Introduction

We live in a complex world. There is nothing polemical in this statement. Nor is the claim that design is deeply implicated in the conceptualization, fabrication, dissemination and evaluation of this complexity controversial. The challenge for the design community is to marshal the intellectual, professional and material resources required to develop an intelligible portrait of complexity as a precondition for acting responsibly. The contributors to this issue respond admirably to this challenge and explore various facets of designís complexity. Reviewing the career of Henry Steiner in Hong Kong, D.J. Huppatz, for example, notes how cultural clichés like East meets West are used to aestheticize power structures and thus camouflage the impact of colonization in Asia. Using Istanbul as his focus, Gérard Mermoz suggests the limitations of a design lexicon based on concepts of style, self-expression, taste and the seductive appeal of the picturesque impede our ability to think critical about environments we inhabit yet all too often do not fully comprehend. While language figures prominently in Mermoz's essay, Sebnem Timur turns our attention to the cultural role of an artifact: the Turkish *nargile* (water pipe). Timur is interested in the way in which the nargile functions as an object of resistance to the Western model of economic and social modernization. More than politically correct rants against the encroachments of modernity upon tradition, both Mermoz and Timur are concerned with the ways in which design shapes experience and the subtle ways in which experience often resists being molded by designers. The complexity of experience is a central theme in Genevieve Bell's article on the impact of information and communication technologies (ICTs) in parts of southern Asia. An anthropologist, Bell approaches ICTs as a set of social practices rather than merely an array of communication technologies. Bell employs an intriguing writing strategy to foreground the experiential nature of the design phenomenon under investigation. In conformity to disciplinary models of rigor, she poses a series of questions to be addressed and lays out a methodology for pursuing answers. But she leavens this academic approach with a series of brief, intimate ìsketchesî that evoke the social milieu within which the users of ICTs are embedded. Ultimately, responding to the challenge of designing in and for a complex world will require the designers to consider their own values, practices and identity according to John Carroll and Nathan Stegall. Carroll discussed the concept of participatory design (i.e. empowerment through inclusion in the design process)

through a discussion of Herbert Simon's seminal work *The Sciences of the Artificial*. Stegall argues that designers must envision and promote new behaviors not just new products as a way to activate an ecologically sound philosophy. Both Carroll and Stegall call into question existing paradigms of design practice. In his essay (drawn from his remarks on receiving a honorary doctorate recently from Metropolitan University of Technology in Santiago de Chile) Gui Bonsiepe acknowledges the flaws, the contradictions and failures of design in the age of globalization. But he also notes the potential of design to promote an authentic democracy in the contemporary world. He rejects both the Neoliberal definition of democracy in narrowly economic terms and the sterile irony of postmodernist commentary. Instead, Bonsiepe notes a potential to promote what he calls design humanism, which he describes as the exercise of design activities in order to interpret the needs of social groups, and to develop viable emancipative proposals in the form of material and semiotic artifacts.î The realization of complex, inclusive, environmentally viable, culturally appropriate forms of design called for by the various contributors to this issue constitutes a daunting design agenda. As Bonsiepe reminds us, it is also one that affirms our common humanity and ennobles us.

Richard Buchanan
Dennis Doordan
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Dimensions of Participation in Simon's Design

John M. Carroll

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1 Introduction

Herbert Simon's book *The Sciences of the Artificial* played a huge role in reinvigorating and redirecting scientific interest in design, both as an area for interdisciplinary research and as a focus for higher education, particularly in professional schools. Simon could not have anticipated every theme that would emerge in what he dramatically and optimistically called the "science of design." But it is remarkable how many touchstones he managed to fit into one small book.

In this paper, I revisit *The Sciences of the Artificial* as a means of elaborating *participatory design*, a term that refers to a large collection of attitudes and techniques predicated on the concept that the people who ultimately will use a designed artifact are entitled to have a voice in determining how the artifact is designed. Participatory design is a major, orienting position in contemporary debates about design methods.[1] In my own areas of research—human-computer interaction and computer-supported cooperative work, it has transformed thinking about the role of users in the software development process.

Simon never mentions participatory design as such in his book. However, he expresses sympathy with its central concept. In the first edition (1969), on page 75, he writes: "We have usually thought of city planning as a means whereby the planner's creative activity could build a system that would satisfy the needs of a populace. Perhaps we should think of city planning as a valuable creative activity in which many members of a community can have the opportunity of participating—if we have the wits to organize the process that way." In the second edition (1981), he added chapter 6 "Social Planning: Designing the Evolving Artifact," which includes many further statements pertinent to the concept of participatory design.[2]

My interest in this paper is to re-examine *The Sciences of the Artificial* in order to dissect several dimensions of participation. Participatory design is a high-level feature of design methods that can be implemented in a myriad of ways. It is not a single and integral design method. I consider the following dimensions: domains of human activity, roles of stakeholders in a design, types of shared design representations, the scope and duration of participatory interactions, and the relation-

1 *Computers and Democracy: A Scandinavian Challenge,* G. Bjerknes, P. Ehn, and M. Kyng, eds. (Avebury: Brookfield, 1987); J.M. Carroll, G. Chin, M.B. Rosson, and D.C. Neale, "The Development of Cooperation: Five Years of Participatory Design in the Virtual School" in *DIS'2000: Designing Interactive Systems,* D. Boyarski and W. Kellogg, eds. (August 17–19, 2000, New York, Association for Computing Machinery): 239–251; M.J. Muller, J.H. Haslwanter, and T. Dayton, "Participatory Practices in the Software Lifecycle" in *Handbook of Human-Computer Interaction,* M. Helander, T.K. Landauer & P. Prabhu, eds. (Amsterdam: Elsevier, second edition, 1997), 255–297; E. Mumford, and D. Henshall, *A Participative Approach to Computer Systems Design* (London: Associated Business Press, 1979); and *Participatory Design: Principles and Practices,* D. Schuler and A. Namioka, eds. (Hillsdale, New Jersey: Erlbaum, 1993).

2 H.A. Simon, *The Sciences of the Artificial* (Cambridge, MA: MIT Press, 1969/1981/1996 editions).

ship of users to design activity with respect to changes in their knowledge and skill. I believe these dimensions have important implications for some of the fundamental issues that have been raised regarding the effectiveness of participatory design methods.

2 Design as a Touchstone for Human Activity

In *The Sciences of the Artificial*, Simon characterizes design as central to what humans are and what they do. Humans control the natural world by creating the artificial world, that is, by designing tools and artifacts, including buildings, social institutions, and symbol systems. Simon was writing in the context of the design methods movement of the 1960s,[3] and his thinking reflects that confident view of design as a touchstone for human endeavor. However, Simon's work was distinctive in its analytic emphasis on design cognition and design education.[4] That the book was originally offered to the scholarly community as the Karl Taylor Compton lectures, that Simon subsequently won the Nobel prize in 1978, and that, ultimately, three editions were published probably also contributed to the status this book as a classic.

In the first edition, written in the late 1960s, Simon expressed his perplexity and concern that design was out of favor in professional schools, such as medical schools and engineering schools. He observed that, throughout most of the twentieth century, professional schools sought to increase their academic respectability by embracing natural science, and de-emphasizing design. Professional schools wanted to be seen as intellectually substantive within a rubric of "applied science." Design was associated with crafts, with construction work, and with merely carrying out cookbook instructions. This trivial view of design, and the conflict in values that it evoked, caused a schism between academic programs and the professions that is still widely evident. The first edition of *The Sciences of the Artificial* helped to catalyze a rethinking of the place of design in professional schools, resulting in massive curricular revision during the latter 1970s and subsequently.

It is important to understand this context in reading Simon. Much of the discussion in his book explores and proposes a substantial interdisciplinary foundation for a science of design. Simon specifically focuses on cognitive psychology, economics, social policy and planning, logic, statistics, and simulation. However, he never states that this is the full extent of the foundation he imagined. And, indeed, the foundation for his science of design became broader as he revised his work for later editions. For example, in the second edition, he added a chapter on social policy and planning.

I emphasize Simon's interdisciplinary vision of the science of design because it is possible to read *The Sciences of the Artificial* far more narrowly, as emphasizing the principle of hierarchical decomposition as a sort of panacea for managing problem complexity. The book actually ends with this as its conclusion (p. 216): "My thesis

3 J.C. Jones, *Design Methods: Seeds of Human Futures* (New York: John Wiley & Sons, 1970).

4 *Design Knowing and Learning: Cognition in Design Education*, C. Eastman, M. McCracken, and W. Newstetter, eds. (Amsterdam: Elsevier, 2001).

has been that one path to the construction of a nontrivial theory of complex systems is by way of a theory of hierarchy." (Note that, unless otherwise indicated, page numbers refer to the third edition of *The Sciences of the Artificial*, published in 1996). Throughout his career, Simon characterized hierarchy as the lynchpin of what he called the architecture of complexity. And clearly hierarchy, and hierarchical decomposition, is an elementary and pervasive technique in design, and in all complex problem solving. In the 1960s, hierarchy played a major role in orienting the "new design methods."[5] Examples include issue-based information systems,[6] structured programming,[7] systematic instruction,[8] and the software development waterfall.[9]

Since the 1970s, the risks and limitations of hierarchical decomposition have become more evident. For example, Brooks's[10] concept of emergent requirements showed that the design of complex systems always has to be iterative; that the initial decomposition is more or less always wrong. Alexander et al. showed that many important design abstractions derive from concrete patterns of use and myriad specific domain details—precisely the sorts of considerations ignored by hierarchical decomposition.[11] I have reviewed these issues elsewhere.[12] In this essay, I will regard Simon's broad vision of a science of design as the primary contribution of *The Science of the Artificial*, and his emphasis on hierarchy as merely one facet and one technique within this larger vision.

3 Social Aspects of Design

As he revised his book, Simon broadened his interdisciplinary vision of the science of design. In the second and third editions, he added a chapter entitled "Social Planning: Designing the Evolving Artifact," considering design as a social activity in several different senses. First, he discussed social plans and policies *as designs*. He considered the Marshall Plan and the U.S. Constitution as specifications for organizational designs. These designs are not mere blueprints, as are some of the key examples elsewhere in the book (clocks and houses), but starting points for living systems that grow and evolve over time— systems whose structure and consequences cannot be anticipated at the time of their design.

Expanding the scope of *The Sciences of the Artificial* to encompass the design of social systems enriched the whole analysis. Thus, in considering the design of the urban renewal plans for the City of Pittsburgh, Simon suggests we must give up the idea of designing with fixed goals (pp. 162–167). He argues that the role of design goals is to evoke and focus activity which results in the identification of further design goals—including goals that are substantially inconsistent with the starting goals. This is clearly how design often works,[13] but it is a very significant enrichment of the view that hierarchical decomposition is the key to managing complexity. Yet Simon espoused a pretty strongly non-deterministic view (p. 163): "It is ... beside the point to ask whether the later stages of the development

5 J.C. Jones, *Design Methods: Seeds of Human Futures.*

6 H. Rittel and M. Weber, "Dilemmas in a General Theory of Planning," *Policy Science* 4 (1973): 155–169.

7 E.W. Dijkstra, "Goto Statement Considered Harmful," *Communications of the ACM* 11:3 (1968): 147–148.

8 R.M. Gagne and L.J. Briggs, *Principles of Instructional Design* (New York: Holt, Rinehart and Winston, 1979).

9 W.W. Royce, "Managing the Development of Large Software Systems: Concepts and Techniques," *Proceedings of Western Electric Show and Convention, WESTCON, Los Angeles* (1970): (A/1)1–(A/1)9 (Reprinted in *Proceedings of the 11th International Conference on Software Engineering, Pittsburgh, May 1989*): 328–338.

10 F. Brooks, *The Mythical Man-Month: Essays on Software Engineering* (Reading, MA: Addison-Wesley, Anniversary Edition, 1995, originally 1975).

11 C.A. Alexander, S. Ishikawa, M. Silverstein, M. Jacobson, I. Fiksdahl-King, and S. Angel, *A Pattern Language: Towns, Buildings, Construction* (New York: Cambridge University Press, 1977).

12 J.M. Carroll, *Making Use: Scenario-Based Design of Human-Computer Interactions* (Cambridge, MA: MIT Press, 2000).

13 F. Brooks, *The Mythical Man-Month: Essays on Software Engineering.*

were consistent with the initial one—whether the original designs were realized. Each step in the implementation created a new situation; and the new situation provided a starting point for fresh design activity."

A second sense in which Simon considered design as social activity is that he emphasized the social impacts of all design, and the social responsibilities of designers. One of his examples is a design episode of a genre that has become quite popular in human-computer interaction and computer-supported cooperative work (pp. 143–144): The U.S. State Department at one point replaced teletypes with line printers specifically to alleviate bottlenecks caused by queued messages. The effects of this organizational design innovation were surprisingly negative; officers at country desks were immediately overwhelmed with the volume of communications that were now so efficiently printed for them. Bad designs often are found to have addressed spurious bottlenecks in organizations, or bottlenecks that cannot be adequately understood in isolation from other organizational structures and processes.

Simon argued that designers always must be concerned with consequences *beyond* the client's directly articulated concerns. Thus, psychiatrists must be concerned with family impacts, and engineers must be concerned with environmental impacts. Construing design problems with sufficient scope to include the likely side-effects is a challenge in all design work. Simon saw it as becoming keener in contemporary design endeavors (p. 150): "The traditional definition of the professional's role is highly compatible with bounded rationality, which is most comfortable with problems having clear-cut and limited goals. But as knowledge grows, the role of the professional comes under questioning. Developments in technology give professionals the power to produce larger and broader effects at the same time that they become clearly aware of the remote consequences of their prescriptions."

The third sense in which Simon considered social aspects of design is that he characterized design as a modern lingua franca for people. He characterized the science of design as "a core discipline for every liberally educated person" (p. 137), and claimed that design is a part of every profession, and provides a common framework for professionals to attack the modern tendency to fragment into cultures of specialization. He gives the example of a tone-deaf engineer and a mathematically ignorant composer: "I am suggesting ... that they *can* carry on ... a conversation about design, can begin to perceive the common creative activity in which they are both engaged, can begin to share their experiences of the creative, professional design process."

Simon's consideration of social aspects of design significantly broadens the vision of the science of design in *The Sciences of the Artificial*. But it raises many questions. How could the urban renewal of Pittsburgh have been organized to capitalize on the fact that there

were no final goals? How could the State Department have designed a better technology enhancement for their employees? How can psychiatrists act as family counselors in designing courses of treatment? What are the consequences of the conversation about design between the engineer and the composer?

Simon's consideration of design is concerned chiefly with foundations. He is concerned with explaining what design is, with respect to ideas about science, engineering, and human nature. His point of view throughout is that of the outside analyst, not the designer. The discourse in his book takes place at a higher level than that of actual design practices or case studies. This makes the book inspirational, but also incomplete. It is useful to rearticulate many of Simon's themes at a finer level; to ask how aspects of his vision can become concrete in design practice. Participatory design is a case in point.

4 Participation in Design

Participatory design—also called cooperative design[14]—is the direct inclusion of users within a development team, such that they actively help in setting design goals and planning prototypes. It contrasts with still-standard development methods in which user input is sought only after initial concepts, visions, and prototypes exist; and is obtained through rather narrow communication channels, such as requirements interviews. Participatory design approaches were pioneered, and have been widely employed, in Europe since the 1970s, and now consist of a well-articulated and differentiated set of engineering methods in use worldwide.[15]

When Simon wrote the first edition of *The Sciences of the Artificial*, participatory design was not a developed perspective. A lot of the early work we now see as the foundation of participatory design—socio-technical design,[16] soft systems,[17] and cooperation with the labor movement[18]—was underway by the late 1960s. However, these initiatives were not coordinated and not widely recognized. Almost thirty years later, when Simon prepared the third edition,[19] participatory design was a major perspective in many design communities. There is no direct discussion of participatory design in *The Sciences of the Artificial*, but there are some clear hints of Simon's sympathies, as in the passage from the first edition quoted in section 1 above.

As he revised his book, Simon slightly elaborated his views about user participation. He writes (p. 153), "The members of an organization or a society for whom plans are made are not passive instruments, but are themselves designers who are seeking to use the system to further their own goals." In this statement, he sees the ultimate stakeholders— often called "users"—as ipso facto designers, ineluctably designing their own use of the system. Simon conceived of the relationship between the official designers and the end-user

14 M. Kyng, "Creating Contexts for Design," *Scenario-Based Design: Envisioning Work and Technology in System Development,* J.M. Carroll, ed. (New York: John Wiley & Sons, 1995), 85–107.

15 *Design at Work: Cooperative Design of Computer Systems,* J. Greenbaum and M. Kyng, eds. (Hillsdale, NJ: Erlbaum, 1991); M.J. Muller, J.H. Haslwanter, and T. Dayton, "Participatory Practices in the Software Lifecycle" in *Handbook of Human-Computer Interaction*; *Participatory Design: Principles and Practices,* D. Schuler and A. Namioka, eds.

16 E. Mumford, and D. Henshall, *A Participative Approach to Computer Systems Design.*

17 P.B. Checkland, *Systems Thinking, Systems Practice* (New York: John Wiley, 1981).

18 *Computers and Democracy: A Scandinavian Challenge,* G. Bjerknes, P. Ehn, and M. Kyng, eds.

19 H.A. Simon, *The Sciences of the Artificial.*

designers game-theoretically: designers make a move in their system design, and members of the end-user organization make a countermove in the design of their use (pp. 153–154).

This excerpt displays again Simon's tendency to see relationships in terms of the underlying logic, but not the social dynamics. Thus, game theory unavoidably tends to analyze social interactions as asynchronous transactions, indeed with rather stodgy turn taking. Simon's analysis is, of course, compatible with cooperative games in which all stakeholders in a design work towards common objectives. But it is not compatible with collaborative "games" in which the participants work together to design each move. This alternative view of social games is clearly espoused in ethnomethodological analysis of interactions.[20]

Participatory design motivates specific elaborations in the foundations of the science of design, and in curricula for educating designers. Most critically, it emphasizes that designers must deeply understand the human activity systems that will be affected by their designs. Doing this involves identifying all stakeholders in a design—every type of person that can be affected and the manner in which they can be affected. If end-users are to play a significant and continuing role in design, it is crucial to make design activity intelligible to all stakeholders. One of the most powerful tools for "designing without final goals" is to ensure that all stakeholders understand the initial design goals. The processes of participatory design are far more complex than the simple image of a designer sketching at the bench. Design work incorporates the full range of human social interactions. Perhaps the most important dynamic in design is human development: Simon emphasized the potential breadth of evolutionary change evoked by social designs, but a complementary point is how deep the consequences of design work can be for individuals. Once the engineer and the composer talk about design, neither can be the same again.

5 Understanding Human Activity

Simon's game-theoretic concept for understanding the interaction between designers and users is transactional. He countenances an active role for users in design, but *only after* the designers have made the first move. The game-theoretic view suggests the metaphor of chess openings, namely, that the initial design move is drawn from a standard body of design knowledge, and after that interesting and creative things begin to occur. Through the past two decades, conceptions of the end-user's role in design have moved from this "half-duplex" style of interaction to a fully interactive concept in which end-users are involved in the earliest planning stages and throughout. These innovations in design methods are motivated by the need to accommodate, indeed to capitalize from, the variety in human activity.

20 L. Suchman, *Plans and Situated Action: The Problem of Human-Machine Communication* (New York: Cambridge University Press, 1987); H. Sacks, E.A. Schegloff, and G. Jefferson, "The Simplest Systematics for the Organization of Turn-Taking for Conversation," *Language* 50 (1974): 696–735.

As Simon noted, people organize their activities through divisions of labor and collaborative dependencies to allow themselves to perform tasks more extensive and complex than any individual could accomplish. These social structures and processes often are spontaneous, even ad hoc. They not isomorphic with management structures, they are not readily understood without direct guidance from the participants themselves, and they determine the potential effectiveness of design interventions. In the past decade, many studies of technology innovation have documented how designers regularly misinterpret, or fail to notice, critical issues in the social organization of the activities they are trying to redesign—and the wasteful and embarrassing consequences for their designs.[21]

To effectively redesign human activities, designers need a deep understanding of these activities. School teachers do not collaborate like engineers, because the culture of teaching, the status and management of teachers, and the work objectives of teaching all are different from those of engineers. Effective designs to support teachers would be different from effective designs for engineers. Moreover, design collaborations with teachers would be different than design collaborations with engineers. Each work culture has a preunderstanding of what collaboration is like, and its own practical constraints on carrying out a collaboration.

In his city planning example, Simon noted that users relate to new designs creatively as a means to furthering their own ends, but users also frequently have the discretion to accept or reject designs according to whether they believe those designs meet their needs and expectations. This point often is made by citing the use (and nonuse) of information technology by managers: When business executives are disappointed with technology, they delegate it to underlings. Thus, PCs in the 1980s had relatively little effect on executives. However, the same pattern can be observed whenever workers have ultimate control over their use of technology. Consider school teachers. The isolation and discretion of the teacher's work environment requires that technology for classroom use be highly appropriate and reliable. Yet it generally is assumed that teachers are to be *trained* on new technologies, not asked to *define* what those technologies should be. From the teacher's standpoint, classroom technology often is itself the problem, not the solution. This culture of technology development in the schools has been singularly ineffective—film and radio in the 1920s, television in the 1950s, computer-assisted instruction in the 1980s, among others, have been notable failures.[22]

Dimensions such as collaborative workflow dependencies and worker discretion modulate the implementation of participatory design. All human activity is collaborative, but the structures and processes of each design context are somewhat unique, both with respect to design requirements and the approaches to identifying those requirements. When potential users have substantial discre-

21 G. Button, "Studies of Work in HCI" in *Toward a Multidisciplinary Science of Human-Computer Interaction*, J.M. Carroll, ed. (San Francisco: Morgan-Kaufmann, 2002); J. Blomberg, L.A. Suchman, and R. Trigg, "Reflections on a Work-Oriented Design Practice," *Human Computer Interaction* 11 (1996): 237–265.

22 D. Tyack and L. Cuban, *Tinkering Toward Utopia: A Century of Public School Reform* (Cambridge, MA: Harvard University Press, 1995); and S. Hodas, "Technology Refusal and the Organizational Culture of Schools," *Educational Policy Analysis Archives* 1:10 (September 14, 1993).

tion, and as the example of school teacher shows, discretion in this sense is not correlated with organizational power. Thus, understanding how and when to involve them is critical and unique. In particular, involving them late in the design game may concede the game.

6 Identifying All Stakeholders

In considering the relationship between client and designer, Simon emphasized that designers must consider the consequences of a design beyond what the client specifies or even cares about, and that a designer has the obligation to act as a teacher, and not merely an implementer (p. 151). He says that society always is a client in design, but that society is itself multifaceted and replete with conflicting goals and values (p. 153).

How can this work as a design method? One way is to enumerate the categories of persons who have a stake in a design. Consider the design of a community-information Web site. Many groups throughout the community have stakes: members of the local government (mayor, town supervisors, etc.), members of civic groups (church congregations, parent-teacher associations, service organizations); special groups such as children, parents, underemployed persons, and the elderly (who might have special areas of interest with respect to the total information/service space in the system); representatives of commercial organizations that want to advertise to the community; frequent (daily) community users of the information and services (who might want profiles or other support for customized views of information and functions); infrequent community users of the information and services (who might want simplified views); and system administrators (employees of the town or municipal government who maintain the core information and function).

One way to implement Simon's broadened notion of designer responsibilities and of society as a client is to adopt the concepts and methods of soft systems,[23] in which stakeholder analysis is a key step in design. This method helps to characterize important differences between different design contexts. The community information system is an example of a direct democracy implementation of participatory design. All residents are stakeholders and, in principle, all can represent their interests in design decisions. In practice, of course, some groups, such as children or minorities, may be disenfranchised, but enumerating stakeholder groups and analyzing their respective stakes at least provides a program for addressing such deficiencies.

Another interesting implementation of participatory design is representative democracy. In some design contexts, there are just too many end-users for everyone to participate directly. In such contexts, there has to be a scheme to designate representative users. In some cases,[24] these representatives may have been designated by the workers' union, though one could argue that union

23 P.B. Checkland, *Systems Thinking, Systems Practice.*

24 S. Bødker, P. Ehn, J. Kammersgaard, M. Kyng, and Y. Sundblad, "A Utopian Experience" in *Computers and Democracy: A Scandinavian Challenge,* G. Bjerknes, P. Ehn, and M. Kyng, eds. (Brookfield, VT: Avebury, 1987), 251–278.

leaders are not representative members. Union leaders often are full-time representatives, proxies who do not themselves have the same stake as those they represent. Another approach is statistical sampling, but this is also complex. Random samples of potential users may be socially incoherent collections of people who will fail to represent important synergies and bottlenecks of the activity.

