegian telecommunications company; perhaps not surprisingly, he defends the view that mobile phones have, on balance, benefited society. However, Ling avoids the trap of becoming an uncritical cheerleader for his industry, adopting a relatively measured and academically rigorous approach to the question at hand. His core thesis, that mobile phones strengthen ties with one's inner circle at the expense of less intimate but "co-present" relationships (that is, relations with those in the same physical location), explicitly acknowledges the ambivalent impact of mobile communications technology.

Ling opens his book with an anecdote about a plumber who came to perform some repairs at his house. The plumber arrived in the morning, just as Ling was bidding farewell to some overnight houseguests on his front porch. Engrossed in a conversation on his mobile phone, the plumber walked past Ling and his guests with barely a grunt and a nod, and entered the house in search of the clogged sink, all the while continuing his phone conversation. After describing his shock (and that of his guests) at this lack of courtesy, Ling then proceeds to analyze

the incident, focusing on the plumber's decision to prioritize his interaction with whoever was on the phone over the customary greeting one gives when entering someone's house. This anecdote sets out one of the primary themes of the book—that "mediated interaction can sometimes take precedence over the co-present" (p. 5). Much of the book is spent exploring the reasons why this is so.

Ling views all social interactions as forms of ritual, and spends the first half of the book retracing the relevant research of sociologists Emile Durkheim, Erving Goffman, and Randall Collins. For anyone new to this field, these chapters offer a good theoretical survey of the role of ritual in creating and maintaining social cohesion. One chapter addresses Durkheim's analysis of large-scale rituals such as religious ceremonies and sporting events; the next considers Goffman's study of small-scale everyday rituals such as greeting the postman or saying "Bless you" when someone sneezes on the subway; a third considers Collins' more unified theory of "interaction chains" of all magnitudes.

While still digesting these theoretical hors d'oeuvres, we move on to the main course—an in-depth examination of the ways in which mobile phones both enhance and interfere with our social interactions. We sample studies from across the globe: Norwegian teenage texting slang; Japanese dating protocols; African micro-entrepreneurs. Common themes emerge from these diverse studies. For example, they reveal that most people interact with fewer than ten people on a frequent basis—a surprisingly small number given the ease with which the devices allow contact (pp. 165–6). Although these social circles may be narrow, however, they are often very deep, with daily exchanges commonly exceeding several dozen text messages. In more extreme cases, frequent electronic contact creates what Ling calls a "connected presence" (p. 169): an always-on relationship, with the constant flow of communication creating a sense of ambient accessibility—and in which the mediated interactions fill the gaps between in-person occasions so completely that there is no felt interruption and the relationship

comes to be experienced as continuous rather than as a series of discrete encounters.

As the anecdote with the plumber illustrates, this extreme electronic connectedness can easily interfere with more traditional in-person rituals and interactions. To take another example: most of us have been in meetings where participants received calls they felt compelled to take, thus interrupting the flow of conversation while they dealt with their personal issues. Text messages are more insidious, since it is quite possible to surreptitiously carry on text-based exchanges without overtly interfering with an in-person meeting. Ling describes a lecture he delivered at a Norwegian high school where, midway through, he asked the audience how many of them had sent or received a text message since he had begun speaking (p. 160). Many confessed to doing so, going on to reveal a wide range of social activities that they had been arranging while "following" the lecture: where to meet after class, what movie to see that evening, and so on.

The book concludes by extrapolating a future society of tightly interconnected cliques that are increasingly socially and ideologically isolated, with mobile communication technology reinforcing their internal ties at the expense of the broader social fabric. But here Ling's exclusive focus on mobile phones reveals a certain parochialism, in that he neglects the opposing forces exerted by other technologies such as social networks, which are notorious for supporting widespread albeit shallow relationships, or blogs, which often foster ideological exchanges between networks of complete strangers. He never considers the possibility that the net effect of all the latest communication technology taken together may be more or less neutral, and that human social instincts are ultimately too deeply ingrained and resilient to be completely shaped by a technology—but on the contrary, that people select communications technologies precisely according to the various aspects of social interactions that those technologies best serve. Where Ling explores ways in which mobile technology has changed the way we relate to one another, the book is instructive and even fascinating. But his

attempt to generalize its effect on the overall social fabric, when mobile technology is only one of many significant new communication media, may strike anyone who has grown up with these technologies as somewhat simplistic, and ultimately as betraying an exaggerated belief in the power of technology to shape human behavior. ■

Wait for Me

Book Review by Leslie Alfin

Jennifer Terry and Melodie Calvert, eds., *Processed Lives: Gender and Technology in Everyday Life.* **New York: Routledge, 1997.**

I am a creature of instinct and have come unswervingly to trust my intuition. It's this intuition, I believe, that has led me to review a book written in 1997 about gender and technology in everyday life: a still-relevant, intelligent book that presents a spectrum of investigation, challenging the reader to ponder much larger questions than its title would suggest.