7 Intelligibility of Design Representations

Meaningful user participation in design requires that the discourse constituting the design work be accessible to all stakeholders. This requirement runs directly counter to many aspects of professional culture, such as jargon and formal modeling. These are definitely issues in the design of software systems and applications: Software engineering has a strong tradition of gratuitous terminology and formalism. Indeed, software and systems engineering, as academic disciplines, still manifest the traditional flaws that Simon criticized in his first edition. Research in these areas often seeks to produce elegant mathematical structures, but is poorly integrated with real design work. But even when software engineers are effectively engaged with the task of producing good software, much of what they discuss in their design work is unintelligible to users. The design representations employed by software engineers are incomplete precisely with respect to critical non-designer concerns. Thus, software design representations focus on describing functions and control, but do not describe user performance and experience, application workflow, or the social and organization context in which systems are used. Thus, users often describe current technology and envision future systems in a language equally unintelligible to software engineers.

The non-triviality of this "gap" between the worldview of the software designer and the worldview of the potential user of the software is one of the motivations for participatory design. Bringing the two groups and two worldviews into conjunction is a step towards bridging the gap. Ideally, these encounters are like the conversation between Simon's composer and engineer. But the lingua franca of design itself needs an implementation: Designers, users, and other stakeholders need representations of software and activity intelligible to all and rich enough to represent the concerns of all.

The last decade of participatory design research has produced many proposals for such design representations. Many of these approaches essentially implement a user interface design at the earliest stage of system development: Designers can show concretely what they have in mind, rather than specifying it mathematically, and other stakeholders can react and critique what they can actually see and manipulate.[25] A slightly more abstract approach is scenario-based design in which system functionality and the experience of using that functionality are described in narrative episodes of user interaction.[26] Because all stakeholders are able to create stories of

25 *Design at Work: Cooperative Design of Computer Systems,* J. Greenbaum and M. Kyng, eds.

26 J.M. Carroll, *Making Use: Scenario-Based Design of Human-Computer Interactions.*

envisioned user experiences, scenario-based design allows non-designers to participate as creators as well as critics. Scenario-based design representations have been assimilated into a wide range of system development activities.

Simon's discussion of design representation (p. 131 f.) focuses mostly on how properties of a representation facilitate solution in the narrow sense of a single designer working at the bench. He loved the experiments on games such as number scrabble that showed the superiority of conceptually distinct, but logically identical, representations.

In the second edition, Simon's thinking about representations seems different. He suggested that *organizations* could be considered design representations (pp. 141–143), using the example of the Economic Cooperation Administration (ECA), the entity that implemented the Marshall Plan in 1948. At the outset, there were at least six distinct, and contradictory, conceptions of what this agency should do. There was considerable debate, but no obvious way to resolve the debate. Simon observes (p. 143), "What was needed was not so much a 'correct' conceptualization as one that would facilitate action rather than paralyze it. The organization of ECA, as it evolved, provided a common problem representation within which all could work." As the ECA proceeded, one of the six original concepts, based on specific aid to achieve balance of trade, prevailed, and later evolved into the Common Market. Many uses of prototypes in participatory design are compatible with this suggestion. Prototypes provide an evolving framework for exploring design options, and gradually focusing on a final solution.

Simon suggested that a key desideratum for a design representation is that it identifies limiting resources. His example is the U.S. State Department's misanalysis of printer bottlenecks. Indeed, Simon was ahead of his time in emphasizing that the key bottleneck in information systems frequently is limited human attention resources for processing information, rather than limited access to information. The representation of tradeoffs in a design space has been found to be an effective participatory design activity.[27]

He also provides an interesting, broadened perspective on the use of simulation models (pp. 144–146), suggesting that for very complex problems (such as understanding the effect of automobile emissions on the environment) it might be "preposterous," in his word, but still useful to develop simulation models. The actual numbers that are manipulated may not be credible, but the models illustrate a conceptual scheme that can provide useful guidance. Indeed, Simon emphasized that this use of models without numbers can be particularly useful in trying to structure complex problems that require coordination of many disciplines (pp. 145–146). This is an interesting proposal as to how quantitative models can make design representations more broadly intelligible.

27 J.M. Carroll, M.B. Rosson, G. Chin, and J. Koenemann, J., "Requirements Development in Scenario-Based Design," *IEEE Transactions on Software Engineering* 24:12 (1998): 1–15.

8 The Dynamics of Design

Participation in design is not a single, homogeneous activity. People can participate in a design activity by creating envisionment scenarios of what using a new sort of group-support system might be like, or what work might be like using a new sort of group-support system. They can participate by elaborating someone else's scenario. They can demonstrate a prototype user interface, play the role of user in a walkthrough of a prototype, or discuss the walkthrough demonstration of a prototype. People can collaborate for a hour, for a day, for a week, or for several years. They can see their own role in the collaboration in a variety of ways, for example, a user-participant could see him or herself as being a consultant, a user representative, the domain expert, a requirements specialist, a user interface designer, or as the lead designer.

At a deeper level of collaborative dynamics, participants can offer a variety of social support to the design process. They can provide leadership, seek support from others, negotiate meanings, compromise and facilitate compromise in cases of conflict, secure and/or share power, and reconstruct and rationalize decisions and other outcomes. The various participatory actions people take, the roles they play, and the social relationships they create and rely upon describe a space of possibilities for participatory design. One way to elaborate participatory design is to map this space, enumerating the different implementations of participatory design and the characteristics of each.[28]

An illustration of the range of interactions that comprise participatory design is the contrast among the Scandinavian UTOPIA project,[29] Muller's PICTIVE (Plastic Interface for Collaborative Technology Initiatives through Video Exploration) method,[30] Blomberg, Suchman, and Trigg's technology mediator approach,[31] and Carroll, Chin, Rosson, and Neale's case study of long-term cooperation.[32] The UTOPIA project was an important early study of participatory design of information technology. It addressed the introduction of workstation-based document processing into the print industry. The project demonstrated the feasibility and utility of articulating workplace activity and worker preferences as part of the process of technology development and deployment. Worker participation in this process was mediated by labor union representatives, and carried out in a strongly political context. The study can be seen as part of a broader social initiative to secure workers' rights to help determine the information technology of their workplace.

PICTIVE involves designers and users in joint exercises in which they propose and discuss layout and control options for user interface display objects—windows, buttons, menus—by manipulating bits of papers (photographs of display objects, Post-its, and so forth). PICTIVE sessions typically last less than an hour. The goal is to engage users and designers in a shared activity that is fun, and

28 M.J. Muller, J.H. Haslwanter, and T. Dayton, "Participatory Practices in the Software Lifecycle"; and *Participatory Design: Principles and Practices,* D. Schuler and A. Namioka, eds.

29 S. Bødker, P. Ehn, J. Kammersgaard, M. Kyng, and Y. Sundblad, "A Utopian Experience."

30 M.J. Muller, "Retrospective on a Year of Participatory Design Using the PICTIVE Technique," *Proceedings of CHI'92: Conference on Human Factors in Computing Systems* (New York: ACM, 1992), 455–462.

31 J. Blomberg, L.A. Suchman, and R. Trigg, "Reflections on a Work-Oriented Design Practice."

32 J.M. Carroll, G. Chin, M.B. Rosson, and D.C. Neale, "The Development of Cooperation: Five Years of Participatory Design in the Virtual School."

that generates a lot of design ideas and insights into how users interpret displays and controls. This method evokes Simon's observation (p. 164) that design is a pleasurable activity, and that we should think of it in part as an end in itself. Deep issues of workflow and job design generally do not arise in a PICTIVE session, but important usability problems can be identified and addressed before any software design or implementation has occurred.

Blomberg, Suchman, and Trigg developed the role of technology mediator. They were working for a company developing retrieval systems for text and image collections. They worked directly with all customer stakeholders to understand the how the workplace functioned, and later, to support and learn from the introduction of prototypes. On the other side, they collaborated with the developers to make the workplace and the work more visible to them.

In our virtual school project, my collaborators and I were the system developers, but we made a long-term commitment to work with a group of school teachers to address the chronic issues of "technology refusal."[33] In this case, participatory design became a life cycle method involving not only early design activities such as requirements analysis and scenario envisionment, but installation, adoption, and the emergence of changed workplace practices. All major project decisions throughout a period of six years were made collaboratively.

These projects and methods vary across many dimensions. At one level, it is perfectly useful to consider them all as examples of participatory design. However, it also is useful to consider the consequences of different implementations of participatory design. For example, facilitating participation as a user advocate, a brainstorm leader, a technology mediator, or as a developer committed to participation all are quite different. User advocates, as in the Utopia project, have taken a side: when users and designers disagree, they support the users. This clarity can help since everyone knows who is who. But it also can lead to the dismissal of technical insights based on their source alone. Brainstorm leaders, as in PICTIVE, probably are seen as relatively more objective, but their input to designers also will be perceived as highly optional. The exercises are good for generating good ideas and good experiences, but they deal with very low-resolution and often crude approximations of the actual design issues and decisions.

Technology mediators represent both sides to one another in the real design process; they must balance everything to remain both technically and ideologically credible to everyone. This is challenging and dangerous; the mediators are thwarted if they are rejected by any of the major stakeholders. Developers committed to participation also must balance perspectives, in this case, they must balance their role as developers with their role as facilitators of the users and other stakeholders, and of the continuing participatory interaction. This

33 S. Hodas, "Technology Refusal and the Organizational Culture of Schools."

creates tension when the developers as developers are convinced of a course of action and ready to move ahead, but as facilitators must support the users who may be unsure or opposed.

All participatory design methods address the challenge of Simon's game-theoretic image of user involvement in design. They make user involvement an ongoing process, much like the conversation between the composer and the engineer, as opposed to a transaction. But they do this in many different ways. One important focus for current research on participatory design is to better analyze the space of methods and techniques, and to understand when they are most useful and how they can be combined.

9 Human Development

Simon's vignette of the composer and the engineer suggests one of the most profound tenets of participatory design, namely, that everyone can be, and should be, a designer. Indeed, Simon's central premise in *The Sciences of the Artificial*; that humans control the natural world by creating the artificial world, by designing tools and artifacts including buildings, social institutions, and symbol systems, places design at the core of what it is to be human. This sentiment is becoming pervasive. For example, topics such as universal access to computing and end-user programming currently are prominent in the information technology landscape.

When Simon's composer and engineer discuss design, they each learn something. But we can take Simon's vision a step further. If they work together *doing design,* they may build upon their shared lingua franca, and upon their respective domain expertise to learn quite a lot about one another's worlds, and about requirements analysis, planning and problem-solving, implementation in various senses, and adoption and social change. Design can provide not merely a common topic, a shared orientation to knowledge, but an activity for engaging knowledge that makes learning and human development ineluctable.

Any implementation of participatory design is an example of how this can work. When designers and users work through a brief PICTIVE activity together, they are both changed, not merely in that instance of design, but more generally in how they can think about how their counterparts in design see, think, and react. Designers learn to see their professional activity more broadly in terms of the impacts it can have on people, and that even relatively low-level decisions are never arbitrary to the end-user. Users learn that designs are not givens, but that they consist of choices among often a wide variety of alternatives.

Broader and more sustained and participatory relationships can evoke more profound changes in the participants. In our six-year project with a group of public school teachers, we observed a series of dramatic role changes.[34] At first, the teachers were "practitioner-informants"; we observed their classroom practices and

34 J.M. Carroll, M.B. Rosson, G. Chin, and J. Koenemann, "Requirements Development in Scenario-Based Design."

we interviewed them. Subsequently, the teachers became directly and actively involved in the requirements development process as "analysts." Some two and one-half years into the project, the teachers assumed responsibility as "designers" for key aspects of the project. Finally, the teachers became "coaches" to their own colleagues within the public school system. These transitions exemplified the defining characteristics of developmental change: active resolution of manifest conflicts in one's activity, taking more responsibility, and assuming greater scope of action.[35] Each successive stage can be seen as a relatively stable organization of knowledge, skills, and attitudes that resolves the instigating conflict.

Developmental change in adults is, of course, more complex than the classic Piagetian examples, such as the development of conservation in the pre-operational child. The stages we observed are not singular competencies, but relatively complex ensembles of collaboration, social norms, tool manipulation, domain-specific goals and heuristics, problem solving, and reflection-in-action. They are social constructions achieved through enculturation, constituted by the appropriation of the artifacts and practices of a community.[36] Adult growth is not a monolithic achievement as when successive stages build upon the cognitive structures and enabled activity of prior stages, but ultimately replace those structures. It is continual elaboration. The teachers still are practitioners whose classroom practices we regularly observe, and whose classroom expertise we still interrogate. They seem to us and to themselves to be representative practitioner-informants. However, they now *also* are analysts and designers, and often coaches. Indeed, effective design coaches probably must be experienced designers, successful designers must be skilled analysts, and analysts must have attained significant domain knowledge.

An important modulation of the developmental perspective in this analysis is the need for a relativistic viewpoint with respect to the nature of knowledge and expertise. In classic developmental work, it is the child who is developing, and indeed doing so by becoming more like the adult. In contrast, our collaboration with the teachers was clearly one of mutual learning. The researchers in our group learned a vast amount about the practices, the exigencies, the values, and the politics of public schools. The teachers could present a complementary analysis of the development of *our* capacities to collaborate in the design of educational activities and technologies. Such reflexivity is inherent in any participatory design project.

10 Collaborating with Simon's Ant

I first read *The Sciences of the Artificial* in the late 1970s. I was intrigued by the idea that design could be considered a kind of problem solving; it stretched the concept of problem solving I had been taught as a graduate student in cognitive psychology. And I really liked the idea that design is not a residual category of problem

35 J. Piaget, and B. Inhelder, *The Psychology of the Child* (New York: Basic Books,1969); and L.S. Vygotsky, *Mind in Society* (Cambridge, MA: Harvard University Press, 1978).

36 L.S. Vygotsky, *Mind in Society.*

solving, not a collection of miscellaneous loose ends, but rather lies right at the core of what humans do and what they are. Through the years, many readers have had reactions like this to Simon's book.

A very vivid image for me from that first encounter was the story of the ant crossing a beach (pp. 51–52 of the third edition). In the story, the ant weaves a complex trajectory, but not because the ant itself is complex. The ant is simple. The complexity, observes Simon, is in the beach. The lesson Simon draws from the parable of the ant is that the apparent complexity of organisms, including human beings, derives largely from the complexity of the environment within which they act. I found this lesson riveting, but incomplete. How could one ever confidently identify the simple, underlying ant structures unless one could describe, and partially out of the overall description, the complex environmental structures?

In the early 1980s—I can no longer recall exactly when this was—I wrote a letter to Simon asking whether he agreed with a further conclusion regarding the ant; namely that, in order to understand the underlying structures of human cognition, one would have to describe in detail the tasks, the technology, the social conventions, and all other environmental features that contribute to human performance. It was a great thrill to me when he agreed with this point. However, in retrospect after two decades, it's a pretty obvious point. The parable of the ant, however vivid and stimulating, actually obscures the point by placing the ant on a beach, a somewhat randomly structured, and therefore arbitrarily complex, environment. A better example might be an ant navigating the corridors of an ant colony.

I am ready to suggest another elaboration of the ant: We must talk to the ant, work shoulder to shoulder with the ant, and walk a mile in the ant's shoes if we really want to understand the beach and the ant's trajectory as it crosses the beach. Much of the complexity of an organism's environment can never be gleaned from the most careful tracking of its actions in the environment. Even if the behavior pattern is augmented by the richest analysis of the environment as a structure, we still would not learn enough about the meaning of the environment to the organism. This time I can't write Simon a letter, but again I think the point is an obvious one, obscured a bit perhaps by the vivid image of the ant on the beach.

Communicating directly with actors in order to understand their experience of their environments and their needs for new designs is not simple. Designers and users live different lives, have different values, make different interpretations, and speak different languages. I am reminded of Wittgenstein's[37] remark in the *Philosophical Investigations* that, if a lion could speak, we wouldn't understand him. Collaborating with Simon's ant would be at least as difficult. Such examples bring to mind Simon's other image: the composer and the engineer sharing the contemporary lingua franca

37 L. Wittgenstein, *Philosophical Investigations*, G.E.M. Anscombe, translator (Englewood Cliffs, NJ: Prentice-Hall, Third Edition, 1999).

of design. As the space of participatory design concepts and techniques has developed and diversified through the past two decades, the chances for ants and lions of all sorts to finds ways to share their experiences and meanings have continued to improve.

Participatory design is not a single procedure or ingredient. It is a commitment regarding power and inclusion. In many cases, achieving it requires fundamentally changing our values and identities. But that is not too much to ask. In any case, our particular designs will age quickly. They are responses to the environment as it is, and the environment is always changing. Our designs will be superseded, and superseded again and again. As Simon put it (p. 163), "What we call 'final' goals are in fact criteria for choosing the initial conditions that we will leave to our successors."

We can afford to get our design outcomes wrong, since all of our outcomes will disappear anyway. But we cannot afford to be wrong about the criteria we leave to future designers. This is why *The Sciences of the Artificial* matters as much today as it did in 1969. And this is why understanding, developing, and employing participatory design is crucial to realizing the vision it illuminates. Simon suggested that humans steer their own evolution through design, and that our designs create new contexts within which we evolve (pp. 165–166). The emphasis of participatory design on variety in perspectives, representations, processes, and developmental trajectories helps to ensure that we will bequeath a rich world to our successors.

The Eastern Way of Timekeeping: The Object and Ritual of *Nargile*[1]

Sebnem Timur

The clock, not the steam-engine,
is the key machine of the modern industrial age.[3]

Mind The Map: Third International Conference on Design History and Design Studies, 9–12 July 2002, Istanbul.[2]

Foreword

A few years ago, when the ideas that motivated writing this paper first emerged, my friends and I had a hard time finding a place to smoke a *nargile.* Aside from our academic interest in objects, culture, and meanings, we really wanted to experience the *nargile* as a ritual. We eventually found a few places, but our quest for the tradition is worth analysis. Basically, we, as people living in big cities of Turkey, wanted to be a part of this mystic ritual. We knew that it was an old tradition with important geographic, historic, and contextual significances, but it was not a part of our daily lives in any sense. Why? The changing life styles dominated by the rules of societal modernization are not in conformity with the speed of such an experience so, except for a few specific places, it was not rational or profitable to sustain this kind of ritual in coffee houses. Yet we were astonished to find out that many other people in Turkey had developed a curiosity and interest in *nargile* smoking.

Today, you can see a lot of places including coffee houses and cafés that offer *nargile* smoking, along with table games that can be associated with other time-consuming pleasures. Capitalism once again found a way to incorporate a cultural element by making it widespread everywhere recklessly. Although this is the case, the emphasis of this paper is not on these formations, but rather on the "essence" of the ritual—if there is any—in contrast with a modern background such as its/our relation to the concept of time; the inner dynamics of modernity and the modern individual, and a sense of identity.

Nargile

Nargile is the Turkish word for a device also known as a hookah, shisha, hubble-bubble, or water pipe. A *nargile* basically is "a tobacco pipe whose smoke is drawn through water by a long tube before reaching the mouth."[4] The working principle of a *nargile* is to inhale the burned tobacco after passing it through the coldness of water, believed to filter the smoke. The special tobacco that is smoked in a *nargile* is called *tömbeki.* A *nargile* consists of several parts including

1 *Nargile* is the Turkish word for the device that is called a hookah, shisha, hubble-bubble, or water pipe. *Nargile* is basically "a tobacco pipe whose smoke is drawn through water by a long tube before reaching the mouth" (Procter 1978).

2 This paper was presented at "Mind the Map: Third International Conference on Design History and Design Studies" (July 9–12, 2002, Istanbul). I would like to thank my colleagues Maryse Erkip and Ali Yaycioglu for helping in the editing of this revised version.

3 Lewis Mumford, *Technics and Civilization* (New York: Harcourt Brace Jovanovich Inc, 1963), 14.

4 *Longman Dictionary of Contemporary English,* Paul Procter, ed. (London: The Pitnam Press, 1978).

Figure 1
Detail from a *nargile* (photo: Sebnum Timur).

the pipe bowl (*lüle*), the body (*gövde*), the flexible hose (*marpuç*), and the metal tube (*ser*). Pipe bowl refers to the upper part, usually made from clay (In the example shown, it is metal) in which the tobacco is burned using charcoal. The metal tube connects the pipe bowl to the body. The body is the main part; usually glass, metal, or crystal; that holds the water. A flexible, hose-like pipe is used to convey the smoke to the user. It is connected to the body through a junction on it. Each piece is produced by specialized craftsmen, and sold in specific districts of the town in which they are produced.[5]

Every object demands a certain use through its function. *Nargile* smoking demands certain environmental and social conditions as part of its ritual. "It takes about an hour to smoke a pipeful of fruit tobacco, two hours for the stronger stuff."[6] It is not a fast process, on the contrary, it demands time and a certain state of mind or being. There is a saying that, for an ideal experience of a *nargile*, that is, *masa, mese, köse, Ayse,* which could be translated (without the rhyme) as: tongs, oak, corner, and *Ayse,* (a woman's name). Tongs refer to the adjustment of the fire burning the tobacco; oak refers to the kind of charcoal to be used to get the best efficiency; corner implies that the one who smokes a *nargile* prefers somewhere out of the way, and peaceful; and *Ayse* symbolizes the ability and rapidness of the one who serves.[7]

In his essay: "Inhale the Pleasure of an Unhurried Ottoman Past," Kinzer describes the Erzurum Nargile Salon that he visited in Istanbul:

> There is not much noise inside. Conversation is only occasional, and always soft. The sound of dominoes being played or backgammon tokens being moved is often all that competes with the soft gurgle of bubbling water. Some patrons work absently on crossword puzzles, and others seem lost in contemplation.[8]

During the reign of Murad IV (1623–1640), people started to smoke *nargiles* in Istanbul.[9] As Bozyigit describes, the *nargile* was an inevitable element of the old Istanbul coffee houses.[10] Coffee houses are significant in understanding the environment and social atmosphere suitable for the whole act of *nargile* smoking. They were the commercial places, first established in the sixteenth century, providing the social spaces for individuals from different corners of Istanbul to communicate. They fulfilled the needs of passing spare time, amusement, conversation, and other mundane necessities of people; but they also produced and diffused different kinds of cultural worlds.[11] It was the social atmosphere of the coffee houses that provided the conditions for sociability. *Nargile* smoking and coffee drinking were the processes that defined this sociability by legitimizing the individuals' existence in the coffee houses. With the advent of the coffee houses in neighborhoods, the traditionally introvert-shaped lives of people whose activities were confined to their private dwellings

5 Ali Esat Bozyigit, "Nargile," *Dünden Bugüne Istanbul Ansiklopedisi,* (*Encyclopedia of Istanbul from Yesterday to Today*), Vol. 6, N. Akbayar, et al., eds. (Istanbul: Kültür Bakanligi, Türkiye Ekonomik ve Toplumsal Tarih Vakfı, 1993): 45–46.

6 Stephen Kinzer, "Inhale the Pleasure of an Unhurried Ottoman Past" *New York Times* (June 10, 1997).

7 Burçak Evren, *Ottoman Craftsmen and Their Guilds* (Istanbul: Dogan, 1999).

8 Stephen Kinzer, "Inhale the Pleasure of an Unhurried Ottoman Past."

9 Burçak Evren, *Ottoman Craftsmen and their Guilds.*

10 Ali Esat Bozyigit, "Nargile."

11 Ekrem Isın, "Kahvehaneler" ("Coffee Houses"), *Dünden Bugüne Istanbul Ansiklopedisi* (*Encyclopedia of Istanbul from Yesterday to Today*), Vol. 4, N. Akbayar, et al., eds. (Istanbul: Kültür Bakanlıgı, Türkiye Ekonomik ve Toplumsal Tarih Vakfı, 1993), 386–392.

and religious places (mosque) started to change. Gradually, coffee houses became centers for political discussion in which not only the elite, but also ordinary people, participated. Previously located around religious places where an *imam* was in charge by his unidirectional speech, in time these centers shifted to the coffee houses. Therefore, common participation increased and even cultural sharing developed. People who shared the same culture, but belonged to different social groups, came together in these coffee houses and formed community structures in which they organized their common activities.[12]

The meaning and social significance of coffee houses, as well as the activities in these places, have changed over time. Hence, coffee houses are still meeting points for certain groups of people. Going back to Kinzer's observations of the Erzurum Nargile Salon:

> Smoking a *nargile* is nothing like smoking a cigarette. A seventy-one-year-old pensioner named Ismet Ertep said, as he looked up from his pipe, "Cigarettes are for nervous people, people on the run." When you smoke a *nargile,* you have time to think. It teaches you patience and tolerance, and gives you an appreciation of good company. *Nargile* smokers have a much more balanced approach to life than cigarette smokers.[13]

Apart from being a social phenomenon, the *nargile* always has been a symbol of the "Orient." Looking at some nineteenth century paintings, it is easy to observe that people were depicted as smoking a *nargile* while resting in *sedirs*; or that nargile-smoking harem women were depicted as daydreaming in fully furnished rooms with a lot of carpets and draperies of curtains. There might be several reasons for the choice of the *nargile* as a symbol for the oriental experience. First of all, it is an object of mystery in the sense that it combines the ephemerality of smoke with water that often is assigned to the unconscious. It is water that keeps the secrets of what lies beneath. Smoke, on the other hand, always has been associated with the spiritual. It is not a physical substance, and its positive existence can not be frozen as it comes out and disappears into the air. Therefore, the main aim of this paper is to look at the *nargile* as an object of Eastern conception, and to discuss the ways in which the existence and sustainability of a particular object is determined or dictated through its use. If we go back to the ritual of using a *nargile* within the context of coffee houses that determine the leisure activities of a community of people, one can argue that the unchanging nature of *nargile*-smoking behavior and the related leisure can be analyzed within the concept of time.

12 Ibid.

13 Stephen Kinzer, "Inhale the Pleasure of an Unhurried Ottoman Past."

Nargile and Time

Lewis Mumford, in *Technics and Civilization,* states:

> The clock, not the steam-engine, is the key machine of the modern industrial age. For every phase of its development the clock is both the outstanding fact and the typical symbol of the machine.…[14]

The clock is the ultimate machine and the forerunner of other machines, both in the sense of introducing rationality, standardization that led to the division of labor, by dividing time into identical components. Mumford differentiates between mechanical and organic time. He says that the clock has created a mechanical sense of time that is different from the organic that can be associated with the growing of hair, the time between sowing and harvest, or from birth to death. By contrasting these two terms, he differentiates the abstract conception of time, which is mechanical and manipulative, from the organic conception of time, which is linear and cumulative in its effects.[15]

The Eastern conception of time can be associated with an organic understanding. Long before the object of time had been turned into a mechanical tool in Europe, one of the oldest and most sophisticated clocks was constructed in China in the eleventh century. It was more like a mechanical calendar rather than a mere clock, because it used water power and displayed and represented astronomical time.[16] It was designed to mimic the movements of the planets. The difference is that, while the European conception of time is to control, the Chinese version is to move with it. This is not to say that "East" is the "Other," which is defined as "the different *from*," but to suggest that the cultural forms are and can be seen and read as the outcomes of particular mental concepts, which cannot be put into a hierarchical order or in relationship of superiority or inferiority.

In order to understand the slowness of *nargile* smoking, and the act of sitting in coffee houses for hours, one should first understand and feel the concept of time and the daily life experiences that are intermingled in the fabric of the culture in question.

> The sensuous involvement natural to cultures in which literacy is not the ruling form of experience is sometimes indicated in travel guides, as in this item from a guide to Greece: "You will notice that many Greek men seem to spend a lot of time counting the beads of what appear to be amber rosaries. But these have no religious significance. They are *komboloia*or "worry beads," a legacy from the Turks, and Greeks click them on land, on the sea, in the air to ward off that insupportable silence which threatens to reign whenever conversation lags.[17]

14 Lewis Mumford, *Technics and Civilization,* 14–15.

15 Ibid.

16 Jean Gimpel, *The Medieval Machine: The Industrial Revolution of the Middle Ages* (London: Pimlico, 1988).

17 Marshall McLuhan, *Understanding Media: The Extensions of Man* (London: Routledge, 1964), 78.

As McLuhan quotes, the gesture involved in clicking worry beads is similar to the one required by *nargile* smoking, and it suggests a same kind of duration in relation to positioning to the outer world. Not only belonging to the Islamic tradition, rosaries are also used in "Roman Catholic religious practice that consists of saying the set of prayers that are counted in this way, while thinking holy thoughts." [18] This function is similar and can be seen in East Asian religions, as well as in Orthodox, Protestant, or Jewish traditions. The basic difference between Turkish and Greek "rosaries" is that they not only have a religious significance, but also have become a companion, especially for men, in daily life.[19]

The clicking of beads, as an everyday activity, demands a gesture that depends on repetition. The repetitive movement of clicking could be read as the accompanying of the passing of time, but not rushing, counting, or fighting against its passing. It is the peaceful and obedient company of the flow of time. The *nargile* can be thought of as the instrument of the Eastern way of consuming time, or timekeeping. It is like an instrument that is played, with the act of inhalation of *time* through water, and then giving it back to the world through the ever changing density of the smoke. The inevitability of existence is justified and repeated in every click and breath.

Resistance?

Today, the *nargile* salon that Kinzer has visited is still there, under the Fındıklı Mosque, near the American Bazaar at Tophane. But today there are a series of salons, side by side. People of different age groups, tourists, youngsters with jeans, artists with their books, retired men with thick and brown eyeglasses, boys and girls—they all sit there and drink their tea and draw in the filtered tobacco smoke, as well as the atmosphere that is created by the stone walls of the neighboring mosque and the diversity of the community that they are a part of. The interesting part of the scenery is that, on the same line with the salons, there are shops selling Donna Karan t-shirts, Versace jeans, Timberland shoes and boots—all original at full price—under the glowing illumination of the shiny bands of fluorescent lights. This place provides a hybrid combination in terms of the space-time duality of societal modernization. It can be called eclectic more than hybrid, because of the spatial articulation of two differently lived and experienced modalities of time; one is the imagined and obedient time of the *nargile*; the other is the shops selling sign-values of famous brands. This place, by being next to the capitalist formations of modernity, becomes a space of resistance. A resistance which is stubborn with the unchanged, historical, and even authentic use of the object *nargile.* These people go to the *nargile* salon to slow down their spirits, within the pace of the economy of their daily lives.

18 *Longman Dictionary of Contemporary English,* Paul Procter, ed. (Harlow and London, Longman, 1978), 965.

19 Burçak Evren, *Ottoman Craftsmen and Their Guilds.*

Figure 2
A view of a coffee house.
(http://www.milliyet.com.tr/ekler/vitrin/19990417/August 2202).

What is specific about the *nargile* is that almost no new versions or designs of it are being used in these coffee houses. The archetypal object, with its complicated silhouette and basic working principle, is accepted as it is. Furthermore, the more the object reminds us of an historical entity, with references to the oriental or Ottoman contours and lines the closer it gets to the idea of preservation of an essence about it. This objective resistance to change also becomes the symbol of resistance to modernity itself. It becomes an aesthetic as well as a cultural response. It defines its own space, time, and *habitus*, with its rituals and positioning towards life, with its own distinctive style, whose traces are visible on the object itself. The object is stable, and it requires a similar gesture from the user. The subject of the *nargile* is the fixed, unmoving, staying and waiting person—unlike the wandering *flaneur.* Most of the time, this act of stopping is accompanied by an act of looking, watching, and sometimes reading. It should be noted that this is not a spare time activity. There is no expected rational or instrumental outcome of the whole experience of the *nargile*. It is the anchor of the human body, within the rushing, competing, and alienating forces of modernity. And it is an anchor in the sense that it ties the body to the mainland of a different space and time, or just to the possibility of it.

Figure 3
Display of a *nargile* sales corner (photo: Sebnum Timur).

Time and Body

Combined with the concept of time, *nargile* smoking is a bodily experience. It is an activity that situates the body in space and time in an act of remaining in the stillness of the stay. As Game says, *"to be in* the body is to be in time."[20] Inhaling time with the body is the kind of bodily experience that a *nargile* offers. It also is visual; the movement is actualized in the movement of the water, indicating that something invisible is passing through. It demands a certain slowness against the mechanically accelerated pace of life.

"... what he says is a deceptively simple example of duration: sugar melting in water. 'I must wait until the sugar melts.' There is my duration, and that of the sugar melting; and a waiting.[21] Duration is a waiting, a deferral, and a mixing of systems, for which we could read intertextuality."[22] Here, we could talk about the burning of the charcoal; the stillness of the water, and the permeability of it as a medium for the air to go through; the yielding smoke and finally the sitting body operating, controlling, and acting with the whole system—the act of waiting; waiting with time, not against it; and not by rushing, competing, or trying to count it.

Conclusion: Quest for the "Lost" Object

Finally, I want to tie this argument to where my friends and I started; to the drive for our quest for the object of *nargile*. Esra Akcan, in her essay "The Melancholy of the 'Other' World... ," mentions Freud's distinction between mourning and melancholy.[23] She says that Freud defined the object of melancholy as a loss whose sorrow does not last, and the subject of melancholy as someone who resists accepting the loss by trying to preserve it under the house of his/her being. This loss can be a thing, a person, or an ideal. In mourning, the subject faces the loss and, after a period of grief, overcomes it. But in melancholy the subject is so tied to the lost object that he/she makes it a part of himself/herself.

Akcan takes this concept of melancholy and associates it with the East/West dichotomy. She positions the East as the melancholic subject who has lost the natural right to be a part of "being universal" that is one of the basic discourses of Western modernism. According to this view, by being "non-Western," the East has lost something from the start. Will the East enjoy its local values, or try to become universal within the modernist codes? This question reminds us of one of the inner contradictions of the local/global discussion.

So, extending this argument to our quest for the lost object of *nargile*, I can argue that the kind of mood that drives the modern subjects of the East to the symbolic world of the *nargile*, is a melancholic one. It is like trying to open up a space, both personal and local, within the global mechanisms of modernity. This is what makes a new design for a *nargile* very difficult. Preserving or even regenerating a lost object is the key element here. The revival of a lost tradition can be seen as a symbol of resistance to modernity; if

20 Ann Game, *Undoing the Social: Towards a Deconstructive Sociology* (Buckingham: Open University Press, 1991), 95.

21 H. Bergson, *Creative Evolution,* A. Mitchell, translator (London, Macmillan, [1907] 1913), 10.

22 Game, *Undoing the Social: Towards a Deconstructive Sociology,* 99.

23 Esra Akcan, "The Melancholy of the 'Other' World: Bruno Taut in the 'East,'" "Domus m: architecture, design, art, communication" issue of *"Other" Geographies under Globalization* (February/March 2001) (Istanbul: 1Numara Hearst).

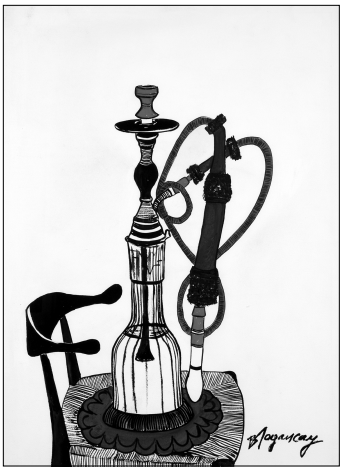

Figure 4
"Water Pipe" by Burhan Dogancay, 1963
76 x 56 cm (Gouache on paper) from the
Dr. Nejat F. Eczacibasi Vakfi Collection.
Permission of the artist.

we associate modernity with the rise of industrial capitalism; the creation of commodities; a consumer culture; its desire-creating mechanisms and if we associate the modern subject with his/her problematic sense of identity in this world construct. The whole ritual has been going on in its own slow and silent way through the course of history. People's interest in this practice is significant to understand the mechanisms of tradition, modernity, and identity with respect to a specific object.

As Chaney argues, "Being a member of a culture is having at hand the conventions of performance framing particular and characteristic ways of using objects and environments ...." [24] In the case of *nargile* smoking, the particular ways of using the objects and environments could be tied to the assumption that "the experience is shared in the act." As Jarman quotes, "... it is the active participation in ritual events that is the significant means of encoding social memory into the individual body." [25] Therefore, being a part of the ritual and experiencing it is different from merely knowing it. The fact is talking on a mobile phone while smoking does not change the fact that the person is wired—with the *marpuç*—to the historical, cultural, and any other motive that shaped or created the circumstances, customs, or traditions of a shared past. It is like the metaphor of an actual bond, both to the object itself and also to all of the values it represents or that it is thought to be a part of.

Besides providing a particular use within a particular environment, a *nargile,* in its entirety, is a specific object. The *nargile* is repeated in terms of its visual qualities, during its production in time. This is not to say that it has not undergone any changes. Of course, an historical study of the changes of the *nargile* over the course of time would show these differences—which obviously is not the aim of this study—but in terms of a visual expression it looks as if it belongs to an historical cross-section that is mimicked for the sake of preserving a sense of origin or essence about it. This imaginary essentialism is what makes the *nargile* more static and resistant to change. The closer to an imaginary model it becomes, the stronger its ties to a "lost" space and time that we want or imagine to be a part of or experience.

24 David Chaney, *Lifestyles* (London and New York: Routledge, 1996), 147.

25 Neil Jarman, *Material Conflicts: Parades and Visual Displays in Northern Ireland* (Oxford and New York: Berg, 1997), 8.

Design and Democracy

Gui Bonsiepe

This is a slightly abbreviated translation of an acceptance speech in Spanish of an honorary doctorate from the Metropolitan University of Technology, Santiago de Chile, in June 2005.

I shall present a few thoughts about the relationship between democracy and design, and about the relationship between critical humanism and operational humanism. This issue leads to the question of the role of technology and industrialization as a procedure for democratizing the consumption of goods and services, and finally to the ambivalent role of esthetics as the domain of freedom and manipulation.

The main theme of my lecture is the relationship between design—in the sense of projecting—and autonomy. My reflections are open-ended, and do not pretend to give quick and immediate answers. The university still offers a place to pursue these questions that normally will not be addressed in professional practice, with its pressures and contingencies.

Looking at the present design discourse, one notes a surprising—and I would say alarming—absence of questioning design activities. Concepts such as branding, competitiveness, globalization, comparative advantages, lifestyle design, differentiation, strategic design, fun design, emotion design, experience design, and smart design prevail in design magazines and the all too few books about design. Sometimes, one gets the impression that a designer aspiring to two minutes of fame feels obliged to invent a new label for setting herself or himself apart from the rest of what professional service offers. I leave aside "coffee table" books on design that abound in pictures and exempt the reader from intellectual efforts. The issue of design and democracy doesn't enjoy popularity—apart from a few laudable exceptions.

If we look at the social history of the meaning of the term "design," we note on the one side a popularization that is a horizontal extension, and on the other side a contraction that is a vertical reduction. The architectural critic Witold Rybczynski recently commented on this phenomenon: "Not so long ago, the term 'designer' described someone such as Eliot Noyes, who was responsible for the IBM Selectric typewriter in the 1960s, or Henry Dreyfuss, whose clients included Lockheed Aircraft and the Bell Telephone Company ... or Dieter Rams, who created a range of austere-looking, but very practical, products for the German company Braun. Today, 'designer' is more likely to bring to mind Ralph Lauren or Giorgio Armani, that is, a fashion designer. While fashion designers usually start as couturiers, they—or at least their names—often are associated with a wide variety of consumer products including cosmetics, perfume, luggage, home furnishings, and even house

paint. As a result, 'design' is popularly identified with packaging: the housing of a computer monitor, the barrel of a pen, and a frame for eyeglasses." [1]

More and more, design has moved away from the idea of "intelligent problem solving" (James Dyson) and drawn nearer to the ephemeral, fashionable and quickly obsolete, to formal aesthetic play, to the "boutiquization" of the universe of products for everyday life. For this reason, design today often is identified with expensive, exquisite, not particularly practical, funny, and formally pushed, colorful objects. The hypertrophy of fashion aspects is accompanied and increased by the media with their voracious appetite for novelties. Design thus has become a media event—and we have a considerable number of publications that serve as resonance boxes for this process. Even design centers are exposed to the complicity of the media, running the risk of failing to reach their original objective: to make a difference between design as intelligent problem solving and styling. After all, it is a question of a renaissance of the tradition of the Good Design Movement, but with different foci and interests. The advocates of Good Design pursued socio-pedagogical objectives, while the life style centers of today pursue exclusively commercial and marketing aims to provide orientation for consumption patterns of a new—or not that new—social segment of global character, that can be labeled with the phrase: "We made it."

The world of everyday products and messages, of material and semiotic artifacts, has met—with rare exceptions—in cultural discourse (and this includes the academic discourse) in a climate of benign indifference that has its roots in classical culture in the medieval age, when the first universities in the West were founded. This academic tradition did not take note of the domain of design (in the sense of project) in any of its disciplines. However, in the process of industrialization, one could no longer close one's eyes to technology and technical artifacts that more and more made their presence felt in everyday life. But the leading ideal continued to be cognitive character in the form of the creation of new knowledge. Design never established itself as a leading, parallel ideal. This fact explains the difficulties of integrating design education in institutions of higher learning, with their own traditions and criteria of excellence. This is evident in doctoral programs in design that favor the production of discursive results, and don't give projects the same value or recognition as the production of texts. The sciences approach reality from the perspective of cognition, of what can be known, while the design disciplines approach reality from the perspective of "projectability," of what can be designed. These are different perspectives, and it is hoped that, in the future, they will transmute into complementary perspectives. So far, design has tried to build bridges to the domain of the sciences, but not vice versa. We can speculate that, in the future, design may become a basic discipline for all scientific areas. But this Copernican turn in the university system might take genera-

1 Witold Rybczynski, "How Things Work," *New York Review of Books* LII: 10 (June 9, 2005): 49–51.

tions, if not centuries. Only the creation of radically new universities can shorten this process. But the decision freedom of government institutions is limited due to the weight of academic traditions, and the bureaucratization emphasis on formal procedures of approbation (title fetishism). Therefore, the new university probably will be created outside of established structures.

Relating design activities to the sciences should not be misinterpreted as a claim of a scientific design, or as an attempt to transform design into a science. It would be foolish to "design" an ashtray using scientific knowledge. But it would not be foolish—and even mandatory—to tap scientific knowledge when designing a milk package with a minimal ecological footprint. It is no longer feasible to limit the notion of design to design disciplines such as architecture, industrial design, or communication design because scientists also are designing. When a group of agricultural scientists develops a new candy from the carob bean that contains important vitamins for school children, we have a clear example of a design activity.[2]

I now want to focus on the central issue of my lecture: the relationship between democracy and design. Indeed, during recent years, the notion of democracy has been exposed to a process of wear and tear, so it is advisable to use it with care. When looking at the international scene, we cannot avoid stating that, in the name of democracy, imperialistic invasions, bombardments, genocides, ethnical cleaning operations, torture, and the breaking of international laws have been—and are—committed, almost with impunity, at least for the moment. The cost of this lack of humanity is not known. Future generations probably will have to carry the burden. With democracy, these operations have nothing in common.

Neoliberals believe that democracy is synonymous with the predominance of the market as an exclusive and almost sanctified institution for governing all relations within and between societies. So we face such questions as: How can we recover the true meaning of democracy? How can democracy regain credibility? How can one counteract the arrogant and condescending attitude of the centers of power that consider democracy as nothing more than a tranquilizer for public opinion, in order to continue undisturbed "business as usual"?

I am using a simple interpretation of the term "democracy" in the sense of participation, so that dominated citizens transform themselves into subjects opening a space for self-determination, and that means ensuring room for a project of one's own accord. Formulated differently: democracy involves more than the formal right to vote. Similarly, freedom goes farther than the right to chose between a hundred varieties of cellular telephones; or a flight to Orlando to visit the Epcot Center, or to Paris to look at paintings in the Louvre.

2 www.clarin.com/diario/2005/05/09/sociedad/s-03101.htm (Crean un nuevo alimento para escolares en base a algarroba.) (May 9, 2005).

I favor a substantial, and thus less formal, concept of democracy as the reduction of heteronomy (i.e., domination by external forces). It is no secret that this interpretation fits into the tradition of the Enlightenment that has been criticized so intensively by, among others, Jean-Francois Lyotard when he announced the end of the grand narratives. I do not agree with this approach or other postmodern variants. Without a utopian element, another world is not possible, and would remain the expression of a pious ethereal wish without concrete consequences. Without a utopian ingredient, residual though it may be, heteronomy cannot be reduced. For this reason, the renunciation of the project of enlightenment seems to me the expression of a quietist, if not conservative, attitude—an attitude of surrender that no designer should be tempted to cherish.

In order to illustrate the necessity to reduce heteronomy, I am using a contribution from a linguist—a specialist in comparative literature—Edward Said, who died last year. He characterizes, in an exemplary manner, the essence of humanism; of a humanistic attitude. As a philologist, he limits the humanist attitude to the domain of language and history: "Humanism is the exertion of one's faculties in language in order to understand, reinterpret, and grapple with the products of language in history, other languages, and other histories."[3] But we can extend this interpretation to other areas, too. Certainly, the intentions of the author will not be bent when transferring his characterization of humanism—with corresponding adjustments—to design. Design humanism is the exercise of design activities in order to interpret the needs of social groups, and to develop viable emancipative proposals in the form of material and semiotic artifacts. Why emancipative? Because humanism implies the reduction of domination. In the field of design, it also means to focus on the excluded, the discriminated, and economically less-favored groups (as they are called in economist jargon), which amounts to the majority of the population of this planet. I want to make it clear that I don't propagate a universalistic attitude according to the pattern of design for the world. Also, I don't believe that this claim should be interpreted as the expression of a naive idealism, supposedly out of touch with reality. On the contrary, each profession should face this uncomfortable question, not only the profession of designers. It would be an error to take this claim as the expression of a normative request of how a designer—exposed to the pressure of the market and the antinomies between reality and what could be reality—should act today. The intention is more modest, that is to foster a critical consciousness when facing the enormous imbalance between the centers of power and the people submitted to these powers, because the imbalance is deeply undemocratic insofar as it negates participation. It treats human beings as mere instances in the process of objectivization (*Verdinglichung*) and commodification.

3 Edward W. Said, *Humanism and Democratic Criticism* (New York: Columbia University Press, 2003), 28.

Here we come to the role of the market and the role of design in the market. In a recently published book, the economist Kenneth Galbraith analyses the function of the concept of the market that, according to him, is nothing more than a smokescreen for not talking openly about capitalism—a term that doesn't enjoy a high rating on the popularity scale in all social classes and in all countries. Galbraith puts design in the context of techniques of corporations for gaining and consolidating power:

> Product innovation and modification is a major economic function, and no significant manufacturer introduces a new product without cultivating the consumer demand for it. Or forgoes efforts to influence and sustain the demand for an existing product. Here enters the world of advertising and salesmanship, of television, of consumer manipulation. Thus an impairment of consumer and market sovereignty. In the real world, the producing firm and the industry go far to set the prices and establish the demand, employing to this end monopoly, oligopoly, product design and differentiation, advertising, [and] other sales and trade promotion.[4]

Galbraith criticizes the use of the term "market" as an anonymous and impersonal institution, and instead insists on talking about corporate power. Against, this use of design—after all, a tool for domination—stands the intent not to remain fixed exclusively on the aspects of power and of the anonymous market. In this contradiction, design practice is unfolding and resisting a harmonizing discourse that is camouflaging the contradictions. One can deny the contradictions, but one cannot bypass them.

The issue of manipulation has a long tradition in design discourse, especially in advertising. I remember a popular book that, at the time, provoked a wide resonance, *The Hidden Persuaders* by Vance Packard (1957). But one should be on guard against a critique with declamatory character that merely denounces. More differentiation is required. Manipulation and design share one point of contact: appearance. We design, among others and certainly not only, appearances. For this reason, I once characterized the designer as a strategist of appearances, phenomena that we perceive through our senses—above all visual senses, but also tactile and auditory senses. Appearances lead us to the issue of aesthetics—an ambivalent concept. On the one side, aesthetics represent the domain of freedom, of play—and some authors claim that we are only free when we play. On the other side, aesthetics opens the access to manipulation, that is the increase of outer, directed behavior. When designing products and semiotic artifacts, we want to seduce, that is foster, a positive—or according to context, negative—predisposition towards a product and sign combination. Depending on intentions, design leans more to one pole or the other, more to autonomy or more to heteronomy.