Processed Lives is not a book for the squeamish. It is bold, subversive, and, for some who may be ill at ease with questions surrounding gender-normative behavior and choices, downright in your face. In three parts ("Digital Worlds," "Bodies," and "Home"), Terry and Calvert curate a collection of texts by academics, artists, writers, and organizations that investigate the social influences of mainstream technological systems—computer, reproductive, and economic sciences chief among them—and explore the ways these systems affect existing gender models, encourage new models, or repeat patterns of hetero-patriarchal gender norms historically tied to the disenfranchisement of women and gender-others.

Part One of *Processed Lives*, "Digital Worlds," takes a provocative look at the gender orientation of technology. A representative section is Margaret Morse's essay "Virtually Female," which presents

the notion of "unwill," a term identifying a peculiar resistance to technology among women that the author believes is instilled at a young age. Morse theorizes that girls experience a kind of educational discrimination, being effectively conditioned to believe that technology—above all, the domain of computers—is the exclusive province of boys and men. The psychological redlining of this domain in the minds of young girls causes the "unwill," manifested in a variety of symptoms such as "faulty executions of instructions, phobias, a sense of technical ineptitude, forgetfulness, and sloth in relation to dizzying 'smart' machines" (p. 9). In its absolute gender-specificity, the concept of "unwill" may seem reductionistic and essentializing. Yet I suspect that it will have a ring of truth for every woman who has ever felt hopeless when confronted with a user's manual.

The section titled "Bodies" explores, literally and figuratively, technology as an extension of ourselves as physical, psychical, and sexual beings, as well as some of the hybrids of identity definition and perception that are emerging as a result of new technologies. Perhaps most eye-opening is the essay written by David Horn, "Unnatural Acts: Procreation and the Genealogy of Artifice." Horn investigates the technical intervention into biological reproduction, which, as Terry and Calvert put it, "transforms the way in which we think about the body and [the] meanings we attribute to both gender and sexuality" (p. 13). It is Horn's contention that because we now "monitor literally every step of the reproductive process" we have migrated across a previously taboo boundary between nature and artifice, and in so doing, have rendered women's bodies nothing more than sites for "the exercise of masculinist engineering of reproduction" (all quotes, p. 13). In its account of the medicalization of the reproductive process, Horn's essay evinces a horror of technology reminiscent of Edgar Allan Poe and Mary Shelley.

Finally, "Home" addresses how new technologies have penetrated domestic environments, influencing traditional meanings of home, relationship, and family. Toys are often an integral part of

a household's gender landscape; accordingly, "Home" includes a set of helpful "Home Surgery Instructions," offered by a group calling itself the Barbie Liberation Organization, as a follow-on to a guerilla art action the group carried out in 1994. Just before the Christmas shopping rush, the BLO launched a campaign to switch the voice boxes of hundreds of Barbie and G.I. Joe dolls in toy stores across the United States. These "sex-change operations" succeeded in exposing the absurdity of the conceptual and verbal signifiers used in toys to identify gender. With G.I. Joe now squealing "Let's go shopping!" and Barbie barking macho phrases like "Dead men take no prisoners!," the action of the BLO sought to force consumers to confront the gender prescriptions that we willingly bring into our homes and inflict upon our children.

The "feminist" tenor of the essays in *Processed Lives* may present a roadblock for some readers; many people, of all genders, tend to tune out when faced with confrontation from real or imagined stereotypes armed with loud voices and even louder ideas. However, by bracketing pre-conceived notions and giving the various authors in this collection the benefit of one's doubt, a core-rattling change in one's understanding of gender—a change with profound social, political, and economic implications—may result.