4 John Kenneth Galbraith, *The Economics of Innocent Fraud* (Boston: Houghton Mifflin Company, 2004), 7.

At this point, I want to insert a few reflections on technology. The term "technology" generally is understood as the universe of artifacts and procedures for producing merchandise with which companies fill the stage of everyday practice. Technology implies hardware and software—and software implies the notion of design as a facet of technology that cannot be dispensed with. Here in Latin America, we face the problem of technology policy and industrialization policy. Research on these issues reveals interesting details about progress and setbacks. But these seem to me to favor a reductionistic interpretation of technology. Only in exceptional cases do texts mention the question of what is done with technology. The question for the design of products remains unanswered. This presents a weak point, without wanting to underestimate the efforts by historians. But one cannot defend them against the reproach of being blind to the dimension of design, the dimension of projects, or at least of facing this dimension with indifference. The motives for industrialization include the wish to diversify exports, and not to remain an exporting economy of commodities without added value. But behind this plausible argument is hidden another generally not explicitly formulated motif. I am referring to the idea that, apart from the growth of the GNP, industrialization is the only possibility for democratizing consumption to provide for a broad sector of the population access to the world of products and services in the different areas of everyday life: health, housing, education, sports, transport, and work, to mention only a few.

However, to mention today the role of government in promoting industrialization can appear almost as an offense to good manners. The role of public intervention has been demonized with one exception, paying the debt of a bankrupt, privatized service. In that case, public resources are welcome, thus reinforcing the idea that politics is the appropriation of public goods for private purposes. But when the history of industrialization and technology of this subcontinent is written, one shall see with clarity that the role of government has been decisive, even though the detractors of the public sector with their bellicose voices have belittled its function and contributions. If we look at the recent history of Argentina—a country that, until a few years ago, followed in subservient manner the impositions of the International Monetary Fund, and that, in a moment of delirium, enthusiastically praised its "carnal relationships" with the leading military and economic power—then we see that this country didn't fare very well with this policy of relentless privatization and reduction of government presence. This process plunged a great part of the population into a state of poverty unknown until then, and led to an income concentration with the corresponding bipolarization of society into two groups: the excluded and the included. Privatization, in this context, is synonymous with de-democratization, because the victims of this process have never been asked whether they approved the credits and sales of public property that

led the country into bankruptcy. Relentless privatization and the reduction of the role of government—the unconditional opening of the economy for imports—initiated the de-industrialization of Argentina, thus destroying the foundations for productive work, including work for industrial designers.

The industrialization policies in various countries in which I have participated, above all Chile, Argentina, and Brazil, concentrated exclusively on hardware, leaving the communication and information industries untouched. Today, the constellation has changed radically. An updated industrialization policy would have to include the information sector of the economy, for which graphic design and information design can provide essential contributions. New problems show up there that confront designers with cognitive demands that generally are not taken into consideration in design education programs. The expanding process of digitalization fostered a design current which today claims that the important design questions essentially are of symbolic character. As the second argument for the semantization of products—and thus the semantization of the designer's work—miniaturization is mentioned, made possible by printed circuits and cheap chips. These do not allow us to see how the products are working because functions become invisible. Therefore, the designer's task consists of making these invisible functions visible. Though it would be blind to deny the communication and symbolic aspects of products, their role should not be overvalued as some authors do. Between the alternative to put a nail into a wall with a hammer or the symbolic value of a hammer, the choice is clear. The material base of products with their visual, tactile, and auditory conformation provides a firm base for the designer's work.

With concern, one can observe the growth of a generation of designers that obsessively focuses on the symbolic aspects of products and their equivalents in the market—branding and self-branding—and that doesn't know anymore how to classify joints. The search for a balance between the instrumental/operational aspects of technical objects and their semantic aspects constitutes the core of the designer's work, without privileging one or the other domain. As the historian Raimonda Riccini writes:

> The polarity between the instrumental and symbolic dimension, between internal structure and external structure is a typical property of artifacts, insofar as they are tools and simultaneously carriers of values and meanings. Designers face the task to mediate between these two polarities, by designing the form of products as result of an interaction with the sociotechnical process.[5]

5 Raimonda Riccini, *Design e teorie degli oggetti. il verri* 27 (February 2005): 48–57.

It is revealing that Riccini does not speak of the form of products and their interaction with functions, that is the affordances, but that she alludes to sociotechnical development. In this way, she avoids the outdated debate about form and function. The once secure foundations for arriving at the configuration of products have been dissolved today—if ever they existed. It would be naive to presuppose the existence of a canon of deterministic rules. He who defends such a canon, commits the error of essentializing Platonic forms. At the same time, it would be equally naive to claim that a limitless fickleness of forms would arise from the demiurgic actions of a handful of creatively inspired designers. We face a paradox here. To design means to deal with paradoxes and contradictions. In a society plagued by contradictions, design also is affected. It might be convenient to remember the dictum of Walter Benjamin that there is no document of civilization that is not, at the same time, a document of barbarism.

Satu Keluarga, Satu Komputer (One Home, One Computer): Cultural Accounts of ICTs in South and Southeast Asia

Genevieve Bell

Footnotes begin on page 55.

Introduction

A man in a business suit stands on the edge of the crumbling sidewalk in the heart of Mumbai's financial district. He is holding a briefcase in one hand; his mobile phone is ringing in the other. He answers it, dodging the beggars and the vendors selling freshly squeezed limejuice and roasted peanuts. He pauses on the sidewalk, listening intently. In the background, the evening rush hour commences—goods carriers hurtle past him, black and yellow taxis spewing black smoke, and a mad crush of pedestrians, scooters, and bicycles. There are men painting billboards by hand, writing URLs and street addresses with the same precise penmanship. The lampposts along Cuffe Parade are decorated with square orange boxes, advertising a new mobile phone service, but none of the lights are working. The newspapers carry stories about the pending legal action against a local greeting card company to prevent them from selling Valentine's Day cards. It is February 2002 in India.[1]

Anthropologists have recently suggested that Information and Communication Technology (ICT) are as much about social practices as they are about technologies. As one researcher put it, "Our domestic life is, of course, suffused by technology, and information and communication technologies are becoming a central component of family and household culture."[2] Ethnographic work also has highlighted the ways in which experiences of ICTs are informed by culture and context. For the most part, this literature has focused on Western cultures, particularly in the U.S., UK, and Australia.[3] However, as the cultural contexts for the consumption of ICTs shift and expand, so do the experiences that ICTs support and transform.

Given that the number of ICTs in Asia has been rising for more than a decade, and their range expanding, there has been surprisingly little research into the ways in which such technologies have been deployed, received, consumed, or resisted. Mobile phones as a marker of elite social status caught academic attention in the late 1990s;[4] however, a more nuanced understanding of their place in

daily urban life has not been forthcoming. Although there has been a long-standing injunction in anthropology to "study-up" the social-hierarchy,[5] and a recent call from the American Anthropological Association to pay more attention to the middle classes,[6] ethnographic interest in this topic has been slight. The emerging middle classes have been the subjects of considerable academic inquiry in Asia, especially during the boom years of the early 1990s.[7] However, ICTs, with the notable exception of mobile phones, were not a part of this analysis. Urban centers, themselves, also have been a focal point of analysis,[8] but not the role of ICTs within those cities, or in constituting new forms of those cities.[9] There certainly has been work examining the impact of new forms of technological infrastructure on Asian culture,[10] and there is a long and venerable tradition of studying the media in Asia as sites where meaning and identity are produced and contested.[11]

In this paper, I draw on my own recent ethnographic research in South and Southeast Asia. This research attempts to locate ICTs at their sites of consumption in urban Asia—in daily life and domestic spaces in India, Malaysia, Singapore, and Indonesia. I cast ICTs broadly, taking in personal computers (PCs), public computing sites (i.e., "cyber cafes," Web-access kiosks, and gaming arcades), the Internet, mobile phones, other wireless devices, and the various infrastructures that support them. I wish to articulate a more localized, yet also comparative, understanding of the ways in which technology operates and is understood—a cultural account of ICTs. In particular, I am interested in the ways in which Asian cultural and social practices are shaping the ways in which ICTs are deployed and consumed, suggesting an array of very different trajectories for technology development and adoption. I argue that paying attention to the experiences of Asians across a range of geographies and situations interrupts the discourses of modernity and globalization that have middle-class American professionals at their center as imaginers, producers, and consumers of ICTs.

This paper is divided into five sections. In the first section, I discuss my current research projects, and their methodologies and theoretical underpinnings. This project privileges the "home" as a significant site at which meaning is produced, and into which technology is situated. In the second section, I reflect on the ways by which ICTs, specifically the PC, have found their way into Asian homes. Here I am interested in the ways in which PCs map onto the existing domestic sphere. Having located PCs in the home, the third section of the paper engages the Internet as a set of social relations and domestic practices. Throughout this paper, I am also mindful of the ways in which ICTs connect the home to larger social frameworks. Finally, in sections four and five, I examine mobile phones and public computing as important components of daily life in Asia, paying particular attention to the ways in which these ICTs also are embedded within a culturally constructed context.

1. Inside Asia: The Project

I am sitting in a hotel room in Jakarta. I log on through a server in Singapore, connected to another in Santa Clara, to access my inbox at work and keep up with the daily routines of my office in Hillsboro, Oregon. I send requests for citations to San Francisco, Hong Kong, and London. I send digital images of the view out my window to my mother in Washington, DC. I send questions back to the households I have just visited in Ipoh and Hyderabad. I receive e-mail from people I interviewed, updating me on things in their lives, connecting me to their friends and family in other places. I send my field notes to Portland. I answer queries from colleagues in Italy and Australia. Words and images fly around the world.

In the fall of 2001, I embarked upon a new two-year project to gain a better understanding of the lifestyles, aspirations, and habits of the emerging middle classes (including the "new rich") across a number of very different Asian countries including China, India, Indonesia, South Korea, Singapore, and Malaysia.[12] The project, with its working title "Inside Asia," entails ethnographic fieldwork in major urban centers and regional hubs across Asia. I have focused on such sites because they represent leading centers for ICT consumption. Thus far, field sites typically have included the nation's capital and major centers of finance and industry, as well as growing technology hubs. It also has been important to get some regional variation where appropriate. Here anthropologist George Marcus's notion of the multi-sited ethnography is instructive. His work offers one way to imagine doing fieldwork in and across a range of different geographies.[13] Marcus suggests that, in framing research across multiple sites, you choose to follow the people, follow the thing, follow the metaphor, follow the plot, story, or allegory, follow the life or biography, or follow the conflict. In this project, I would argue, we are following the object—ICTs—across a range of sites in urban Asia, paying particular attention to the ways in which this object is embedded in daily lives and social practices.

Research for this project is to be conducted in three to four urban centers in each of the target countries, visiting at least five homes in each center. As of December 2002, I have completed ethnographic fieldwork in four Asian countries, visiting more than fifty households across ten urban areas. In February and March, I conducted research in India, visiting households in Pune, Hyderabad, and Chandigarh. In June and July, I conducted research in Malaysia and Singapore, visiting households in Singapore, Penang, Ipoh, and Kuala Lumpur. In August, I conducted research in Indonesia, visiting households in Jakarta, Pekanbaru, and Surabaya. Thus far, households for this project have represented a relevant diversity of household types in the "middle class" category, as well as a certain coherence of experiences and patterns of daily life. I have explicitly selected households with a wide range of technology experiences and awareness.[14]

In previous ethnographic research in the United States and Europe, I have found that it is extremely important to spend time with families in their houses, observing and participating in their day-to-day activities.[15] This perspective helped to establish a sense of family structure, organization of time, location and relation of home to public spaces, use of space and existing technologies, as well as point to opportunities for new uses and new users of computing. This research project in Asia relies on a similar range of qualitative data collection methods, including household visits, semi-structured interviews in the home, photographic and technology inventories of households and homes, observation and follow-up in key public spaces (including retail spaces), and a sampling of material artifacts and icons. In addition, I have worked closely with area specialists to contextualize and interpret all the data collected—these area-specialists have joined me in the field, participating in data collection and analysis, and providing another perspective.[16]

The ethnographic work is driven by a series of larger questions about the ways in which ICTs are embedded within daily life and social practice. Although obvious questions such as who "owns" technology objects (individuals, households, families, communities), who uses technology objects and when, who purchases these devices and how such purchase decisions are made are all of interest; there are two broader areas of concern. First, I am interested in contextual questions, the cultural piece of the puzzle; and, second, I am interested in the ICTs themselves. It is the relationship between these two things—the cultural context and the technology—that drives this research.

I have argued elsewhere that new technologies are inserted into complicated ecologies of experiences and physical environments, and that their successes and failures turn on their abilities to fit into such ecologies.[17] The home is one such ecology. In order to understand how ICTs fit into the home ecology, one must understand how that home ecology functions: who live there, what sorts of experiences and activities people are engaged in within the homes, and how people divide up domestic spaces (both in terms of real use patterns and ideal use patterns) to support these experiences and activities. The ways in which such divisions are manifested and maintained, and how they map onto the social and other activity hubs within the home, are critical questions. Overlaying ICTs onto this grid of social meaning produces a sense of interplay between technology and allocations of time and space within the home.

Of course, the home exists within a broader social and cultural landscape. In order to determine the relationship between the domestic space and work and public places, it is important to know a number of things including: the ways in which people talk about their homes in relationship to other spaces (i.e., private/public, sacred/profane, pollution/purity, female/male); important social

and cultural spaces outside of the home; and the kinds of activities people engage in these non-home spaces. It also is important to have a sense of how porous the boundaries between home and the broader world are in order to better understand how ICTs might traverse these different spaces.

As much as the home exists within a broader social milieu, so do ICTs. These are objects that have acquired a set of meanings that extend beyond their technological specifications. These meanings are negotiated through relationships of gender, class, and race, but also in relationship to state policies and market forces. To understand the ongoing place of ICTs within urban Asian homes, one must have an understanding both of state policies that frequently regulate ICTs and their usages, but also important consumption patterns and protocols including the structure of commerce, the role of money, the nature of the market, and the ways in which individuals operate within these economies. Furthermore, one also must have an understanding of the ways in which people's aspirations are reflected in their purchasing decisions, especially around ICTs that are embedded within a discourse of modernity and globalization.

2. Bringing Computers Home

Aboli lives with her husband, Ajit, and their two teenage children, Anish and Amrita, southwest of downtown Pune. Ajit's mother also lives with them in their large, four-bedroom apartment. The family has a computer—a desktop PC that sits in the corner of the master bedroom. Aboli keeps tight control of what her children do on the computer. Anish, who is the principal user, is not allowed to surf the Web without his parents' supervision, and he is not allowed to "chat" with other users online. His parents say, "He chats with his friends all day at school, he doesn't need to come home and talk to them more." Anish does send e-mail—about once a week, he says. He sends e-mail to his friends, and also for his mother to her friends and family in Canada. Aboli recently took a basic computer course, but she says, "The computer just somehow isn't of my use." Ajit uses a computer at work but, at home, he doesn't have a lot of time for it. He says, "Sometimes I play games, but really I just don't have that much time." The family had their first computer assembled about four years ago, and has upgraded it once since then.

Like many of their peers, for Aboli and Ajit, this PC represents an important domestic purchase. Yet, as one British sociologist reminds us, "Home computers are not just commodities that are traded for a price in the market; they also are the site of a continual cultural struggle over the meaning of the machine and its appropriate uses." [18] Statistics might be hard to compile, but one of the most striking features of the domestic computing landscape in Asia is that it appears that, for the majority of Asian consumers, their first encounters with PCs will not be in the workplace. So unlike the

United States and to a lesser extent Europe, in Asia, the PC does not have to be perceived as an object of efficiency, embedded within a single-actor, single-task environment. Rather, it is emerging within the context of domestic life, within the home, and the patterning of that space.

It also seems to be the case that, in Asia, in part because of the point at which PCs appeared on the market, they are indistinguishable from the Internet. Indeed, in all of the households I visited, if there was a PC at home, it was used to access the Internet. Apparently, a computer has no real social or cultural meaning in Asia unless it is connected to the Internet. This connection has not gone unnoticed by those selling both computers and Internet services; marketers in India, Malaysia, and Singapore link the PC to the Internet in advertising and sales promotion.[19]

The role of the government in driving technology adoption should not be ignored. Computers, and the Internet, often are part of government agendas for social reform and modernization projects: making government services available online, and promoting the use of personal computers in classrooms and hospitals. Among the Indian households I visited, the vast majority acquired their PCs in 1996–7 at the beginning of the IT boom in India, and all talked about the ways in which the Indian government promoted the Internet. In Singapore, the government bore the costs of establishing a high-speed data access network around the island. In the late 1990s in Malaysia, there was a moratorium on the use of and exposure to PCs in early childhood, with some strict restrictions about their use in primary school. However, the government also launched a "One Home, One Computer" program in the mid-1990s to encourage Malaysian families to buy domestic PCs by making it possible to borrow money (up to 4000 Ringit) against their retirement funds. Several households I visited had taken advantage of this offer.[20] In Indonesia, the government's aggressive promotion of the Internet and ICTs was abruptly terminated during the financial crisis in the late 1990s, but not before several households in my sample that had acquired PCs in the heady days of the mid-1990s, when "Habibie's kids" were articulating a vision for Indonesia's own information superhighway[21]—B. J. Habibi was the Minister for Research and Technology (1978–1998).

Thus far, almost all of the households I have visited have had PCs. While this is not indicative of the general population, it is reasonably representative of the urban middle classes in the countries I visited, although Malaysian, Indian, and Indonesian consumers certainly have far fewer PCs. The vast majority of these PCs are purchased from local assemblers, small and micro-enterprises that assemble computers from component parts. In Malaysia, India, and Indonesia, households I visited upgraded existing machines (rather than replacing them, or passing them along to other members of the household or friends, as is quite common in the U.S.). The number

of computers in the home never grows beyond one: this means that computers as an access point, and the Internet as a resource, continue to be consolidated rather than dispersed throughout the house. In Singapore, the most recent PC purchases made in our sample had been exclusively laptops which, while more expensive, were seen as more flexible within the home since they require less domestic infrastructure. Laptops also were a feature of several young singles in Indonesia, who were urban "road-warriors" for NGOs, reinforcing my sense that there are profound inequities in resource distribution in Indonesia—with Jakarta operating as a resource as well as a population center.

One of the functions that an object within the home fulfils is the projection of social or cultural meanings. Yet, desktop PCs do not lend themselves well to the display of cultural and social capital. In fact, desktop PCs are rarely kept in the living room, where many objects of social and cultural capital traditionally are displayed. In nearly all of the households I visited, desktop PCs were kept in bedrooms, studies, and occasionally on covered balconies. In Malaysian households, desktop PCs are found both in children's bedrooms and in other rooms in the home. In Indian households, by contrast, the computer invariably was in the parents' bedroom, where mothers act as gatekeepers. In Singapore, desktop computers are kept in public spaces in the home (i.e., home offices and living rooms) if it was a family home, and in the room of the principal user if it was someone living alone. In Indonesian households, there was a strong split between Indonesia-born Chinese households and Muslim households over the placement of computers. In the former, PCs were in more public spaces, in the latter, they were further out of the line of sight. There also was a strong division between Jakarta, where a range of very different households flourished, and other cities in Indonesia that were far more homogenous. In Jakarta, several households had laptops which moved between the office and home, and also within the home, primarily resting in the living room.

The living room is the social hub of many households. Everything goes on here, from socializing with friends to watching television, eating, and just "hanging out." Bedrooms are places for sleeping, and studying, and now for logging on. So the computer (at least in its desktop form), and the Internet, currently are located outside of the flow of social activity within the home. Sometimes, there is an interesting separation of the television set and the PC —with the television on display, and nestling among a range of culturally loaded home decorations, while the PC sits under a cloth cover in another room. In many ways, the PC and the Internet are competing with the television for attention, for space within the home, and for a place in the domestic routines of daily life. But there appears to be ease-of-use issue. With so many machines running on pirated operating systems, there is a greater level of instability and

machines need constant monitoring and frequent rebooting. Several women I interviewed compared the PC unfavorably to the television, which was seen as a preferable device, requiring little or no maintenance, and delivering an engaging experience and exposure to new things.

Aside from the issue of location and display, there also are issues of usage linked to the place of the PC within domestic spaces. Simply because there is a PC in the home does not mean that everyone is using it. Instead, there is a kind of localized digital divide going on. Men seem to be the principal users of PCs in the home. In several Muslim households in Indonesia, PCs were explicitly "owned" by the male household head and sons. When I asked women why they were not using the PC more, they said that they had a great many competing demands on their time—cleaning, cooking, working full-time—and the computer required too much time and energy. At least one woman told us, "When I come home, I have to look after my daughter, prepare dinner, and take care of things around the house. I don't have time to baby-sit a computer. Besides, what does it do for me?" It should not be surprising then to learn that, currently, most Internet users in Asia are male. Data from elsewhere around the world also suggest that a digital divide in the domestic sphere cleaves along gender lines.[22] It also is clear from my fieldwork that there is a domestic digital divide along age lines—this is particularly true where the primary language of the Internet and ICTs is written English. The language of ICTs and their metaphors of office-work (e.g., the desktop, "in" box) and American culture (e.g., surfing the Web) are geared toward a set of users schooled in English and embedded within late-capitalist systems of meaning. For older Chinese-Malaysians who do not use English, and Indian grandparents who speak English but are not necessarily literate, the Internet and ICTs are inaccessible except when mediated by grandchildren and other third parties. These domestic disenfranchisements along gender and age lines are neglected by macro-level policy discussions that focus on broader digital divides.

Mobile phones, or "hand phones" as they are known in Southeast Asia, seem to be far less technological objects than personal computers. Hand phones were present in every family I visited in Singapore and Malaysia, the majority of those of in India, and a growing number of those in Indonesia. Not only are they proliferating more rapidly than PCs, their population of users tends to be more evenly distributed throughout the age cohorts and across the genders. Indeed, mobile phones perhaps have the distinction of being one of the only ICTs with gender parity among users and consumers. Mobile phones also inhabit a very different space within the home—they are far more mobile, regularly moving across the household's threshold into the broader world. Even when they are at home, hand phones do not have a fixed location per se, although there do tend to be consistent docking stations conditioned by the

availability of electrical outlets and flat counter surfaces. Unlike computers, mobile phones seem to be dispersing through the home rather than consolidating. In all of the homes with mobile phones I visited, new phones were anticipated for other members of the home, delivering the technology up and down the age-cohorts.

3. Getting Online

Dr. Shria and her husband, Yusaf, live in a three-bedroom house on the edge of KL. Currently, their home is very full, with their three young boys as well as Shria's parents and younger sister. Dr. Shria is an OB/GYN in private practice, and Yusaf works as a geologist for Malaysia's largest mining company. Their children are all in local Malay schools. The couple first bought a PC for their home in 1994. Their first PC was damaged in a lightning strike and their second one was stolen. They are now on their third PC from a third-party assembler. It is a "white box" PC with a Pentium 4 processor and lives upstairs in a large open space where the children watch television and play games. Yusaf says, "We bought it for the boys mostly. And for downloading music. Of course, the children use it to play games, only some of which are actually educational. Fai, my oldest son, likes to go to the WFW Websites—he used to have trading cards but nowadays it is the Web instead." Yusaf also has his own laptop that he purchased in December of 2001. The family uses the Internet to keep up with their friends and family, spread around the world.

As the Internet is consumed in new locations around the world, it seems that the devices used to access it have continued to proliferate, with the traditional PC sharing space with a range of other platforms and protocols. The technological and infrastructural implications here are substantial. They are more pronounced when you consider that the bulk of new Internet users will soon come from non-Western geographies. What is equally substantial, but far less frequently addressed, is that, as access to the Internet proliferates, the experiences that the Internet might support also will shift and change. When we talk about "the Internet," we evoke the image of seamless interconnectivity, collapsing time and distance. However, experiences of the Internet tend to vary, both within and across geographies. Therefore, one could argue that the Internet I experience at my office in Hillsboro, Oregon is not the same as the Internet that Shria and her family regularly use. These are different social and technological objects.

In many Asian countries, the Internet is slower (average dial-up speeds of 26K are considered to be speedy) and the connection almost always is through a phone line. Domestic phone service is provided by state-owned monopolies in India, Malaysia, Singapore, and Indonesia. In all of these markets there is metered local calling and differential hourly rates, so dialing the Internet incurs minute-by-minute costs. The role of the State in providing services, as well as regulating sites and content, sets many of the parameters

for local use. Although there are not that many ISPs, there are a growing number of local portal sites, as well as niche sites for jobs, entertainment, marriage prospects, and horoscopes/fortune-telling. The bulk of Websites with relevant content remain in English, and English (and some of its hybrid forms such as *Singlish*—Singapore English) remains the dominant language of e-mail and chat. One of the complaints I heard repeatedly in Indonesia was that the lack of content in *bahasa* (Indonesia's official language) made the Web very alienating, accessible only to those with a strong background in English.

Although increasingly it is possible to access the Internet over newer mobile phones, getting the Internet home in Asia still mostly relies on buying a computer and bringing it home. In my fieldwork, it seemed that the presence of children in the home drove initial computer purchases. This was especially true when children started secondary school or university. Children were not encouraged to play computer games or surf the Web; instead, they were pushed to consume educational content on CD-ROMs, or practice computing skills (including Microsoft Office and programming languages). In Malaysian households, children were actively discouraged from spending time on the Net, and instead allowed to play computer games (some of them explicitly educational, many not).

In the households I visited in India, Malaysia, Singapore, and Indonesia, computers were perceived as an important component of educational aspirations. In all four countries, many schools and extracurricular learning centers offer computer courses. However, computers are not yet embedded within the curriculum of most primary and secondary schools. They are not part of classroom culture or lesson plans, but having a computer at home still is seen as an advantage for school-age children. In many of the Malaysian households I visited, both Chinese-Malaysian and Malay, people talked about not wanting to be left behind, not being left out, especially for their children. The Hokkien term *Kiasu* that embodies this notion of not wanting to be left behind frequently is used to justify the long hours that school children spend in additional classes. It also is used as a reason for purchasing a PC for your children, though PCs are not considered appropriate for children who are not yet in high school. In Malaysia, even when the children were the primary users of the technology, their mothers continued to act as gatekeepers, regulating the amount of time they spent online and where they went. In India, the computer remains in the parents' bedroom, where the women of the household actively control it. Several women I interviewed, mothers of school-age children, had taken introductory computing classes so that they could better assist their children.

As much as education and learning might have been drivers to PC adoption, they do not remain the ways in which the machines are used and incorporated in daily life within the home. Among the twenty-something generation in Hyderabad, there seemed to be a

growing circle of people downloading music files, "ripping CDs" (making digital copies) and burning discs. A site that offered Hindi and Telugu music, in addition to Western- style pop, had propelled this trend along. This group also was playing computer games, both networked and local, with online snooker being especially popular. In Malaysia, a growing community of senior citizens in Penang and Ipoh play computer games, both networked (scrabble and mahjong) and offline (word games and some computer games) to keep their minds active. In Indonesia, there is a group of women, senior citizens all, who have gotten themselves online to keep up with far flung relatives, to be politically active, and to feel part of a broader community of women. As the computer becomes settled in the home, finding its place (both logistically and socially), its purpose expands and its functions shift in unexpected ways, but it still is dependent on, and embedded within, the existing infrastructure and ecology of the home.

Indeed, the infrastructure for accessing the Internet from home in India first and foremost means encountering India's telephone system. Not only is pulse dialing still the norm, but metered local phone tariffs also mean that staying online can be expensive (even non-peak rates are not cheap).[23] Further, the quality of the line is poor, and it is not uncommon to loose connectivity several times in a single session.[24] However, it is these very conditions that have driven many Indian consumers to the Internet in the first place. Indeed, in interviews, it became quickly clear that e-mail, in particular, is used principally for keeping in touch with far-flung members of family, especially those outside of India. Some households have augmented their use of e-mail, with instant messaging, and some are starting to experiment with voice-over-IP.[25] In at least one household I visited, the primary computer user was a sixty-year-old woman who sends regular updates on family affairs to her oldest son in the United States. She writes out her messages in long-hand each morning, recounting meals and conversations, and sends them in e-mail form later in the day. The ecology of the Indian home includes a strong value on this kind of social chatting.[26] It should not be surprising then that instant messaging, chat-rooms, and other forms of real time digital communication (including text messaging on mobile phones) have been hugely popular in India. Chatting, as a way of keeping in touch with family members and friends, also was important in Malaysian and Singaporean households, and was just starting to appear in Indonesian households.[27] Chatting online with her sister in Australia was the only reason that Dr. Shria ever used the family computer.

Interestingly, in the homes I visited, the Internet seems little used as an information tool—people I interviewed were not turning to the Web for medical advice or banking. Similarly, e-commerce has been remarkably unsuccessful in the Asian countries I have visited. Despite a strong presence of credit cards and high-speed data

access, two conditions seen as critical to the success of e-commerce, Singapore's residents have not flocked to online retail spaces. When asked, people were quick to point out the popularity of shopping as a recreational and social activity, and the high-density of air-conditioned malls across the island. Spending the weekend in Singapore's malls, window-shopping, the forecourt show, eating, and hanging out with friends and family is a venerable tradition—one with which online shopping has a hard time competing. In India, e-commerce must operate within a cash economy (with an extremely limited adoption of credit cards) with a tradition of barter and a strong desire to touch and feel products before purchasing. Currently, there is an aggressive ad campaign underway in India to promote a local online auction site (Bazee.com); however, it is clear from the nature of the ad campaign that there is a lot of explaining to do about the nature of such transactions. In Indonesia, I heard repeated mirth at the notion of relying on the postal service to successfully deliver anything of value. It is hardly surprising then that none of the households I visited have had successful online transactions, and all of them expressed serious reservations about the security of such transactions and the quality of the goods. It appears that the ways in which existing patterns of consumption operate—as a social activity and as a set of reciprocal relationships (between consumers and merchants)—are deeply entrenched. And the benefits offered (i.e., time saved, convenience, and discreet purchasing) by online shopping are ones without real cultural value.

4. "Hand Phones"

In Indonesia, mobile phones are fast becoming an indispensable item for middle-class urban living. These objects represent a kind of new economy, or simply wealth, so much so that they have become the targets of local gangs. The "Red Axe Gang" is famous right now in Jakarta for targeting drivers stopped at red lights, talking on their mobile phones. They say: "your hand phone, or your windshield," holding a red-handled axe menacingly to the windshield. The logic here is simple: the most valuable thing in the car is the mobile phone—it yields money on the black market and can be easily resold. It also is faster and cheaper to replace your mobile phone than your windshield.

Mobile phones were present in every family I visited in Singapore and Malaysia, the majority of those of in India, and a growing number of Indonesian households. As such, they represent an important part of the constellation of ICTs within daily life, but mobile phones are a very different sort of ICT than computers. In the first place, they are really more communication than information technologies. In the second place, they are in and of themselves mobile objects, crossing boundaries within and beyond the home with comparative ease. Third, they have ease-of-use on their side—phones have a far more intuitive interface than computers. And last, but by

no means least, they are completely open to commodification and profound personalization. Nowhere is this more in evidence than Asia, where there are a staggering number of homegrown cottage (and larger) industries dedicated to making your mobile phone your own! Consumers can change the look, feel, and sound of their phones, as well as augmenting them with range of charms, amulets, and kitsch from Feng Shui coins to miniature Hello-Kitty cats.

Although almost every Singapore household has a working landline, it is all about mobile phones there. Singapore literally trills to the sound of mobile phones, with more than 4.3 million at last count for a population less than four million. This means that some people have multiple phones. They are owned by teenagers and adults alike. Many services, from flight arrival and departure information, to location-based taxi hailing, are available through SMS on mobile phones. In 2001, Virgin and Singapore Telecom are in a joint deal to provide the Internet on mobile phones in Singapore, Hong Kong, and Korea. And this summer, Nokia and Ericsson both have launched MMS services in Singapore, and are hoping it will drive a new round of phone upgrading. Everyone I interviewed had access to a mobile phone, and many were primary owners of such "hand phones." Even small children prized mobile phone ownership, and there is a burgeoning industry for up-to-date mobile phone replica toys for children. At least one Singaporean parent complained that his son had more up-to-date "phones" than he did. For the most part, people are using the phones for only two things: calls and SMS although, during the summer of 2002, some were using information services to obtain up-to-the-minute soccer scores at the World Cup.

Mobile phones also have really taken off in Malaysia, with the number of subscribers dramatically increasing over the last four years. Maxis Communication, in partnership with British Telecom, has launched the first mobile Internet services in Malaysia, offering more than one hundred sites in Malaysia and abroad—including ones to order flowers, get sports information, and send and receive email. The Malaysian government also is offering a variety of services via SMS, including a recently launched initiative that allows individuals to determine if their driver's license has been suspended. The most used services in the summer of 2002 seem to have revolved around up-to-the-minute soccer results from the World Cup. One explanation that I was offered for the rapt attention was that a great deal of money was riding on the outcome of various games. There is a huge drive towards personalization of mobile phones in Malaysia, it seemed as if every mall and hawker stand offered a range of different skins, covers, tones, and button pads, and there are multiple Websites offering downloadable ring tunes and graphics.

Despite the fact that they are banned by most primary and secondary schools, almost all of the teenagers I talked to in Malaysia had their own, distinctly personalized, hand phones. While several had saved up to buy their phones, most had been given to them

by their parents, who regarded the purchases as a kind of security device—allowing them to keep in touch with, and track down, their offspring as they negotiated calendars full to overflowing with school, after-school classes, English language and piano lessons, religious instruction, and sporting activities. Of course, many of these same parents were quick to point out that their children used the phones more to keep in touch with their peers than their parents.

In India, the number of mobile phone subscribers predictably still is small—less than six million out of a population of more than one billion—although in visiting major urban centers, it seems that there must be many more. Billboards, in particular, offer up the promise of easy telecommunications, and it is this promise that makes mobile phones so attractive in India. India is notorious for its telecommunications infrastructure, or lack thereof. It used to take years to get domestic phone service, and most people chose not to, opting instead to use the plethora of public phone booths that dot every Indian population center. Indeed, until quite recently, it was impossible to get international dialing on home phones, and all such calls were made from public phone booths. These booths, always yellow with red or blue lettering, can be found at train stations and along any primary road. They operate solely on cash. Faxing was added to their repertoire in the 1990s. Mobile phones allow consumers a way to by-pass the Indian phone bureaucracy, and take advantage of a far less regulated service industry. A black market for mobile phone handsets has flourished in India, with older handsets mostly smuggled from elsewhere in Asia being resold in India to consumers who can still get service using prepaid phone cards. And it is clear from the numbers that more than three-quarters of India's nearly six million mobile phone subscribers are using unregistered handsets—still the preferred method of obtaining mobile services. The Indian government has moved to drop the taxes on handsets, hoping to boost their tax revenues. Mobile phones, like other ICTs, operate within and around complicated state and market forces, and India clearly is no exception.

Mobile phones also operate within larger social and cultural milieus, and as such often are markers of modernity, progress, and affluence. Interestingly, in Indonesia, hand phones are seamlessly incorporated into the narratives of random violence that abound in Jakarta. There, ownership of mobile phones is taken as an explanation for victimization at the hands of the Red Axe gang. The almost moral tone, or perhaps an object lesson, is that progress is not without its costs. Nonetheless, by the conclusion of 2002, there were an estimated seven million or more mobile subscribers in Indonesia; this number was set to eclipse the number of landlines in 2003. Mobile phones are competing with a preexisting government telecommunications infrastructure that strongly resembles India's PCO system—*Warung Telekomunikasi,* or *wartels,* as they are known colloquially, dot the urban landscape, offering phone service to

those who cannot afford or chose not to have domestic landlines. Unlike their Indian counterparts, for the most part they have not offered additional services and have remained government operated. Their financial model, where you pay by increments of time used, also is reflected in the mobile phone prepaid card system that most consumers favor. One of the more interesting features of Indonesia's nascent phone market is that there appears to be a circulation of secondhand handsets from Jakarta to the peripheries of the nation. Rather than trickling down technology within a household, it is happening across far-flung families, from those working in Jakarta to their relatives in the natal villages. The other distinctive feature of the Indonesian market was repeatedly mentioned in interviews and household visits. SMS is popular, but its adoption has been limited to those who speak English. As more than one person complained to me, "You just can't text in *bahasa* and expect to make any sense, none of us can agree upon a standard set of abbreviations." *Bahasa,* as a language, is vowel-heavy with long words, and the traditional techniques for abbreviating text for SMS relies on removing vowels while preserving the meaning of the world (i.e., "w" for "with," etc). It appears that, sometimes, you just can't make the technology fit the cultural practices.

Nonetheless, the Asian mobile phone market has seen rapid and remarkable growth in the late 1990s and early 2000s, defying analysts' expectations. It is a market that bears more in common with Europe than the United States: there is a single standard (GSM) which means that mobile phones can operate across many geographies; metered local phone calling is still the norm though, in many places, consumers pay only for outgoing calls which means that phones are left switched on all the time; prepaid phone cards are typical; text messaging (SMS) is extremely popular; and phones in the hands are common across most age groups. It also is the case in many Asian countries, Singapore and Malaysia included, that the number of mobile phones in circulation exceeds the number of domestic landlines in service. In fact, in Singapore, the number of mobile phones even exceeds the entire population. Any account of ICTs in Asia cannot ignore the ways in which mobile phones are simultaneously being incorporated into existing social and cultural practices, while helping to create new practices and behaviors.

5. Public Computing

In the basement of Burgis Junction, one of Singapore's many enclosed malls, there is a cyber-arcade. "Cyberbyte: The One-Click e-Entertainment Center." There is a sign on a notice board to the far left of the entrance. It reminds patrons that no one under the age of eighteen is in here during school hours, or during times when school is in session. It is dark, cavernous, high-tech aesthetic, with exposed pipes and gray paint, halogen lights, Formica floor. The simulators are against the front wall. Arcade games come next, then LAN games in two long rows of computer terminals facing

each other. There are over a hundred gaming stations, offering LAN and video games. In addition to all gaming facilities, there also are five Internet surfing booths equipped with a sliding keyboard tray, flat panel screen, microphone on a stand, keyboard, and Web cam, plus speakers built into the four walls. The sign in the booth reads: "Notice 1. No pornographic/illegal Websites. 2. No Internet gambling. Offenders will be referred to the police. The management." At 3:30 p.m. on Sunday, these booths are empty, but young boys playing "CounterStrike Version 2.1" fill the rest of Cyberbyte. The noise is deafening.

In Singapore, over the last couple of years, some cyber cafes have been transformed into enhanced game arcades, offering networked gaming.[28] The logic here is simple. As one young man in Singapore put it, "Why play at home, by myself, with my parent complaining about the noise, when I can go and hang out with all of my friends?" Cyber-arcades are mostly located in shopping malls, and cater to teenage boys and young men; their sisters and girlfriends are window-shopping in the same malls. Most of the gamers have PCs at home, and own copies of the games they are playing, but part of the experience of gaming also is a social one, and cyber-arcades support that sociality better than a PC at home in your parents' bedroom, or the living room. Cyber arcades also are an important part of the Internet landscape in Malaysia. Interestingly, there also is a strong base of cyber-arcades in Penang, primarily in the local malls. In at least one local mall, there are three cyber cafes, only one of which is connected to the Internet. The other two, clearly cyber-arcades, offer LAN gaming; and are both doing a roaring trade, filled with young boys playing Counter Strike and other games.[29] Unlike their Singaporean counterparts, however, cyber-arcades in Malaysia are seen as sites of danger, not unlike the reputations pool halls acquired in American culture in the 1950s. These arcades are seen as magnets for the wrong kinds of young men and the "wrong" kinds of behaviors. More than one parent told me that they banned their children from going to cyber-arcades, although they would let them play games at home after they had done their homework.

Public computer access points have not been without their share of controversy in India, too; and currently there is a move in Mumbai to compel owners of such establishments to strictly monitor and regulate access to pornographic sites from their cafes, especially among minors.[30] From newspaper accounts, current legislative debates, and our interviews it appears that, in India, adult content is accessed on the Internet not at home, but in cyber cafes, inverting some of the persistent logics about public and private spaces. But this makes a certain kind of sense when one remembers that PCs in the home always are in parents' bedrooms, were purchased explicitly for educational purposes, and now serve the function of communicating with far-flung relatives and family friends. One of the consequences of this particular use of cyber cafes is that many of these sites become

gendered male. Clearly, these public computing sites operate within a broader landscape of spaces of sociality including malls, public squares, schoolyards, coffee shops, and private clubs, and are bound by similar social rules and regulations.

Nowhere was this more apparent to me than in Indonesia, where the local *warnets* (*warung Internet* or cyber cafes) are very often, though not always, the exclusive purview of men. Although it is estimated that more than half of Internet access in Indonesia takes place in *warnets*. Among my interviews, I could find only one young woman who regularly visited used them—there was one on her way home from work where she regularly checked her e-mail. The young men, in their teens and twenties, who do frequent *warnets* spend their time playing online and offline games, surfing the Web, and consuming adult content—one of the few things on the Web consistently available in *bahasa*. Where *warnets* were a site of serious political mobilization of students and the middle classes during the unrest of the late 1990s, it appears that they now have become sites of entertainment and leisure. Interesting, like other places within South and Southeast Asia, it often is the case that those in *warnets* also have PCs at home. In Indonesia, I was told, the appeal of *warnets* is twofold—access was cheaper and you hang out with a lot of friends. An added bonus sometimes was air-conditioning and more reliable electricity.

In all of the countries I have visited for this project, the nation-state has had a part in promoting public computing as a means of accessing government services. In Hyderabad, taxi drivers proudly told us that they had obtained their state driver's licenses from e-kiosks in the city's governmental centers, while elsewhere in India, people use government Web-services to obtain caste certification forms. In Singapore, it is possible to pay city and state taxes through "smart" ATM machines in many banking centers. In Indonesia, as had been the case with the early development of television,[31] there was a sense that computers were a resource that should be in the public domain first, and consumed privately later. These public computing sites are part of larger state projects centered around e-government and modernization, and the state thus has an important role in establishing trajectories of technology development and acceptance.

Clearly, there is an interesting and complicated history of public computing in Asia, and it is one that bears some scrutiny. The conventional wisdom in the United States always has been that public computing—that is the range of computing/Internet access points outside of the home which includes cyber cafes and Web kiosks—will only flourish while there is not a strong domestic computing base. However, it is clear from my experiences in Europe and Asia that it is possible for domestic and public computing to coexist. In no small part, such coexistence is possible because there have been two different sets of consumers utilizing the resources,

and it was possible to assume that those who had PCs at home eschew public computing sites. However, the recent successes of both the EasyEverything chain in the UK and the "PC-Bongs" (gaming rooms) in Korea suggest that, as Internet-supported experiences continue to proliferate, the platforms on which those experiences take place also are expanding. As a consumer, one might have a PC at home, but still wish to use computing resources in other locations. This is clearly the case in South and Southeast Asia, where those who do not have PCs at home share public computing spaces with those who do. These spaces, sites of ICT consumption, support a range of different sorts of social activities and cultural practices.

Cultural Accounts and Ethnographic Perspectives

The shop front is pink, loud pink, trimmed with darker pink stripes and festooned with red lanterns and flags. It sits on the corner of two busy streets in Penang's bustling Chinatown. Inside, you can find almost anything for your home—furniture, statues, clocks, lamps, rugs, Feng Shui charms, ancestral altars, and many things red and gold. Tucked away in the back corner of the store, there is a section that sells funerary goods—paper money, paper gold nuggets, paper clothes, paper cars, paper cigarettes, paper beer, and a range of paper household items from televisions to fans. All of these paper objects are burnt during traditional Chinese funerals to ensure that the deceased are appropriately provisioned for the nether world. It is in this corner of the store that my friends and I find an unexpected treasure. Hanging from the ceiling, suspended on a hook along with a paper motorcycle, there is a bundle of paper mobile phones—the big old brick kind. Further investigation yields a paper laptop and two small mobile phones in boxed sets replete with paper phone chargers, paper Rolex watches, and paper lipstick. In other funerary goods stores in Penang, Ipoh, and KL, I find more paper technology—a desktop PC, "Nokia" mobile phones, and prepaid phone cards. I buy them all, but do not burn them.

This story of Penang's paper ICTs represent one sort of cultural account of the ways in which new technologies are embedded in daily life, and remind us of the ways in which social practices around ICTs extend beyond the physical confines of the home. It is not simply just domestic ecologies that are important, but also the ways in which new technologies are integrated into larger symbolic systems and patterns of social practice. It has been my contention throughout this paper that the ICTs do not exist apart from social interactions and, as such, ethnographic methods and perspectives are invaluable for understanding the ways in which Asian cultural and social practices are shaping how ICTs are deployed and consumed.

In this paper, I have drawn on my own recent ethnographic research in South and Southeast Asia to locate ICTs at their sites of consumption. By locating ICTs at the sites of their consumption, particularly when those sites are non-Western, I am implicitly challenging some of the current framings of debates around ICTs. I argue

that, through this kind of cultural account—by taking the home as its starting point—one gains a perspective on technology use and on ICTs that is frequently missing from the debates around globalization and modernity. The socially embedded nature of the ICTs has consequences for the shape of future research, new product development, service provision, and even public policy. ICTS are more than technology; rather, they are an amazing constellation of devices that help strengthen and reinvent families, that create new idioms and icons of identity, and that allow new places and spaces to be Asian.

1 These ethnographic moments are taken from my field notes. This paper started as a conversation with Don Slater, and I am grateful for his interest and encouragement. The text was fleshed out in discussions with Nina Wakeford, Malene Skaeved, Michael O'Higgins, Joseph Kaye, Katrina Jungnickel, Eunyun Park, Debashis Chaudhuri, David Ashley Brown, Greg Welch, Christine Riley, David Tennenhouse, and my colleagues in Peoples and Practices Research; and I thank them all. My paper has benefited from the close readings of Adam Yuet Chau, Paul Silverstein, Ken Anderson, and Diane Bell; and I am grateful for their suggestions and patience. I also wish to thank the various organizations within Intel that continue to support this kind of research, and have found value in its results.

2 R. Silverstone and E. Hirsch, *Consuming Technologies: Media and Information in Domestic Spaces* (London: Routledge, 1992), 1.

3 As discussed in ibid., J. Sefton-Green, *Digital Divisions: Youth Culture in the Age of Multimedia* (London: UCL Press, 1998); D. Miller and D. Slater, *The Internet: An Ethnographic Approach* (New York: New York University Press, 2000); and *Wireless World,* B.R. Brown, R. Harper, and N. Green, eds. (London: Springer Verlag, 2001).

4 *The New Rich in Asia: Mobile Phones, McDonald's and Middle-Class Revolution,* R. Robison and D.S.G. Goodman, eds. (London: Routledge, 1996).

5 L. Nader, "Up the Anthropologist—Perspectives Gained from Studying Up" in *Reinventing Anthropology,* D. Hymes, ed. (New York: Pantheon Press, 1969).

6 M.M. Overbey and K.M.Dudley, *Anthropology and Middle-Class Working Families* (Arlington, VA: American Anthropological Association. 2000), I.

7 As discussed in *Consuming Modernity: Public Culture in a South Asian World,* Carol Breckenridge, ed. (Minneapolis: University of Minnesota Press, 1995); *The New Rich in Asia: Mobile Phones, McDonald's, and Middle-Class Revolution,* R. Robison and D.S.G. Goodman, eds. (London: Routledge, 1996); *Culture and Privilege in Capitalist Asia,* M. Pinches, ed. (London: Routledge, 1999); J. Farrer, *Opening Up: Youth Sex Culture and Market Reform in Shanghai* (Chicago: University of Chicago Press, 2002); and J. Farquahar, *Appetites: Food and Sex in Post-Socialist China* (Durham, NC: Duke University Press, 2002).

8 As discussed in P. Rengier, *Singapore: City-State in South-East Asia* (Honolulu: University of Hawaii Press, 1987); *Urban Spaces in Contemporary China,* D.R. Davis, Kraus, B. Naughton, and E. Perry, eds. (Cambridge: Cambridge University Press, 1995); B. Yeoh and L. Kong, *Portraits of Places: History, Community, and Identity in Singapore* (Singapore: Times Editions, 1995); *Emerging World Cities in Pacific Asia,* F. Lo and Y. Yeyng, eds. (New York: United Nations University Press, 1999); and *Five Cities: Modeling Asian Urban Population-Environment Dynamics,* G.D. Ness and M. Low, eds. (Kuala Lumpur: Oxford University Press, 2000).

9 Although there have been attempts in popular literature [i.e., D. Sheff, *China Dawn: The Story of a Technology and Business Revolution* (New York: Harper Business, 2002) and Stan Stalnaker, *Hub Culture* (New York: Wiley, 2002)].

10 As discussed in *International Satellite Broadcasting in South Asia: Political, Economic, and Cultural Implications,* S. Melkote, P. Shields, and B. Agrawal, eds. (Lanham, MD: University Press of America, 1998) and D. Sheff, *China Dawn: The Story of a Technology and Business Revolution,* S. Melkote, P. Shields, and B. Agrawal, eds. (New York: Harper Business, 2002).