When I consider all this within the context of the relationships I see among my children and students—a population in which gender boundaries continue to be challenged and openly re-framed—*Processed Lives* offers a view into this social phenomenon, which although still nascent, is quickly gaining momentum. However, the same compelling arguments presented in this book also leave me with the uneasy feeling that we, our children's parents and professors, have shirked responsibility by allowing this dialogue to remain sequestered in the back offices of academia and insulated art venues. By not participating more vigorously in this dialogue, we have left our children armed with little more than the offerings of mainstream media such as *The L Word* or *Queer Eye for the Straight Guy* to negotiate

the path toward a new, and more flexible, definition of gender-normative behavior. Or perhaps my discomfort is a visceral reaction, triggered by a glimpse of a new condition of the social-sublime—terrifying, beautiful, championed by our children and sowing the suspicion that it is we who are being left to fend for ourselves. ■

Collaborative Project

Open House: Living in a Materials World
by Colleen Macklin and Robert Rabinovitz

The Philip Johnson Glass House: open plan, one bedroom, one bathroom, one wood-burning fireplace, eat-in kitchen. The "McMansion" (or "Big House" as we came to call it): seven bedrooms, nine bathrooms, five wood-burning fireplaces, Subzero fridge, Wolf range. What do these structures have in common? Not much in terms of era, design, or number of bathrooms, certainly. What they do share is location: this odd couple sits on a gentle bluff in New Canaan, Connecticut, each structure seeming to look at the other, wondering how they came to be neighbors.

Last fall, The New School was presented with a unique opportunity by Dorothy Dunn, Director of Visitor Experience and Fellowships at The Philip Johnson Glass House, and Joyce LaValle, Senior VP of Associate and Customer Engagement at Interface, Inc. They wanted to know whether Parsons could help them and a group of prominent architects, materials experts, designers, NGOs, and other educators decide what to do with the 20,000-square-foot structure facing the Glass House, which had recently been acquired by the Philip Johnson Glass House National Trust. They were especially interested in whether Parsons students could design an activity for a conference they were planning to inaugurate the use of the house as an educational facility. Appropriately enough, given the Big House's enormous size, the conference was to focus specifically on sustainability in the area of materials and energy use in buildings.

On April 10, 2008, these plans came to fruition in the "Making Choices: Designing Our Relationship with Community and the Environment" summit at the Philip Johnson Glass House. On this warm spring day, 30 design and sustainability thought-leaders from around the world—including Cameron Sinclair, founder of Architecture for Humanity, and Ray Anderson, Chairman of Interface, Inc.—convened on the site to consider the future of housing. Joining this group, still groggy from their early-morning train ride, were ten Parsons students, an unconventional mix of freshmen and graduate Design and Technology students as well as two faculty members, Colleen Macklin and Robert Rabinovitz. With us were the recently completed components of a game we had been developing over the previous four months called "Open House: Living in a Materials World." The game would be used to kick off the day and frame the discussions to be led by the New York office of the design consultancy IDEO that afternoon.

The game, designed to be played in the "Big House" by groups of ten participants, was meant to create an experience that would capture the many complexities surrounding the use of various materials for building and construction. The goal of the game was to "build" a house—represented by a scale model the students had made—through a process involving five rounds of debate, each centering on a major element of house construction: roofing, siding, flooring, light, and energy. Participants were assigned a specific role in the game, serving either as an advocate for a particular material or as a "judge," a role that embodied different stakeholders' needs and interests. The players' roles shifted through the five rounds of play: in one, a player might argue for coal energy over solar; in the next, he or she might play the role of a sparrow, "judging" another player's advocacy of wood over vinyl siding (for example, by asking, "Will you cut down my home in order to build yours?"). Other roles in the game included a teenage punk rock fan, an interior designer to the stars, a construction worker, a local fire fighter, and a house-buying media mogul. By participating in the role-playing scenarios, the players collectively

evaluated the various arguments, ultimately deciding which materials for flooring, lighting, roofing, and exterior surfaces, as well as which energy source, would be used to build and power the model house.

The concept for the game had originated the previous December, in a special visit to the Glass House by the Parsons students and their faculty advisors. In the weeks that followed, inspiration from the visit and the prospect of making a real difference drove the students to work on weekends and between classes, outside of any curricular structure, to design a serious game about a serious issue. We engaged in intensive brainstorming, prototyping and playtesting with professionals, middle- and high-school students, graduate students in Architecture, a class from the Design and Management program, and anyone else the students could recruit with promises of pizza. Once the students felt that the game rules were balanced, fun, and informational, they began to make the actual game components, developing branding, cards for the materials, nametags for the personas, and the model house frame itself, ready to be filled out with the participants' choices regarding materials and energy.

On the day of the "Making Choices" Summit, the game-design process culminated in an inspiring experience in which the thirty participants, through their various roles, shared insights, facts, empathy, and laughter, moving as a group into the "Safe/Danger" zone—a mode of interaction identified by Phillip Johnson as especially conducive to creativity and radical ideas. We all felt the presence of Johnson on the property that day, and found ourselves asking whether he would have liked to participate in the game and what his comments about it might have been. In the ensuing discussion about the game, we also realized that through play, we can spark serious dialogue and increase people's understanding of very complex systems and situations.

Ultimately, the work done by Parsons on the Glass House project involved finding ways to facilitate discussion surrounding the future of building—a

critically important task at a time when the proliferation of conflicting needs and wants is making that discussion increasingly difficult. As sustainable building materials become more available and awareness of sustainability increases—bringing to the table all stakeholders, from builders to architects, designers to policy makers—we have an opportunity to live in homes and communities that support diversity and sustainability without sacrificing aesthetics, comfort, or even cost.

What's next? Look for variations of this game at other events, including Solar One's Citysol festival this summer in Manhattan. We hope further that "Living in a Materials World" can be replicated at multiple locations around the world, helping to envision the future of sustainable architecture. ■

Collaborative Project

Tradition and Technology: A Way to Empower Women in Developing Countries
by Jay Dehejia

In the summer of 2007, I was asked to travel to Guatemala with two other Parsons faculty members—Cynthia Lawson, director of the Integrated Design Curriculum and Alice Demirjian, director of the Fashion Marketing AAS program, as well as Mark Johnson, practicum director of the Graduate Program in International Affairs at The New School for General Studies—to help conduct a feasibility study on empowering the Mayan women of San Lucas, Toliman. Being an expert neither on Guatemala nor on handmade textiles, I was both intrigued and challenged. Parsons and the humanitarian organization CARE had agreed to work together in Guatemala, piloting a model of entrepreneurial economic development that ideally could be applied in many countries in the developing world. Sheila Johnson, Chair of the Board of Governors at Parsons and international ambassador for CARE, approved an initial grant, based on her view that "if we're going to improve the lives of women around the world—and I believe we must—

then we have to stretch beyond ourselves."[1] Over the last year, I have been consumed with devising ways to empower these women, who use age-old technology to produce colorful traditional textiles and other handcrafted items.

Mayan women have been using back-strap looms since pre-Columbian times, and believe that weaving is an activity with cosmic significance, associated with the goddess Ix Chel, who sings:

> *I weave strings of energy*
> *into the web of creation*
> *Where nothing was before*
> *out of the void*
> *into the world*
> *I spin them into existence*
> *Out from my mind*
> *out from my body*
> *out of my awareness of what needs to be*
> *Now there is something new*
> *and all life is nourished.*[2]

The back-strap loom is able to produce a textile only about 24 inches wide. Moreover, weaving using the back-strap loom is not as fast as weaving done on hand or foot looms, and can cause considerable strain on the women's backs, as the tension of the weave can only be maintained by extending the back. However, the Mayan women rejected more efficient looms brought into the country after the Spanish invasion, wishing to maintain their ancient traditions and heritage by passing on the technique from mother to daughter.

The women produce hupils (tops) and skirts for daily use as well as for ceremonial purposes. These textiles often feature traditional designs of birds, animals, and common utensils woven into the fabric, set against a striped background of vibrant reds and bright yellows, black and white. For the most part, the weavers have today abandoned the vegetable, mineral and animal-extract dyes used in previous centuries, opting instead for synthetic dyes and even synthetic threads and fibers. It is sometimes suggested that the Spanish conquerors required

each village to have a different combination of color stripes, thereby revealing whether villagers from one community were fraternizing with villagers from another—perhaps plotting to overthrow the colonial government. Others, maintaining that the colors and designs reflect much older Mayan traditions dispute this theory.[3]

As a result of the working group's excursion, Parsons has now introduced a special course that gives students an opportunity to learn while helping others at the same time. After focused coursework on design, marketing, retailing, and business, a select group of students from Parsons traveled to San Lucas, Toliman, last summer to work with the local women. The students helped introduce innovative design concepts and product ideas to be incorporated into the traditional design motifs using the back-strap weaving techniques. Both sides learned from this experience, which not only yielded some unique new product ideas to help the Mayan weavers reach new markets, but also helped stimulate some of Parsons' budding designers and entrepreneurs to take up the challenge posed by Ms. Johnson.