11 As discsussed in J. Hong, *The Internationalization of Television in China: The Evolution of Ideology, Society, and Media Since the Reform* (New Haven, CT: Praeger, 1998); J. Lull, *Inside Family Viewing: Ethnographic Research on Television's Audiences in China* (London: Routledge, 1990); G. Mehta, *Karma Cola: Marketing the Mystic East* (New York: Fawcett Columbine,1990); P. Manuel, *Cassette Culture: Popular Music and Technology in North India* (Chicago: University of Chicago Press, 1993); *Consuming Modernity: Public Culture in a South Asian World,* Carol Breckenridge, ed. (Minneapolis: University of Minnesota Press, 1995); *The Secret Politics of Our Desires: Innocence, Culpability, and Indian Popular Culture,* A. Nandy, ed. (London: Zed Books, 1998); P.G.L. Chew and A. Kramer-Dahl, *Reading Culture: Textual Practices in Singapore* (Singapore: Times Academic Press, 1999); P. Kitley, *Television, Nation, and Culture in Indonesia* (Athens, OH: Ohio University Center for International Studies, 2000); and P. Mankekar, *Screening Culture, Viewing Politics: An Ethnography of Television, Womanhood, and Nation in Post-Colonial India* (Durham, NC: Duke University Press, 2000).

12 I work at Intel—a leading suppliers of semiconductors. I am a researcher, an anthropologist, in Peoples and Practices Research, an interdisciplinary team of researchers and designers that is part of Intel's Corporate Technology Group. Since it was established in 1995, Peoples and Practices Research has been charged with the task of understanding people and their daily practices, with the objective of finding new users and new uses for technology. We spend time in domestic and urban spaces, hanging out with people as they go about their daily lives in the United States, Western Europe, Latin American, and Asia. We attempt to translate insights about peoples' behavior into product concepts, technology innovations, and strategic long-range planning. In all of our work, I attempt to understand peoples' experiences holistically rather than just in relation to, and interactions with, technology. See T. Salvador, G. Bell, and K. Anderson, "Design Ethnography," *Design Management Journal* 10:4 (1999): 9–12; G. Bell, "Looking Across the Atlantic: Using Ethnographic Methods to Make Sense of Europe," *Intel Technical Journal* online at: http://developer.intel.com/technology/itj/q32001/articles/art_1.htm; G. Bell and Joseph Kaye, "Designing Technology for Domestic Spaces: A Kitchen Manifesto," *Gastronomica* 2 (2002): 46–62.

13 G. Marcus, "Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography," *Annual Review of Anthropology* 24 (1995): 117.

14 Households have been compensated for their participation, and have been guaranteed privacy. Thus, throughout this paper material drawn from interviews and household visits is disguised through pseudonyms.

15 As discussed in T. Salvador, G. Bell, and K. Anderson, "Design Ethnography"; G. Bell, "Looking Across the Atlantic: Using Ethnographic Methods to Make Sense of Europe"; and G. Bell and Joseph Kaye, "Designing Technology for Domestic Spaces: A Kitchen Manifesto:"2: 46–62.

16 I am grateful for the assistance of Debashis Chaudhuri (Oregon State University) and Adam Yuet Chau (Skidmore College) throughout this project.

17 As discussed in G. Bell, *Making Sense of Museums: The Museum as Cultural Ecology* and G. Bell and Joseph Kaye, "Designing Technology for Domestic Spaces: A Kitchen Manifesto."

18 G. Murdock, P. Hartmann, and P. Gray, "Contextualizing Home Computing: Resources and Practices" in *Consuming Technologies: Media and Information in Domestic Spaces,* R. Silverstone and E. Hirsch, eds. (London: Routledge, 1992), 146.

19 In China, it appears from earlier research I conducted that computers, themselves, might operate as a kind of status symbol, without or without a connection to the Internet.

20 This system recently has come under fire for financial mismanagement, and probably will be revoked.

21 K. Sen and D.T. Hill, *Media, Culture, and Politics in Indonesia* (Australia: Oxford University Press, 2000), 195.

22 As discussed in C. Cockburn, "The Circuit of Technology: Gender, Identity, and Power" in *Consuming Technologies: Media and Information in Domestic Spaces,* R. Silverstone and E. Hirsch, eds. (London: Routledge, 1992); S. Livingstone, "The Meaning of Domestic Technologies: A Personal Construct Analysis of Familial Gender Relations" in *Consuming Technologies: Media and Information in Domestic Spaces,* R. Silverstone and E. Hirsch, eds. (London: Routledge, 1992); Leslie Haddon, "Explaining ICT Consumption: The Case of the Home Computer" in *Consuming Technologies: Media and Information in Domestic Spaces,* R. Silverstone and E. Hirsch, eds. (London: Routledge, 1992); and S. Hawthorne, *Wild Politics* (Melbourne: Spinifex Press, 2002).

23 On April 1, 2002, the Indian government is set to again drastically reduce taxes on phone charges, following another significant reduction in 2001. As a result, long distance calling costs should be reduced by upwards of twenty-five percent.

24 Fiber optic cables are being laid by several companies in major Indian cities, including Hyderabad, and it is hoped that broadband will offer better and more reliable Internet access, although currently its high price is a major barrier.

25 Miller and Slater note a similar use of the Internet among members of the Trinidadian diaspora. See D. Miller and D. Slater, *The Internet: An Ethnographic Approach* (New York: New York University Press, 2000). In India, family members also are exchanging digital images. Although there are almost no digital cameras available in India due to their prohibitive cost, most photo processing stores will scan selected photos onto disc, or provide digital development, allowing Indian families to participate in the reciprocal exchange of family snapshots.

26 There are words in most Indian languages for this. In Hindi, the word is *gapp* is used to describe a certain kind of social event, or social interaction, where everyone just chats. In Telugu, it is *gappa,* which literally means story-telling, or story. In Bengali, the word is *adda,* which translates directly as a place where people congregate, but it is used to describe chitchat among friends.

27 Megawati's government recently imposed a hefty tax on domestic phone charges, and it is hard to calculate what impact this might have on these nascent chatting practices.

28 There are still other "cyber cafes" used for checking e-mail, but these are much smaller and off the beaten track. There also is a whole culture of smart diversions in the malls, including cyber-game arcades and photo and video booths. The most recent of these is called the "Video Club" (www.idi.com.uk) which, for ten Singapore dollars, allows you to produce a three-minute video which is burned on a CD disc that can be played on the computer and the DVD/VTR player. This machine is the latest version of the older Japanese photo-booth mall installations, where consumers paid for instant photos on stickers or strips.

29 There is an interesting tension here between the notion that a personal computer in Asia only has meaning when connected up to the Internet and the fact that there are cyber cafes that are not connected to the Internet. I think that, in part, the answer lies in a shifting definition of the "Internet," where it is not so much about what is connected, but that connectivity exists. So in the Penang cyber arcades, connectivity between machines at the site is a form of the Internet, albeit an unexpected one.

30 The Mumbai High Court has convened a special committee to make recommendations regarding access to Internet pornography at cyber cafes around Maharashtra. "The six-member committee wants the High Court to issue a binding 'direction' that would make all cafes in the State of Maharashtra (of which Mumbai is the capital) responsible for requiring customers to show photo-identity cards, recording their personal details, maintaining logs of all the sites the users have visited, and restricting minors to machines that do not have cubicles." (visit: http://www.wired.com/news/politics/0,1283,50615,00.html).

31 P. Kitley, *Television, Nation, and Culture in Indonesia* (Athens, OH: Ohio University Center for International Studies, 2000).

Designing for Sustainability: A Philosophy for Ecologically Intentional Design

Nathan Stegall

The crisis of sustainability, the fit between humanity and its habitat, is manifest in varying ways and degrees everywhere on earth. It is not only a permanent feature on the political agenda; for all practical purposes, it is the agenda. No other issue of politics, economics, and public policy will remain unaffected by the crisis of resources, population, climate change, species extinction, acid rain, deforestation, ozone depletion, and soil loss. Sustainability is about the terms and conditions of human survival....[1]

—David W. Orr

Many individuals, companies, and organizations now recognize the crisis described by Orr and others, and are searching for solutions to the myriad of problems caused by today's industrial and economic practices. The field of design (and all of its subsidiary professions: architecture, industrial design, interaction design, engineering, etc.) has become a major focal point for sustainability, which is not surprising since poorly designed industrial systems, products, and buildings can greatly contribute to environmental and social degradation. "Sustainable," "green," and "environmentally friendly" have become catchphrases in almost every design discipline. Practically every company and industry that manufactures or designs any product has environmental design guidelines or governmental regulations which limit emissions and the use of toxic materials. It is becoming clear, however, that current views of "design for the environment" cannot fully solve the crisis of sustainability because they focus only on a product's physical attributes: material construction, energy use, manufacture, transportation, and disposal. The shortcoming of this perspective is that even if a company could design and manufacture a product that used only solar energy, gave off no toxins, and could be one-hundred percent recycled at the end of its useful life, it would still not be truly sustainable unless every person who used it did so in a responsible manner and returned it for recycling at the end of its life. The idea of a "sustainable product" is misguided because the impact that any product has on the social and ecological environment depends as much on its use as on the technology it deploys. An axe, for example, can easily be made from recyclable steel, but it will still have a negative environmental impact if used to clear-cut a forest. The crisis of sustainability is more than simply

1 David W. Orr, *Ecological Literacy: Education and the Transition to a Postmodern World* (Albany: State University of New York Press, 1992), 83.

an issue of poor technology; it has emerged as an extremely complex sociological dilemma, where the lifestyle that we have adopted is rapidly eroding our ability to survive. It is obvious, then, that to play a profound role in making sustainability a reality, one must persuade the general public to adopt sustainable behavior. The role of the designer in developing a sustainable society is not simply to create "sustainable products," but rather to envision products, processes, and services that encourage widespread sustainable behavior. This goal of designing *for* sustainability can be accomplished through the practice of what I refer to as "intentional design" and the development of a new philosophy to help guide design decisions.

To understand how designers can encourage sustainable behavior, one must first closely examine the extent to which designed artifacts and new technologies affect society and individuals. This issue is explored thoroughly in an article entitled "Declaration by Design" written by Richard Buchanan. Buchanan observes that all design is, either consciously or unconsciously, a form of persuasive communication in which products serve as arguments for how people should live; and every new invention released to the public advocates accomplishing a certain task in a certain way:

> By presenting an audience of potential users with a new product—whether as simple as a plow or a new breed of hybrid seed corn, or as complex as an electric light bulb or a computer—designers have directly influenced the actions of individuals and communities, changed attitudes and values, and shaped society in surprisingly fundamental ways.[2]

The truth of this statement can be seen when closely examining even the simplest of products. Fishing, for example, was originally performed using spears or nets (or even bare hands) which required the fisherman to take an extremely active and attentive role in the process: standing in the water, senses alert, keenly awaiting his passing prey. The invention of modern fishing tackle (rods, reels, lures, lines, and floats) argued that fishing should be performed in a more passive way: allowing the fisherman to keep clear of the water and eliminating the need for constant alertness. Fundamentally, fishing lines and hooks were invented to make the process of catching fish easier, but this in itself is an argument. Rather than emphasizing the importance of skill or the size or type of fish caught, the fishing lure concept argues that the fisherman should be chiefly concerned with reducing the physical and mental effort needed to catch fish. In the same way, the inventors and designers of the first disposable products argued that people should reduce the time and energy spent on cleaning or storing products; even if the tradeoff is increased material use, pollution, and waste. This argument was incredibly successful, resulting in an explosion of disposable products, from

2 Richard Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice" in *Design Discourse,* Victor Margolin, ed. (Chicago: University of Chicago Press, 1989), 93.

diapers to cameras to eating utensils. But while, at least from an economic and marketing standpoint, these products are a wonderful triumph, they are catastrophic failures when viewed in the context of sustainability.

It is important to realize that the negative influence of disposable products, and other inventions which undermine sustainability, does not indicate malicious intent on the part of their designers, but rather is evidence that the social and cultural impact of such inventions was not considered to its fullest extent. This is precisely the problem. Designers in the modern world focus almost entirely on the physical issues surrounding a new product or technology. While it is important that new products be functional, aesthetically pleasing, ergonomic, safe, environmentally benign, and easy to manufacture (along with a host of other "design for X" characteristics considered in "good design"); it is imperative to always remember that design is, at its core, "an art of thought and communication that can induce in others a wide range of beliefs about practical life for the individual and for groups."[3] Failure to recognize this aspect of design, and its influential power, results in products that make unconscious or unintentional arguments about how people should live. This failure, perpetuated, created our current sustainability crisis. No designer ever intentionally suggested that people should value sloth over their own health, that economic gain outweighs environmental destruction, or that convenience is more important than competence, but today we can look back on a sea of products and services that encourage these beliefs. The alternative to this unconscious design is recognizing that any artifact makes an argument for how people should live and what values they should hold and consciously designing products that encourage positive, constructive ways of life. This is the meaning of "intentional design," and I believe that through this practice designers can have a consistent, positive, and lasting effect on social behavior, and thus can play a significant role in the transition to a sustainable society.

Applying intentional design to promote sustainability requires a redefinition, or more precisely an expansion, of current environmental design principles. If the new goal is designing products that are more than simply nontoxic or recyclable, but actually serve as tools for shaping peoples' lives and values, then we must take a step back and examine what traits, values, and behaviors people must have in a sustainable society. Looking at an even broader picture, we need to develop a firm understanding of what is really meant by an ecologically sustainable society. The time has come to develop a unifying ecological design philosophy that can guide design decisions in order to ensure that new artifacts combine materials and resources in environmentally conscious and beneficial ways while, at the same time, ensuring that the values and lifestyles communicated through artifact rhetoric serve to promote an ecological-

3 Ibid, 94.

ly sustainable society. Such a philosophy can be conceived as four interconnected, hierarchal components: a philosophy of resources, a philosophy of form and function, a philosophy of purpose, and a philosophy of spirit.

At the top of the hierarchy is an encompassing philosophy of spirit; the fundamental goal that we hope to accomplish through design. In its broadest definition, design is the art of shaping society through new products, organizational structures, processes, services, and methods of communication and interaction. Correspondingly, the overall goals of design are the overall goals of society: what we hope to gain from life, the aesthetics we embrace, what drives us, and what we are passionate about. The modern world has been driven by the undying pursuit of scientific advancement and economic profit, a system which has failed because products, organizations, and practices conceived in this spirit are concerned primarily with what new technology can be created and what bottom line can be met, with little regard for the effects on people, society, or the natural world. Sustainability requires a new philosophy of spirit a new set of goals on which we base our social practices. In his book *Ecological Literacy,* David Orr touches on this new spirit when he observes that ecological sustainability "is driven by the sense of wonder, the sheer delight in being alive in a beautiful, mysterious, bountiful world." [4] The goal of a sustainable society, and the goal of ecological design, is to create an environment in which people live meaningful, peaceful, and fulfilling lives in beautiful harmony with the natural world. The philosophy of spirit is the quest for "the good life." It is the inspiration for ecological sustainability.

With this fundamental goal in place, we now can look at what is perhaps the most important piece of the ecological design philosophy: the philosophy of purpose. This area is particularly interesting because it guides the practice of "intentional design." The philosophy of purpose expresses what arguments designed products should make: it must dictate a set of values, attitudes, and characteristics that designers wish to promote. The overall goal established by the philosophy of spirit is the formation of a sustainable society, so the arguments made through design should promote sustainable lifestyles. This presents a difficult challenge because sustainable living involves different practices and values for different people, depending on their local environment, so attempting to determine a universal philosophy to encourage it seems antithetical. A successful philosophy of purpose requires a set of values, traits, or characteristics that encourage sustainable living in any setting. Orr examines this in detail, and concludes that sustainability will be achieved when every individual possesses a fundamental set of skills that he calls "ecological literacy." These are the characteristics that enable people to live in harmony with their local surroundings. Ecological literacy is based on "knowing, caring, and practical

4 Orr, *Ecological Literacy,* 86.

5 Ibid, 92.

competence."[5] People in a sustainable society must observe their local environment and how they relate to it, recognize the causes of health and decay in natural systems, and break away from the current expert-based society to embrace a broad knowledge. They must develop a feeling of kinship—a spiritual connection and sense of stewardship—with the natural world. Finally, sustainability requires people with the practical competence to develop sustainable solutions to local problems.[6] If these are the characteristic traits and values of people in a sustainable society, then our intent when designing products and services should be to cultivate ecological literacy in their users: new artifacts should communicate the value of broad knowledge, nurture a sense of connection between people and their environment, and encourage the practical competence to build a sustainable society from the ground up. Arguing for broad knowledge involves encouraging the user to truly understand how a specific product or technology is used to accomplish a specific objective. Buchanan uses the example of two different dividers used to measure distance on a chart or map. One divider makes its use of technology apparent; when interacting with the object, one can easily see the technological reasoning that went into making it work, and the product encourages active contemplation of its form as it is used. The second divider (a more modern approach) hides its technology under a shell, thus disconnecting the user from its inner reasoning and function, encouraging focus only on its end use.[7] Arguments for caring and intimacy with nature can be made with products that encourage people to interact with their local environment, and display how cooperation with natural processes can benefit our lives. As people develop an appreciation for how natural systems can enrich their lives, they will develop a respect for nature that is uncommon in our current culture. Buildings that incorporate natural daylighting and passive solar heating, for example, demonstrate that embracing natural systems can improve the comfort and aesthetic appeal of an interior space. Finally, products must encourage competence in the public by promoting the active participation of the user. New technologies should reduce peoples' dependence on outside experts and corporations, allowing them to do more for themselves. Victor Papanek points out that:

> The job of the designer is to provide choices for people. These choices should be real and meaningful, allowing people to participate more fully in their own life decisions, and enabling them to communicate with designers and architects in finding solutions to their own problems, even—whether they want to or not—to become their own designers.[8]

People act as their own designers when they are able to recognize needs in their lives or their communities, and develop solutions to meet those needs. This is the definition of "practical competence."

6 Ibid, 86–87.

7 Buchanan, "Declaration by Design," 98.

8 Victor Papanek, *The Green Imperative: Natural Design for the Real World* (New York: Thames and Hudson, 1995), 59–60.

By establishing these three characteristic traits, the philosophy of purpose helps to guide the practice of intentional design to ensure that new products will promote sustainable living.

As illustrated by the divider example, the aim of promoting ecological literacy has important implications for the philosophy of form and function; which addresses how a product interacts with the physical world, its ecosystems, and its people—before, during, and after its useful life. To effectively argue for broad knowledge, a product must be intuitive and encourage the user to recognize how its form and function are related. Extending this idea further, the ideal sustainable product uses different disciplines and processes. For example, it incorporates natural biological systems along with electrical and mechanical systems in order to accomplish a certain task, thus improving people's understanding not only of a wide range of subjects, but also of how different fields can cooperate in order to solve practical problems more effectively. Integrating living organisms and natural processes into new technologies also cultivates a sense of connection between people and nature by showing users how harmony with the natural world can improve their lives. Making the form of a new product respond to the native forms of the place where it is used promotes intimacy between people and their local environment. Arguments for widespread public competence are accomplished through the simplification of a product's processes and components, so that users can easily assemble and maintain the product themselves. Another implication for the form of a product is decentralization: products that make people dependant on large, centralized, distant organizations (current power companies and large power generation plants are prime examples) encourage people to be ignorant of how they work and their environmental impact. All of these form and function guidelines are consistent with the ideas of "proponents of ecological sustainability [who] regard nature not just as a set of limits but as a model for the design of housing, cities, neighborhoods, farms, technologies, and regional economies," writes Orr. "Sustainability depends on replicating the structure and function of natural systems."[9] We can see that natural systems display the same characteristics described above for products that promote ecological literacy. First, the form of natural organisms is reflective of their function. The leaves on a tree have large surface areas to collect sunlight, and veins to carry nutrients and water to and from the leaf. In animals, visible muscle contractions and tendons which connect muscle to bone are visual cues for how limbs are manipulated. Obviously, the function of a natural system is dictated completely by the local environment in which the amount of sunlight, water, and nutrients determines how the local ecosystem operates and what organisms it contains. Natural systems also tend to be dispersed and decentralized. Rather than a single large leaf to collect solar energy, a tree has hundreds of small leaves, all working together to accomplish a large task. One obvious advantage of this decentralization

9 Orr, *Ecological Literacy*, 33.

is resilience: if a few leaves are damaged or destroyed, the tree will continue to live. In parallel, if instead of large central power plants, our electrical system consisted of many small solar power systems on top of buildings and homes—and dispersed wind turbines—the chances that a problem would result in massive blackouts would be minimized. Using nature as a model involves creating products that take advantage of natural solar, wind, water, and geothermal energy, respect the diversity of the local ecology, and strive to promote its health. In addition, the philosophy of spirit implies that nature should influence aesthetic design, so that products exist in sensual harmony with their surroundings. The philosophy of form and function dictates using natural organisms and processes—the only examples of truly sustainable designs—as the model for products designed for sustainability.

For this same reason, the material flows employed by the natural world provide the model for an ecologically responsible philosophy of resources. A strategy for managing resources recently was developed and put into practice by William McDonough and Michael Braungart. Their tactic is explained in great detail in their book *Cradle to Cradle,* which, among other things, provides an insightful and practical method for managing energy and materials in a sustainable way, providing a nearly complete philosophy of resources. Their strategy is based on the principle that, in nature, waste equals food: the waste of one living organism is the food of another. McDonough and Braungart suggest that a similar ideology must be adopted when managing the resources used in a new product. Rather than the current "cradle-to-grave" system under which products are made, used, and then discarded into landfills, we must develop a "cradle-to-cradle" methodology in which products are designed so that, after their useful life, the materials they are made from become nutrients for new products or for living organisms. Accomplishing this means distinguishing between biological nutrients—materials that are can biodegrade safely and provide food for living organisms—and technological nutrients; those materials which cannot be returned to natural processes but can be reclaimed, completely recycled, and used again in a closed loop. Any material that cannot exist purely in one or the other of these cycles—if it cannot either be completely recycled or completely returned to natural systems—cannot be used in a sustainable system.[10] This is only a brief synopsis of McDonough's and Braungart's plan. A complete plan for resource management is much more complicated and involves the examination of how different materials release toxins while they are used, manufacturing processes, how materials are obtained, and many other issues that are topics for other discussions. For the purpose of this paper, however, the foundation of an ecologically sustainable philosophy of resources is in place: designers must practice cradle-to-cradle design so that every part of a product can be returned to either a biological or closed-loop technical cycle.

10 William McDonough and Michael Braungart, *Cradle to Cradle: Remaking the Way We Make Things* (New York: North Point Press, 2002).

To effectively practice this set of ecological design philosophies in order to promote sustainable behavior, designers must embrace a set of skills above and beyond the traditional eye for form and function. Designing for sustainability requires skilled communicators who can, through artifact rhetoric, conceive effective arguments for how a group of people should live in the context of their environment. The greatest challenge is that sustainable living will mean different things to different people, depending on their local customs, needs, and ecosystems. Overcoming this obstacle requires designers who can enter a local environment, observe and understand how its people relate to each other and to the natural world, and develop methods for improving those interactions. We must develop practical problem-solving skills and a working knowledge of ecology, biological systems, psychology, and cultural anthropology, as well as engineering and aesthetic principles. In essence, the fundamental skill of designing for sustainability is ecological literacy. In order to help create a sustainable society, designers must possess a broad knowledge of science, art, engineering, communication, and human interaction; they must be concerned with nature and humanity, and desire to promote harmony between them. They must have the experience and competence to solve practical problems.

Recognizing ecological literacy as the fundamental skill of design provides something that has eluded many designers concerned with the crisis of sustainability: a starting point. In order to help develop a sustainable society, designers first should focus on developing their own ecological literacy. We must practice observing the natural world and how people relate to it, improve our ability to recognize the difference between health and decay in natural systems, and to discover the causes of both, and then take that knowledge of the situation and ask "What then?" [11] Our goal as designers must be a broad knowledge of the many disciplines which contribute to any project, a sense of kinship and spiritual connection with all life around us, and the practical competence to create sustainable solutions. A designer who becomes an expert in these things will be well-equipped to use the ecological design philosophy to spread ecological literacy to all members of society through intentional design. If we recognize the true nature of our field, and consciously utilize its power to influence society, designers will play a profound role in establishing a society that exists in beautiful harmony with the natural world.

11 Orr, *Ecological Literacy*, 86.

The Chameleon and the Pearl of the Orient

D.J. Huppatz

Hong Kong's design culture has traditionally been discussed in terms of "East meets West," a cliché which served to neutralize the impact of colonization in its various forms. This idea of Hong Kong culture as the meeting place between two monolithic cultures is a common stereotype that continues to be used in contemporary criticism, journalism, and tourism promotion. This paper analyzes the work of Henry Steiner, a key figure in the development of modern graphic design in Hong Kong. Over the past thirty years, Steiner's designs have provided a public image for some of Hong Kong's most powerful corporations, and his "cross-cultural" design theories have provided a model for many other designers. His cross-cultural designs carefully maintain the difference between "Eastern" and "Western" culture, subtly reinforcing the hierarchies of Hong Kong's colonial situation. The design work and theories of Steiner analyzed in this paper reflect a popular representation of the Colony that lasted from the 1960s until at least the 1990s, and continues to endure in contemporary tourism promotion.