It is my belief that this exciting initiative can be duplicated in other villages of Guatemala and beyond. ■

Notes

1. http://www.care.org/campaigns/sheilajohnson.
2. http://www.angelfire.com/va/goddesses/ixch.html.
3. Osborne, Lilly deJongh. *Guatemala Textiles*. New Orleans: Tulane University Press, 1935.

Ethnographic Praxis in Industry Conference (EPIC) 2008

Technology and Ethnography: An EPIC Topic

Conference Preview by
Timothy de Waal Malefyt

The use of technology for ethnographic research in consumer marketing has expanded tremendously in recent years. Many ethnographic market research companies use communications technologies—for example, equipping consumers with cell phones, video cameras and Internet blog sites—as a way to speed up consumers' feedback of self-reported data. This makes great sense as a way to complement traditional ethnographic research, which tends to be very time-consuming and expensive. Technology allows consumers to report back the precise moment when and where they are using a branded product or service—whether out shopping, walking down the street, or relaxing at home. At the same time, however, the increased use of these technologies in consumer research threatens to simply replace the in-field interviewing and interpretation by which anthropologists and field researchers have traditionally gained their insights. As a result, the use of technology in ethnographic research has become a point of great debate and consternation among anthropologist practitioners who study consumer behavior.

The way people use technology in their lives is itself heavily researched by ethnographers; and establishing a forum for the discussion of this issue was the founding impetus of EPIC (Ethnographic Praxis in Industry Conference) by the chipmaker Intel in 2005. EPIC has since grown to become "the premier international forum bringing together artists, computer scientists, designers, social scientists, marketers, academics and advertisers to discuss recent developments and future advances around ethnographic praxis."[1] For anthropologists working in industry and practitioners who use ethnographic methods in design, this event is critical for the dissemination and discussion of new research

methodologies, new applications of ethnographic techniques and perspectives, and new modes of interaction between and across disciplinary and business boundaries. For designers and architects, there are discussions and presentations of new tools and techniques for designing, implementing, and deploying the application of ethnography in business contexts, and for assessing the impact of ethnography in business and design environments. Finally, the conference provides opportunities for discussion and debate concerning the ethical and political issues raised by the use of ethnographic methods in corporate research.

This year's EPIC conference, to be held in Copenhagen, will address the theme "Being Seen: Paradoxes and Practices of (In)Visibility," focusing in part on issues surrounding the use of communications technologies in ethnographic research. The conference thus promises to draw attention to the "visible" and "invisible" elements of such research. Papers presented there will address the question of when communications technologies may be appropriately used as visible instruments of data-gathering in their own right, and when they are best used to complement and enhance the theoretically-informed, invisible interpretations of consumer behavior by skilled practitioners.

Technology is highly visible as a methodology, and often garners much attention for its ability to empower consumers to respond, often instantaneously, with their own impressions, thoughts, and feelings about using particular products and brands. Yet, to anthropologists who study scientific and technological systems, technology is also an artifact that has social implications.[2] In this context, technology represents an objectified set of social relations that embodies "innovation" and "progress" (we may want the latest gadget and admire those who have it as hip), and endows those who use the technology, research it, and report on it with an aura of up-to-date "innovativeness," whether or not the technology is actually yielding any new knowledge. This aura, many anthropologist practitioners suspect, is one reason why many so-called

"ethnographic" market research companies, as noted above, have been quick to adopt these visible technologies, even to the point of using them almost exclusively in the provision of their services to corporate clients. It makes them appear innovative and hip, without necessarily adding any insights to the research product. Indeed, an over-reliance on communications technologies can severely restrict the researcher's understanding, especially when they simply substitute for fieldwork analysis. In general, technology is misused when it replaces the in-field interview, from which the skilled anthropologist or other field researcher can glean interpretive insights. This is because anthropological approaches to fieldwork treat ethnography not merely as a method of "being there," but as an occasion for applying conceptual frameworks drawn from theories of culture, ritual, and symbolic analysis—all of which help to inform an interpretation of consumer behavior. For instance, the fact that a woman is using a particular laundry detergent to wash clothes doesn't necessarily mean that all she wants is clean clothes; and reporting back this behavior immediately with a cell phone camera doesn't yield any further insight. An informed interpretation takes into account the how and why of that behavior. Perhaps the woman uses the detergent for sentimental reasons, because her mother did; or perhaps the detergent's scent lets her feel more confident about tomorrow's business meeting. Although of undeniable value in data-gathering, communications technologies are in most cases best used to complement and serve the interpretive framework that actually makes sense out of what someone else is doing.

As an anthropologist employed in the advertising industry, I constantly wrestle with the issue of which of the invisible (i.e., interpretive) aspects of the ethnographic process should be retained, even as more visible elements of that process (i.e., the latest gadget) gain in popularity. The methodological aspects of ethnography—"being there" in the homes, shopping environments, and lived experiences of people—being visible and easiest to support through technology, gain the greatest attention. Yet the theoretical frameworks which anthropologists use to

guide their observations and to inform their interpretation, remain invisible—and as a result, tend to be underappreciated and even ignored. Indeed, in the increasingly competitive world of ethnographic companies employed in industry, the visible observational methodologies (cell phone reporting, digital blogging, etc.) are often copied, modeled, and increasingly, branded as distinctive features of one ethnographic research firm over another. This development is distressing to many anthropologist practitioners. Ethnography, conducted without its invisible theoretical framework of interpretation, is reduced to a set of observations which simply assumes that a singular truth is evident to all. ■

Notes

1. http://www.epic2008.com.

2. See, for example, Latour, B. "Technology Is Society Made Durable." in Law, John, ed., *A Sociology of Monsters: Essays on Power, Technology and Domination*. New York: Routledge, 1991

Undergraduate Business School Leadership Conference 2008

Leading Through Innovation
Conference Review by Justine Abu-Haidar

Attending the Undergraduate Business School Leadership Conference early this year allowed me not only to collaborate with business students like me but also to build relationships with future business leaders from around the world. More than 150 students from top business schools across the country and the world gathered to address this year's conference themes, innovation and leadership in the business world.

Keynote speakers included William Donaldson, former chairman of the U.S. Securities and Exchange Commission, and A.G. Lafley, Chairman of the Board, President and CEO of Procter & Gamble.

These speakers shared their ideas about innovating and leading America's top businesses. Many of the process and design strategies Mr. Lafley discussed would be very familiar to any Design and Management student. Lafley understands and has embraced "design thinking" across the entire range of business operations at P&G. As he put it during his keynote address,

> In this global "new" economy we must adjust our thinking, operations, and strategies in order to compete at global scale. We should embrace creativity and new ideas. We should increase our research budget and release our products before our competitors. However, we must also innovate with a conscience and sustainable mind.

Macy's Corp., a sponsor of UBSLC, also held its annual case competition at the conference. For this competition, Macy's poses real-world problems and strategic challenges that the company faces. Students were assigned to teams at random, each team developing a solution to its assigned problem— among which included a divestiture of several men's accessory brands, as well as numerous marketing and advertising campaigns. My team was made up of an eclectic group of students, ranging from finance and accounting majors to those studying marketing and strategy. I was very impressed by the maturity and composure of everyone on my team. Out of the twelve groups, ours placed third!

The conference also included a series of more intimate roundtable discussions; in many of these, professionals from across a wide range of industries entertained questions about their daily work and planned future endeavors. Other roundtable discussions addressed topics including how to start your own business, how to make the transition from college to work, and how to innovate in your workplace.

I found the various lectures and discussions to be an enriching and worthwhile supplement to my experience in the Design and Management program. I left the conference with a deeper understanding of

the challenge of innovating within large business contexts. In order to innovate successfully, you must not only look for opportunities others do not see but consider the current forces that shape our world as well as the people that run and operate the business. People can support and embody innovations, but they can also get in the way. As future business leaders, we must learn to challenge the status quo and continue to evolve, but in more intelligent, sensitive, and sustainable ways. ■

Contributors

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Leslie Alfin is a part-time faculty member in Design and Management, a practicing artist, and a former designer and marketing executive in the visual and wireless communication industries.

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