Steiner studied art and design in New York before he arrived in Hong Kong in 1961 to work on *The Asia Magazine*. In 1964, he opened his own design firm and, from the mid-1960s, his clients have included some of Hong Kong's leading corporations. Thus, for a long time, his work performed the role of aestheticizing the core of Hong Kong's institutional power structure. Steiner is not interested in fast-moving consumer design or fashion, preferring more stable projects involving corporate imaging, branding, and logos.[1] It is no coincidence that his major local clients are the core colonial enterprises—the Hongkong and Shanghai Bank, Hutchison Whampoa, Jardine Matheson, Lane Crawford, and Hongkong Land—all of which were established in the nineteenth century by British traders or entrepreneurs. By the 1960s, these corporations were the Colony's most powerful. Steiner's other major clients have included American multinationals such as the Hilton Hotel Group and IBM. He is not only one of the most influential and well-respected designers in Hong Kong, but has won numerous international awards for his work over the past forty years. While his designs have been both commercially successful and innovative within the Hong Kong design scene, the following is an analysis of the broader cultural implications of his work and theories.

1 D. J. Huppatz, Interview with Henry Steiner (September 14, 2001, unpublished).

Steiner's arrival and subsequent impact on Hong Kong design is recalled by Ken Haas in Steiner's and Haas's co-authored book *Cross-Cultural Design: Communicating in the Global Marketplace:*

> It was only a few years ago that the full scope of Henry's "cross-cultural" contribution became apparent to me; that his was not just a case of a world-class talent who had settled in Asia for the challenge of pioneering then virgin territory.[2]

Rather than an odd anachronism, the clichéd colonial metaphor of Asia as virgin territory ripe for all kinds of colonization sets the tone of Steiner's and Haas's book—all the more surprising since the book was published in 1995. Rather than being a pioneer of modern design *per se*, as Haas seems to suggest, Steiner's position was that of a pioneer of a particular type of international modernism, closely aligned with a new kind of corporate capitalism in Asia.

Steiner's and Haas's book explains the key theories of Steiner's "cross cultural" design work completed in Hong Kong over the past thirty years and also, with its inclusion of a range of other designers' work, suggests how his theories might apply in a broader global context. For Steiner, cross-cultural design involves overcoming cultural boundaries in the service of communication. In his words, cross-cultural designers:

> must strive to transmit one set of messages within the medium of a foreign tradition without losing the meaning and attitude of the original concept. Designers venturing into the global marketplace need to be as *sensitive* to cultural conventions as they are *uninhibited* in finding new ways to *exploit* them.[3]

Within this colonial framework of the "sensitive" yet "uninhibited" cultural "exploitation" that Steiner proposes, the appropriation of indigenous symbols and materials becomes the primary task of the (presumably American or European) cross-cultural designer. As with the exploitation of minerals, labor, or other sources of local wealth by economic colonialism, the cross-cultural designer has a wealth of local culture from which to extract and appropriate visual imagery.

The colonial position of Steiner's cross-cultural designer is made clearer when considered in the light of Edward Said's well-known book, *Orientalism: Western Conceptions of the Orient*. While Said's Orient is primarily the Middle East, his theories can be applied equally to an Asian context. Said describes Orientalism as "a Western style for dominating, restructuring, and having authority over the Orient."[4] In order to manage and regulate the Orient in the eighteenth and nineteenth centuries, Western colonial powers needed a system of representation that created a structural relationship of domination in which the West maintained power over the Orient. For Said, one of the most important distinctions between East and West

2 Henry Steiner and Ken Haas, *Cross-Cultural Design: Communicating in the Global Marketplace* (London: Thames & Hudson, 1995), vii.

3 Ibid., ix (italics mine).

4 Edward Said, *Orientalism: Western Concepts of the Orient* (London: Penguin Books, 1978), 3.

is imaginative, and the consistent repetition of the same Oriental stereotypes results in a differentiation that is intimately linked to colonial power:

> ...from its earliest modern history to the present, Orientalism as a form of thought for dealing with the foreign has typically shown the altogether regrettable tendency of any knowledge based on such hard-and-fast distinctions as "East" and "West"; to channel thought into a West or an East compartment. Because this tendency is right at the center of Orientalist theory, practice and values found in the West, the sense of Western power over the Orient is taken for granted as having the status of scientific fact.[5]

With their emphasis on maintaining cultural difference, design theories such as Steiner's are part of the continuing Orientalist discourse that supports colonialism, while his design work is a concrete manifestation of this tendency to repeat and reinforce distinctions between East and West. In design terms, Hong Kong is represented by Steiner's co-author Haas as "virgin territory," a variation of the popular cliché of Hong Kong as the "Pearl of the Orient," waiting passively to be appropriated and "exploited" by Western designers.

Far from being a "virgin territory" even in design terms, Hong Kong in the 1960s already was infused with a Chinese modern design aesthetic developed in Shanghai in the 1920s and 1930s. Design critic Wendy Siuyi Wong refers to the unpublished thesis of Matthew Turner, arguing that:

> Hong Kong was able to maintain its modern Chinese design style until at least the 1960s, through the contributions of both mainland and Hong Kong designers. He [Turner] attributes a rapid fading of Hong Kong modern design style after 1960 to the influx of American companies and to government assistance for American design specialists, rather than local designers. Local Chinese designers previously trained in Guangzhou and Shanghai had to gradually alter their style to fit into the new commercial environment dominated by American companies, and to meet the standard set by American-trained designers.[6]

Furthermore, Turner argues that Hong Kong's modern design culture prior to the Second World War went into decline with the increased American presence in Hong Kong and in Asia in general in the aftermath of the Korean War. "By the 1960s," he argues, "the designs and designers of the early modern period of Hong Kong had begun to disappear as American markets and styles came to predominate."[7] In this light, Steiner's cross-cultural design represented a new international (that is, specifically American) design

5 Ibid., 46.

6 Wendy Siuyi Wong, "Detachment and Unification: A Chinese Graphic Design History in Greater China Since 1979," *Design Issues* 17:4 (Autumn 2001). She refers to Matthew Turner's unpublished thesis, *Ersatz Design: Interactions Between Chinese and Western Design in Hong Kong, 1950s–1960s* (London: Royal College of Art, 1993).

7 Matthew Turner, *Made in Hong Kong: A History of Export Design in Hong Kong 1900–1960* (Hong Kong: Hong Kong Urban Council, Hong Kong Museum of History, 1988), 15.

modernism closely aligned to colonial and multinational corporations. In the 1960s, Hong Kong was "virgin territory" for a new form of global capitalism that required consistent visual symbols across national borders, as well as a touch of local aesthetic "flavor" for differentiation between regions.

This image of Hong Kong as "virgin territory" should be seen in the context of the Hollywood depictions of the city from the 1950s and '60s, exemplified by the films *Love Is a Many Splendored Thing* (Henry King, 1955) and *The World of Suzie Wong* (Richard Quine, 1960). Both are romanticized adaptations of popular novels that feature idyllic shots of the Colony, and both feature an American male lead (played in both films by William Holden) who has taken up the colonial mantle from the ruins of European colonialism in Asia.[8] *The World of Suzie Wong*, in particular, helped forge a pervasive image of Hong Kong in the Western popular imagination. Filmed primarily for an American audience, the film is a romantic narrative in which the cosmopolitan American Robert Lomax (with whom the audience identifies) falls in love with a local prostitute, Suzie Wong (played by Nancy Kwan). This is another version of the "Pearl of the Orient" metaphor because Hong Kong is represented as a location that offers easily available Oriental women to the American lead in a nonthreatening fulfillment of male desire. As it traces the romance between American architect-turned-artist Lomax and poor Chinese prostitute Wong, the Orient is feminized in the film the same way as it is in Haas's quotation—passive and available for the active American protagonist. The film also helped shape popular perception of Hong Kong in the 1960s as the "safe" Orient, filled with submissive natives, where Westerners could enjoy exoticism in an idealized location with all the comfortable trappings of British colonial life.[9]

While *Suzie Wong* provides a colonial context in which Steiner's early work could be situated, his theories provide an insight into the close relationship between design and colonial corporations; be they British, American, or European. In *Cross-Cultural Design*, Steiner uses the metaphor of a chameleon to describe his approach to design:

> Chameleons reflect local colour, but retain their form. Ideally, designers are representative of their own culture yet adaptive to new surroundings. The goal is to achieve a harmonious juxtaposition; more of an interaction than a synthesis.[10]

For him, the designer operates in a similar way to a chameleon, using an aesthetic process to blend foreign interests into the local context. But in addition to the chameleon function, design also functions to differentiate foreign from local companies by creating distinguishing marks of ownership.

8 It's Interesting that both novels featured an English hero, but their movie versions featured an American hero.

9 For a more detailed analysis of these two films, see Gina Marchetti, "White Knights in Hong Kong: Love Is a Many-Splendored Thing and The World of Suzie Wong" in her book *Romance and the "Yellow Peril": Race, Sex, and Discursive Strategies in Hollywood Fiction* (Berkeley: University of California Press, 1993): 109–124; and *Before and After Suzie: Hong Kong in Western Film and Literature,* Thomas Y.T. Luk and James P. Rice, eds. (Hong Kong: The Chinese University of Hong Kong, 2002).

10 Henry Steiner and Ken Haas, *Cross-Cultural Design: Communicating in the Global Marketplace,* 9.

Figure 1
IDEA, No. 162, 1980.
All images reproduced by permission of Henry Steiner.

Steiner's designs illustrate this chameleon idea. His cover design for *IDEA* Magazine (no. 162) of 1980, for example, features a photograph of Steiner himself seated, wearing a dark business suit against a black background, his face painted in the red and white design of a traditional Cantonese opera mask. In his chameleon pose, Steiner is performing "Chineseness" in an effort to create a cross-cultural design. Beyond the obvious humor of the image, the ideologies of racial and cultural difference are carefully maintained; his cross-cultural approach to design involves applying the surface image of a local (Chinese) culture to international (Western) business. Steiner's image of the chameleon also serves as a metaphor for international corporate capitalism, a "masking" of complex socio-economic processes behind local color.

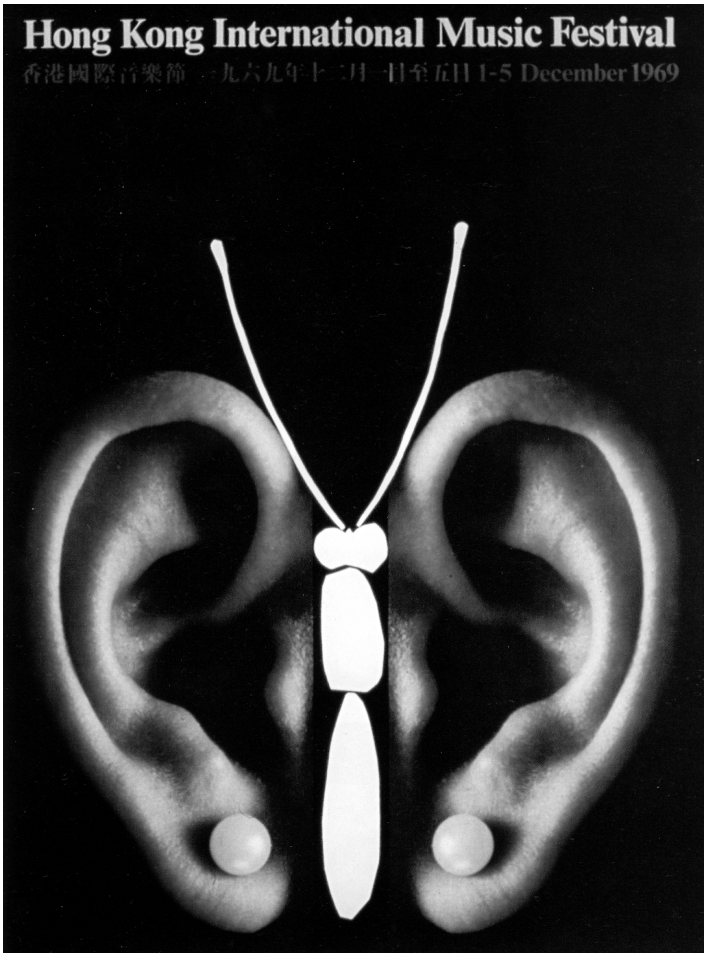

Figure 2
Hong Kong International Music Festival poster, 1969.

Steiner's approach to cross-cultural design often draws upon already existing mythologies about Hong Kong. The representation of Hong Kong as the "Pearl of the Orient" appears in his design work several times. His *Hong Kong International Music Festival* poster (1969), for example, features two photos, each of an ear with a pearl earring, brought together with a drawn butterfly body in the middle so the ears form the butterfly's wings. The particular local reference Steiner adds is the pearl. Hong Kong features in this colonial metaphor as an exotic Oriental jewel, waiting passively to be appropriated.

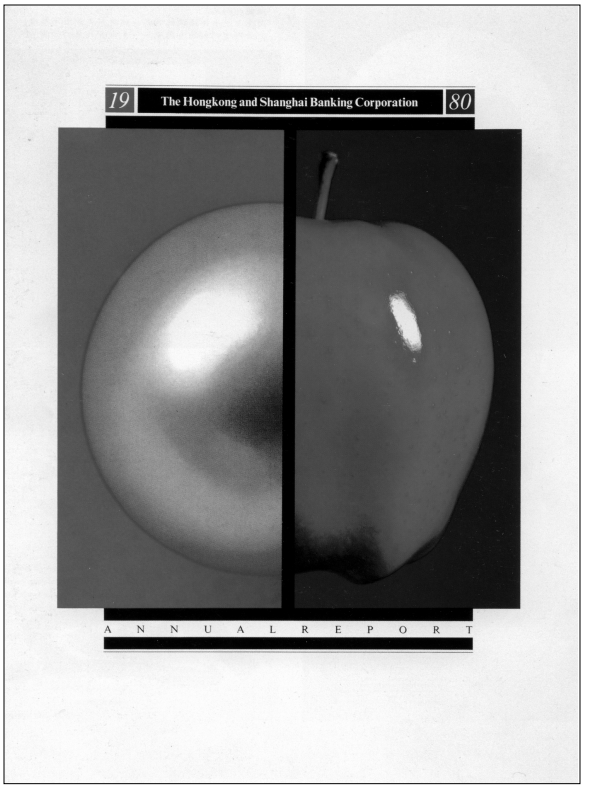

Figure 3
HSBC Annual Report cover, 1980.

Steiner reused the "Pearl of the Orient" idea in his design for the Hongkong and Shanghai Banking Corporation (HSBC) 1980 annual report. The report's cover featured a split image: a photograph of half a pearl next to a photograph of half an apple. In this design, Steiner plays on clichés—the "Pearl of the Orient" (Hong Kong) meets the "Big Apple" (New York). In this case, Hong Kong as the British Empire's "pearl" of the Orient has shifted to become the "pearl" of multinational capitalism. The annual report celebrated both the HSBC takeover of the New York-based Marine Midlands Banks, Inc. and the one-hundredth anniversary of the establishment of their New York office. HSBC is a former colonial bank founded in 1865 to fund the China trade, and has since functioned as the central bank in Hong Kong. It proved to be a successful colonial enterprise, continuing to grow in the Twentieth Century, particularly after the Second World War. The expansion into new markets in the 1980s, including the establishment of the Hongkong Bank of Canada and the Hongkong Bank of Australia, in addition to the American takeover, further emphasized the Bank's shift from an Asian-based colonial bank to a dispersed global bank. The Bank itself perhaps is the "pearl" of Steiner's image, generating wealth for its controlling interests in London.

Figure 4
HSBC Annual Report inside pages, 1980.

Another page in Steiner's 1980 HSBC report features a split image, half Cantonese opera character, half Statue of Liberty, while other pages feature similar juxtapositions of iconic Hong Kong scenes next to New York City ones. The representations of traditional Chinese culture next to those of New York culture display a kind of tourist image of multinational capitalism. The "masking" of the British colonial bank behind a Cantonese opera mask represents the more problematic side of Steiner's chameleon project in that it illustrates how colonial corporations adopt a local identity through graphic design. The two myths he utilizes in this image are those of a Hong Kong symbolized by traditional Chinese culture and a New York symbolized by liberty and multiculturalism. However, there are two repressed subtexts within these narratives: the first is Hong Kong as an already hybrid and vibrant modern culture; and the second is the fact that "for all the time Ellis Island processed would-be immigrants—from 1892 until 1938—Chinese people were excluded from America." [11] The use of Chinese iconography for a British colonial bank thus becomes doubly ironic as the Statue of Liberty represents the exclusion of Chinese in America, while the traditional mask represents a Chinese culture of the past—not of modern cosmopolitan Hong Kong.

11 Gregory B. Lee, *Troubadours, Trumpeters, Troubled Makers: Lyricism, Nationalism, and Hybridity in China and Its Others* (Durham: Duke University Press, 1996), 221.

While comfortable juxtaposing stereotypical images of "East" and "West," Steiner is adamantly opposed to the idea of a hybrid culture, as is evident when he writes:

> The individual character of the elements should be retained, each maintaining its own identity while also commenting on and enriching the other, like the balance of Yin and Yang.
>
> *Combination, mixture, blending—these are useless concepts as they will result in a kind of mud.* Street stalls in Hong Kong serve an understandably unique beverage called "Yin-yang," a combination of tea and coffee. It tastes as you would imagine: the worst characteristics of both are enhanced.[12]

In his work, with its emphasis on difference, Steiner is focused on defining cultures and then on carefully keeping them apart. In the 1960s, this emphasis seemed to coincide with a new type of colonialism in which former British companies sought to maintain their hold on power, while newer American companies sought to establish themselves in Hong Kong (and in Asia in general). While it may appear subtle, this type of colonization is remarkably similar to earlier colonial divisions between colonizers and natives.

Maintaining distinct divisions between cultures masks the complexity of Hong Kong's post-war culture, but more than this, Rey Chow argues that:

> Whenever the oppressed, the native, the subaltern, and so forth are used to represent the point of "authenticity" for our critical discourse, they become at the same time the place of myth-making and an escape from the impure nature of political realities.[13]

Chow provides a poignant critique of Steiner's position in two ways. First, her native finds a parallel in Steiner's mythical depiction of the Chinese other and its equation with tradition; and, second, her notion of the "impure nature of political realities" is in direct contrast to his emphasis on purity. In his search for local "authenticity," Steiner's "pure" specimens of ethnicity are museum caricatures rather than the images of a modern Chinese city with an "impure" culture. Any search for the "authentic natives" is bound to fail, Chow argues, since, "What is unique to Hong Kong... is precisely an in-betweenness and an awareness of impure origins, of origins as impure."[14] The inhabitants of Chow's Hong Kong are the creators and consumers of "yin-yang," the tea-coffee drink Steiner criticizes, consuming it, as Steiner fails to acknowledge, because they like the taste!

12 Henry Steiner and Ken Haas, *Cross-Cultural Design: Communicating in the Global Marketplace*, 9.

13 Rey Chow, "Where Have All the Natives Gone" *Writing Diaspora: Tactics of Intervention in Contemporary Cultural Studies* (Bloomington: Indiana University Press, 1993), 44.

14 Rey Chow, "Between Colonizers: Hong Kong Post-Colonial Self-Writing in the 1990s," *Diaspora* 2:2 (Fall 1992): 157.

In addition to his design practice, Steiner offers a theoretical model for cross-cultural representation in which he elaborates his mimetic theory. For Steiner, there are three stages in the process of producing a cross-cultural design, which equate to a dialectical operation with a final synthesizing stage: quotation, mimicry, and transformation. Of the final stage, he writes: "In this stage, influence has been assimilated and the once foreign becomes personal and natural."[15] He argues that this stage is crucial:

> The simplest way to suggest a foreign ambience is to borrow an exotic image. To qualify as a true cross-cultural design, however, it is necessary for an image to be *transformed* in some way; to be appropriated and redefined.[16]

Steiner's chameleon methodology involves first appropriating local culture, and then recontextualizing it within a Euro-American context.

While his theory advocates an assimilation of local cultures into a global, cross-cultural design, Steiner is careful to keep the two cultures apart: on the one hand, Euro-American international modernism, and on the other, "native" culture. The use of split imagery is the most direct instance of this dialectical method:

> A dialectical technique, the split image is the most basic way of juxtaposing visual elements in order to achieve a synthesis. A new icon results from the combination of disparate elements. It can be perceived as a metaphor of the synergy resulting from the meeting of two cultures.[17]

While supposedly forming a new icon, Steiner always is careful to maintain the distance or difference between "East" and "West" in his designs, each with its stereotypical characteristics: the East is equated with the traditional, the emotional, the feminine, "craft" tools, tranquility, spirituality, and harmony; the West with the modern, the rational, the masculine, high technology, dynamism, and flux. In Steiner's Hong Kong, the meeting of these two cultures and their respective attributes is infinite: they remain separate and do not blend.

15 Henry Steiner and Ken Haas, *Cross-Cultural Design: Communicating in the Global Marketplace*, 2.

16 Ibid., 10.

17 Ibid., 36.

Figure 5
IDEA, No.226, 1991.

Steiner's cover design for *IDEA* No. 226 (1991) features an image split diagonally, half Chinese geomancer's compass and half computer disk. The background of the image, likewise split diagonally, comprises a wind pattern (represented by clouds) and a wave pattern, referring to Feng Shui (literally "wind-water"). In this image, Steiner's dialectical method illustrates the meeting of the mystical, spiritual East and the rational, technologically-advanced West. Each culture is defined by way of opposition or in contradiction to the other. This suggests, first, that each has an infinite, unchanging essence (the traditional, spiritual East, the progressive, modern West) and, second, that these essences cannot be mixed. Steiner's East-West mythology thus disallows the possibility of a Western spiritual mysticism or an Eastern progressive modernism (such as "Shanghai modernism" of the 1920s and '30s, for example).

Such visual imagery perpetuates the idea of Hong Kong as a meeting place between two cultures. This meeting of two cultures assumes two distinct homogenous sets of values, practices, and histories—the East as unchanging, traditional, and exotic: the West as progressive, modern, and universal. In terms of Steiner's theory of cross-cultural design, Asia is presented as an atemporal source of ancient tradition, a source of exotic inspiration that can be packaged for Western consumption. Centuries of cultural exchange and interaction are suppressed as difference is reinforced and co-opted into a colonial sense of order in which Chinese culture always is frozen in the past, while Western culture is dynamic and progressive. The constant repetition of Chinese culture as eternally traditional erases not only contemporary Hong Kong culture, but also the modernism of the Communist mainland. As Cold War imagery, Steiner's Hong

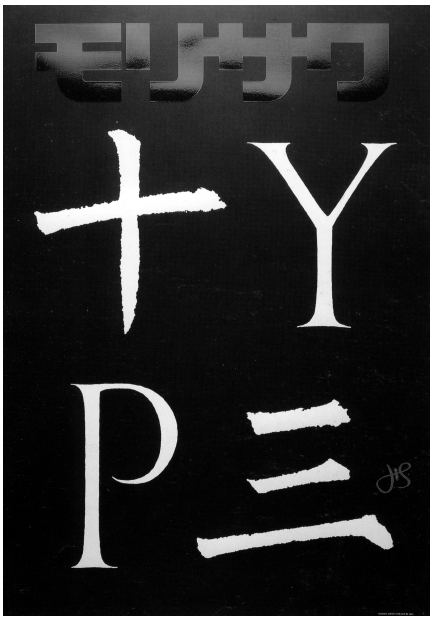

Figure 6
Type poster for Morisawa Typesetting Company, 1991.

Kong is the meeting place where the safe, traditional China meets the capitalist West, while the contemporary state of China and its modern design culture disappears.

Turner offers an alternative version of Hong Kong culture. In a catalogue essay from the exhibition "Hong Kong Sixties," he argues that the 1960s were "the first time a population of émigrés, traders, refugees, and expatriates came to define themselves as Hong Kong people."[18] Turner argues that the decade was a turning point because of the threat posed by the Chinese Cultural Revolution, which resulted in the colonial government reshaping Hong Kong into an image of a modern consumer city in order to avoid a local communist uprising. However, Turner adds that the modern popular culture that developed in this period was a mix of:

> British culture, from functional design to Swinging Sixties (particularly after the Beatles' visit); Shanghainese cosmopolitan style; the Americanisation of lifestyles brought about by trade as well as anti-communist propaganda, communism—itself a westernising form of modernisation; and the influence of Nationalist images of modernity, inherited from China and broadcast from Taiwan.[19]

This reading challenges the simple "East meets West" figuration so often applied to Hong Kong culture, even today.

Continuing his "East meets West" dialectical method, Steiner's poster for the (Japanese) Morisawa Typesetting Company (1991) features the word "TYPE" in white letters on a black background. The Chinese character for ten (*shi*) is used for the "T," while the character for three (*san*) is used for "E." Steiner explains:

18 Matthew Turner, *Hong Kong Sixties: Designing Identity* (Hong Kong: Hong Kong Arts Centre Press, 1994), unpaginated.

19 Ibid.

> The white letters are debossed to suggest the stone engraving common to both systems. The Roman letters are from the book Il Perfetto Scrittore by Giovanni Gresci (Rome, 1570). The Chinese characters are from a Tang dynasty inscription by Liu Kung Chuan (841 AD) in the "Forest of Steles," Xian. The signature is coloured and positioned in the manner of a Chinese seal.[20]

On Steiner's meshing of the two typographic traditions in the TYPE poster, Haas writes of the designer's "uncanny ability to juxtapose the magisterial tradition of Roman typography against the sensuous curves, bold strokes, and delicate teardrops of Chinese script...." [21] Again, Haas's reading falls easily into clichés about the East and the West, although this time his analysis also falls into gendered stereotypes, with the East associated with feminine curves and the West with the hard authority of Roman script. This is a further reiteration of the "Suzie Wong syndrome," whereby the Orient and the West are gendered and structured as unequal complements. Again, following Steiner's cross-cultural thesis, the two cultures are brought together in the same image, but simultaneously held apart with no possibility of mixture.

Steiner's images solidify a certain historicist thinking that regulates Chinese culture to a series of anachronisms, with the aloof abstraction of Western modern design providing the frame in which they appear. So long as it remains exotic, traditional, and safe, this version of the Orient offers no threats to British colonialism or to American corporate capitalism. Despite the development of Hong Kong's vibrant modern culture in the period between the 1950s and the 1990s, this East meets West theme continued to inform many cultural and critical practices. In Steiner's cross-cultural designs, the complex processes of colonization disappear as Hong Kong remains the eternal meeting place of East and West. By masking the unequal relationship between the colonizers and the colonized, his cross-cultural theory reinscribes the colonial hierarchy symbolically. Both the local and the traditional become assimilated into this colonial design logic that does not allow for the possibility of an autonomous Hong Kong culture, hybrid or otherwise. With an emphasis on cultural purity and authentic ethnicity, Steiner's cross-cultural theory provides an overlap between British colonialism and a newer type of colonialism emerging in the 1960s in the form of American-led global capitalism.

20 Henry Steiner, and Ken Haas, *Cross-Cultural Design: Communicating in the Global Marketplace*, 20.

21 Ibid., vii.

The Designer as Author: Reading the City of Signs— *Istanbul: Revealed or Mystified?*

Gérard Mermoz

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Your gaze scans the street as if they were written pages: the city says everything you must think, makes you repeat her discourse, and while you believe you are visiting [Istanbul] you are only recording the names with which she defines herself and all her parts.

—Cities and Signs 1

For those who pass it without entering, the city is one thing; it is another for those who are trapped by it and never leave. There is the city where you arrive for the first time; and there is another city, which you leave never to return. Each deserves a different name.

—Cities and Names 5

Italo Calvino, Invisible Cities *(1972)*[1]

Part One: Context

In April 2003, six designers from the London College of Printing led by Gérard Mermoz spent two weeks in Istanbul, working on a project which set out to *redefine graphic design as research, and the graphic designer as reader.*[2]

Viewed against the ongoing debate on "the designer as author"—recently revived in a special issue of *Émigré* which, "after about ten issues or so filled with visual and aural indulgences... felt it was time to return to publishing design criticism and theory."[3] The "City of Signs" experiment is particularly relevant because it moves the graphic design debate away from polemics, and onto the concrete ground of "critical design practice."[4]

One problem with much of the graphic design debate, as it stands, is that it remains at the level of general principles: styles, tastes, and ideologies; fertile ground for polemics, but short on *analyses* of graphic language and on *critical evaluations* of communication strategies. The problem extends well beyond the good or bad will of the protagonists, and is a direct consequence of the methodologies extant in the field.

My own attempts at raising the intellectual level of the typographic debate, in semiological terms[5] seem to have exceeded the terms of reference designers and commentators were prepared to adopt and use in that debate, reduced to a series of claims and counterclaims, locked in an unproductive dualism between traditionalists and avant-gardists. This lack, or low level, of *semiological engagement*

1 Italo Calvino, *Invisible Cities* (London: Picador, 1979) [1st Italian edition: *Le Città Invisibili,* Torino: Einaudi, 1972].

2 Gérard Mermoz was Senior Research Fellow in Typography at the London College of Communication (formerly the London College of Printing). For a discussion of the graphic designer as reader: Bruce Mau, "Gérard Mermoz: In Conversation," *Baseline* 43 (Winter 2003): 33–36.

3 Rudy Vander Lans, "Introduction," *Emigré* 64 (Winter 2003): 9.

4 The concept of critical design, central to the City of Signs project, argues for the development of a *critical* attitude—in the face of economic and other constraints—as an intrinsic part of the design process. My concern in this project is to emphasize that designers should not just be critical when defining their *socio-cultural* or *political objectives,* but also about the *languages* and *methodologies* we resort to, and consider the *epistemological implications* of specific design choices and communication strategies. Ultimately, my concerns are about the relations between graphic design and knowledge; treating graphic design not just as a communication tool, but as an instrument for the production and communication of knowledge. This presupposes evolving new forms of collaboration between graphic design and other disciplines: the arts, architecture, music, literature, and the human sciences.... The preoccupations of the

with the design process—both within education, design criticism, and in professional practice—is, in my view, largely responsible for the generic level of the debate, and for the limited range of issues raised, compared with discussions in architecture, literature, film, or fine art.

A first step out of this situation requires that we stop commiserating about the low level of the graphic design debate, and do something "concrete" about it. Revamping old slogans such as "first things first" is not enough, and can be counterproductive—especially when it detracts from other initiatives developed elsewhere to address these issues. As experience has shown, it also can alienate many people, and lull supporters into a state of complacency. More important, these expressions of self-righteousness unwittingly keep the debate anchored within the same, narrow terms of reference; couched in the same "uncritical" language which they aspire to transcend.

This is precisely what we tried to avert, in the City of Signs project; where, away from polemics, we set out to test the capacity of design to operate as research and, in the process, extend our role both as readers and as authors; working not in autonomy, but in collaboration with other disciplines. If autonomy is desirable with respect to commercial and other material constraints, we should acknowledge that the graphic designer lacks the tools, the methodologies, and the knowledge bases he/she needs to achieve the status of "author" within the broader fields of research and aesthetics.

By "aesthetic," I do not mean concerns about "seductive forms" and/or naive "self-expression" (the alleged attributes of "graphic experimentation," from Neville Brody to David Carson), but the complex set of possibilities which arise from the purposeful interaction between forms, ideas, and signs, and their interpretation.

The time has come to stop using the words "art" (as in the expression "Graphic design is not 'art'!") and "aesthetics" superficially—as if they represented a fundamental threat to *information* and *communication design*—and start acknowledging (and learn from) the complexity of the processes and situations they address, as well as their relevance to graphic design theory and practice.

The recent theorizing within fine art of a "relational aesthetics" by Nicolas Bourriaud is particularly relevant for those of us intent on opening up the field of *graphic action* on the basis of more ambitious agendas.[6] Particularly relevant is Bourriaud's redefinition of "form" as the site of "possible encounters"—as "a face summoning me to dialogue with it"; in the process connecting me with "other formations, artistic or otherwise." Bourriaud's observation that "Each particular artwork is a proposal to live in a shared world, and the work of every artist is a bundle of relations with the world,

footnote 4 continued
graphic design industry and the organization of the graphic design curriculum in art schools and universities worldwide are such that we cannot expect them to facilitate this epistemological design shift without first undertaking radical transformations and changes in direction.

5 Gérard Mermoz, "'Masks on Hire': In Search of Typographic Histories," *Visible Language* [special issue on the theme: Critical Histories of Graphic Design, Part 1: Critiques] 28:3 (1995): 261–284; "Le corps du texte: pour une théorie multifonctionelle de la typographie," *Communication et language* 105 (September 1995): 105–115; "On Typographic Reference," *Émigré* 36 (1995): no pagination; "On Typographic Communication," paper read at GRAFILL, the annual conference of 'Norske grafiske designere og illustratører,' Oslo, published, in Norwegian as "Typografisk Kommunikasjon," *Visuelt* 4 (1997): 18–21; *The 'Body of the Text': Typographic Interface and Interactive Reading,* (*Acts of the Symposium Labile Ordnungen,* Hamburg,1997): 188–198; "Deconstruction and the Typography of Books," *Baseline* 25 (1998): 41–44; and "Esthétiques Graphiques," *Encyclopédie de la chose imprimée (du papier à l'écran), Paris, Retz* (1999): 70–88; "On Typographic Signification," *Hyphen* (Winter 2003): 19–26.

6 Gérard Mermoz, "Graphic Design Education: Towards More Ambitious Agendas" in *Becoming Designers,* E. Dudley & S. Mailing, eds. (Exeter: Intellect Books, 2000), 151–158; and Nicolas Bourriaud, *Relational Aesthetics* (Dijon: Les Presses du Réel, 2000) [1st French edition: 1998].

giving rise to other relations, and so on and so forth, ad infinitum," is particularly useful because it redefines the status of the work from that of an autonomous object and authorial statement expressing and embodying the artist's truth, to that of an open platform onto which artist and public negotiate possibilities of meaning and being. As Bourriaud put it, "Someone shows something to someone who returns it as he sees fit."[7] Far from corrupting graphic designers, engaging with art and aesthetics in my view is essential if graphic design is to achieve a state of intellectual maturity, and expand both its field of operation and its critical capability as an agent in the production of knowledge, alongside art.

My critique is directed both to graphic design practices and to "critical" writings; which, in the process of setting up well-meaning agendas, contribute to the preservation of the status quo. They do so by holding onto an old language of *polemics*—grounded in values of style, self-expression, and political correctness[8]—instead of developing a "critical language" capable of addressing the terms and the processes of graphic design practice at *micro levels*. What is most urgently needed is a sophisticated, critical semiology of graphic design and typography, along with an opening up of the graphic design debate to relevant issues raised outside of graphic design, where more complex "problématiques" are developed with the help of sophisticated methodologies across the arts, literature, and the human sciences.

Drawing from semiological theories and their applications in the arts and culture will enable graphic designers to make design choices on a broader and more far-reaching (deeper) basis than currently is possible; locked as the profession is between free, intuitive improvisation and the rigorous application of "proven" rules. The graphic semiotics I am advocating stands within the broader semiotic field outlined by Peirce, Saussure, Morris, Volosinov, Eco, and others; encompassing all forms of communication across media and contexts. Today, as ideas and media practices flow between fields, crossing discipline boundaries, more than ever we need to call upon new and increasingly diversified forms of knowledge, according to the tasks at hand. This, in turn, requires that we broaden our knowledge base and develop new forms of collaborations.

For there is little point in publishing, as "critical" writings, texts which elude the rich complexity of graphic language, and neglect to consider the infinite subtlety of the processes involved in reading, viewing, and interpretation. Compensating with common sense, forceful assertiveness, and a patent neglect of analytical tools appropriate to the tasks at hand is a clear sign of "intellectual immaturity." It would be far more productive if the subject of *graphic authorship*, superficially debated in/by the profession, was addressed in terms of its specifics; highlighting how specific designs work, at the levels of their graphical, semiotic, and ideological dimensions.[9]

7 N. Bourriaud, ibid., 21–24.

8 "Rant" was the theme of *Émigré* 64 (Winter 2003), a symptom of the complacency with which some graphic designers and commentators prefer to air their feelings in public, in preference to generating "ideas" in the pursuit of "alternative agendas."

Pedagogically, this would require educating future designers to appreciate the fact that the specificity of a graphic design solution is not perceptible by looking at the form from the outside, but by focusing on its invisible information structure and on the functional interaction between its graphic elements. This only can be achieved within a conceptual framework, and with a critical design language capable of directing the working of graphic signs towards specific ends. This would not remove formal ambiguity from the graphic design equation, but would reinstate it with a greater sense of purpose, and to greater effect. Thus, the expression "it looks good," as a widespread mark of design appreciation, should be acknowledged for what it is: a "retinal" perversity and serious mark of illiteracy, and a sign of impoverishment of design by one-dimensional styling. Beyond fads and fashions, design literacy, in my mind, refers to the capacity of the designer to infer the mental processes and the theoretical basis of the design choices which led to a given design, as well as the capacity to consider their implications in terms of how they might implement a reference, and how it might be interpreted in the viewing/reading process.

In the absence of a specific critical language capable of addressing graphic design at micro level—in all the variety of its functions—we are now in a situation where designers' "alibis" mask the incapacity of designs to implement designer' claims and intentions in the design itself.

Leading the City of Signs project has taught me that expecting in-depth, critical self-evaluations from graphic designers (and artists, for that matter) not used to, as we are, examining and questioning our work in complex semiological terms can be a problem. This is due as much to a lack of vocabulary and methodology as to a marked reluctance to challenge our own "assumptions," and a propensity to treat our design "works" as extensions of the self, rather than as relative (perfectible) design propositions resulting from a critical reflection on the means and the effects of graphic communication.

Part Two: The City of Signs Project

The City of Signs project (www.research.linst.ac.uk/cityofsigns) was set up as a residency/lab, in collaboration with Istanbul Bilgi University.

Objectives: The project emphasizes the discrete power of form and design to complement text-based academic research in raising issues about the city differently, and in promoting a critical dialogue across disciplines; in this instance, around the urban: the built and lived-in environment. This is quite different from those approaches in graphic design which, from Neville Brody to David Carson, have interpreted experimentation as a combination of formal play and self-expression. It's also different from the superficial stylistic borrowings from science and other disciplines denounced

9 For a discussion of working "at the level of the text," see Bruce Mau, "Gérard Mermoz: In Conversation," *Baseline* 43: 33–36.

by Jessica Helfand and William Drentell in "Wonders Revealed Design and Faux Science."[10] Our ambitious aim in this project was to open up perspectives for interdisciplinary dialogues with people and places, and for creative media interventions in and about urban space, through a strategic development of media representations.

Inspired by methodologies borrowed from Action Research, we planned our field work as a series of interventions, anticipating that our photo-, text-, sound-, and object-based gathering of data would take the form of "propositions" directed towards the production of "insights."

Methodology (1): The Designer as Reader/Author

Stepping out of the commercial mode, we exchanged the task of merely relaying clients' messages (what graphic designers allegedly do for a living) for those more typical of freelance researchers and authors.

The title of the project "Reading the City of Signs: Istanbul: Revealed or Mystified?" was ironic because, although we wished to avoid tourist stereotypes and the seduction of the picturesque, we were aware of the difficulties involved in escaping tourist trappings and overriding our own assumptions—cultural and methodological.

To sharpen and extend our analytical tools in preparation for our fieldwork, we drew concepts and insights from history, travel writing, semiotics, sociology, ecology, and art and design theory—as well as from architecture, music, sound art, and literature. The methodology of "action research" provided a flexible framework which enabled us to monitor our progress with respect to our aims and objectives, and the situation encountered on the ground.

During our visit, we did not focus on the beauty spots identified by tourist guides, but on aspects of the City that related to the research interests we had developed during the months preceding our visit.

The issues we addressed, individually and collectively, during the two weeks of our field work included: the disproportionate emphasis we placed on the visual, coupled with an invitation to rediscover the neglected of world of sounds—neutralized, as it is, by background music (Goldwater, *Sight Unseen* and Mermoz, *Sonic Postcards from Istanbul*); our simplistic assumptions about the experiences of the visually impaired (Juliane Otterbach, *Going, Blind...*); our oblivious attitude towards the waste we generate through mass consumption and unsustainable packaging (Rucklidge, *Discarded Values*); the gradual reduction of the City to familiar stereotypes which replace—not just in foreign visitors' minds [Duben, *What Is a Turk?*], but for all those who aspire to become global consumers—the rich pluralism written in the fabric of the city, its people and its history; and, alongside these stereotypes, the spread of decay—in old buildings (www.xurban.com) caught between urban regenera-

10 Jessica Helfand and William Drentell, "Wonders Revealed Design and Faux Science," *Émigré* 64: 73–82.

tion (the creation of amenities such as roads, housing, schools, hospitals, universities, etc.) and the preservation a multicultural historical heritage; and retaining a sense of identity against the leveling effect of globalization.[11]

The sum of these interventions does not attempt to present a unified picture of the city, but discrete responses to specific aspects, which, in the current phase of the project, amount to a collection of "fragments." From these fragments, new questions and strategies will emerge, in the spirit of action research, leading to new propositions and dialogue around an extended agenda.[12]

Methodology (2): "Field Work": Averting Epistemological Obstacles

With its historical legacy, Istanbul—where East and West have met over the centuries in a clash of values, cultures, and religions; but where, today, multiple cultures, languages, and traditions combine into a potentially rich mosaic—seemed an ideal location to respond to the challenge set by Italo Calvino, in *Invisible Cities* (1972).

In an age of "global consumer tourism"—amidst a revival of religious and political fundamentalisms—Calvino's book is of particular relevance because it invites us to distrust the masks through which a city presents itself to her potential visitors, as well as to her own citizens. "The city should never be confused with the discourse which describes it," notes Calvino, warning us not to conflate reality and representations: "The eye does not see things but images of things that mean other things...." [13] an observation which echoes the endless "chain of signifiers" theorized by Peircean semiotics; whereby, in the process of interpretation, a sign triggers off another sign which, in turn, calls for another, and so forth ad infinitum.

But other epistemological obstacles threatened our enterprise: the danger of becoming the City's own text, in the process of our own readings: "Your gaze scans the street as if they were written pages: the city says everything you must think, makes you repeat her discourse, and while you believe you are visiting X. you are only recording the names with which she defines herself and all her parts." (Cities and Signs 1).[14]

Unlike the standardized "sights" and "manufactured experiences" of tourism, the "city of signs" is not one but many; encompassing as many perspectives and circumstances as there are readers: "For those who pass it without entering, the city is one thing; it is another for those who are trapped by it and never leave. There is the city where you arrive for the first time; and there is another city, which you leave never to return. Each deserves a different name." (Cities and Names 5) [15]

Calvino's warnings, we felt, did not solely apply to the discourses we encountered in Istanbul (the City as Signs), but also to those we produced; for we do not claim to present the "truth" of the City; only "readings" designed to encourage an ongoing reflec-

11 For full-color illustrations of projects and designers statements, see Gérard Mermoz, "Reading the City of Signs: Istanbul: Revealed or Mystified?" *Baseline* 44 (Summer 2004): 37–44. A full color version of *Istanbul Diary* is to be published in the next issue of *Hyphen*. Copies of *Time Lines*, the catalogue of the City of Signs project at Aksanat, is available from: aysegul.coskun

12 *Handbook of Action Research*, Peter Reason and Hilary Bradbury, eds. (London: Sage, 2001). Although the action research models developed and tested by Peter Reason and his colleagues at Bath University do not deal specifically with art and design practices, some of the methodological requirements advocated in their position papers (www.bath.ac.uk/carpp/papers.htm) bear relevance to, and can be usefully imported and tested within, the field of an expanded (critical) graphic design practice. For us, however, awareness of the necessity for a constant self-examination of the "design as research tool/process"—at every stage and on a cyclic basis, to minimize the negative effect of unquestioned assumptions—first came from literature, in the form of the epistemological warnings we encountered in Calvino's *Invisible Cities* (quoted above).

13 Italo Calvino, *Invisible Cities*: 51 and 15.

14 Ibid., 15.

15 Ibid., 99–100.

tion about history, culture, communities, identities, progress, and consumerism; in the wake of globalization; and about the concepts which mediate our experiences. We also wish to raise questions about the role of "representations" across art and design. In so doing, we hope to provide a basis for progressive and constructive exchanges.

Projects

In Istanbul, we spent ten days finding our way; observing, discussing, recording, and documenting our impressions; and reflecting about our experiences. The material we collected (photographs, sounds, words, objects, images, etc.) provided the material from which we began to articulate our respective "readings" of the City and to reflect, simultaneously, about the working of signs within the media we adopted to formulate our propositions. We used this material to stage and test our initial hypothesis: "What contributions could graphic designers *working as authors* make, in dialogue and in collaboration with neighboring disciplines?"

Instigated in a collaboration with the Istanbul Institute for the Blind, Juliana Otterbach's project to explore the City, guided by visually impaired Istanbulites, invites us to question our assumptions about how the visually impaired might experience the City, bringing their experience into focus, from general indifference (in the margins of society) into public consciousness. Her project revealed that those who are either marginalized or underestimated in their intellectual or experiential capacities, appreciate the same sites, and enjoy the same "sense of place," albeit with different sensory emphases. In this project, photography and sound recordings provided tools to address the issues, rather than finished graphic artifacts.

Joanna Rucklidge's plastic archaeology highlighted some of the problems posed by the combined effects of mass production and consumption, and the absence of efficient refuse collection and recycling strategies. The problem is not intrinsic to Istanbul, since all large metropolises are threatened to succumb under the weight of their domestic and industrial waste. The project, however, offers a concrete basis for developing—in collaboration with the Municipality—a campaign of awareness for people, industrialists, and the waste disposal units' managers.

Behind the superficial façade of modernity, manifest in the intensive building activities throughout the City, the x-urban collective reminds us, in *City of Ruins,* that the City has been and remains "under siege," and its territory contested: by the poor, who reclaim unused plots to set up "overnight homes" (*gecekondu*), which the state, unable to cope with the chronic shortage of housing, is forced to accept; and by property developers, who have contributed to disfigure the skyline with unauthorized buildings tolerated as part of a deregulated situation, economic ambitions, and corruption.

What Is a Turk? by Ipek Duben, confronts us with a series of gross Western stereotypes which, although partially selected, induce us to reflect about the ideological basis through which imperialism and colonial powers have justified their enterprises, at the level of everyday language, and through the development of stereotypes.

The ghostly black and white photographs, taken by Graham Goldwater with a pinhole camera, which required long exposure times (between three and six minutes each), present ordinary everyday realities, from which all moving objects have disappeared or been reduced to a blur. Listening to the sound tracks, recorded during the same exposure time, brings back these invisible elements as audible traces, inducing us to reconstruct the scene and reflect about the discrete characteristics of audio and visual stimuli, and to challenge the dominance of visual values in our perception and mental construction of reality.

In *Sonic Postcards from Istanbul,* I looked for alternative ways of representing the City with sounds, transposing a *problématique* of typographic reference into the world of sound design.[16]

Discarding the picturesque sounds easily identifiable and commonly associated with the City—by its inhabitants and by visitors alike (the call to prayers, the cry of street sellers, exotic music, fog horns on the Bosporus mixed with the sound of seagulls, etc.)—I began by reexamining the concept of "sonic object" theorized by Pierre Schaeffer, then set up the conditions under which the sound of a human voice, in resonance with the sound of architecture, might conjure up an image of the City. The result was *Laughter*—involving a child of six telling a story with the sound of her own laughter in the acoustically rich underground space of a Byzantine cistern. This piece later was developed as a sound/type/photo installation at *ZKM,* Karlsruhe.[17]

The most recent exhibition of the City of Signs project, at Aksanat, Istanbul, was opened by a photo-typographic exhibit entitled "Istanbul Diary," inviting visitors to view the City through the experiences and reflections of a foreign traveler.

Clusters of cinematically montaged images and texts raised issues about histories, cultures and identities. An allegorical approach to photography, alongside more illustrative uses, and typographic interventions "at the level of the text" (rather than at that of its ergonomic presentation), shifted the emphasis away from retinal visuality and towards elaborating appropriate graphic forms and structures capable of meeting the demands of specific literary genres, and of enhancing the rhetoric of the text.[18]

16 "On Typographic Reference," *Émigré* 36 (1995): no pagination.

17 *Laughter,* sonic work published on CD in *Earshot* 4 (December 2003), a journal of the UK and Ireland sound community. "In Name/Voice of the other ..." in: "Call Me Istanbul ist mein Name, Kunst, und irbane Visionen einer Metapolis," *ZKM,* Karlsruhe (2004):88–91 (in German) and http://hosting.zkm.de/istanbul/e/mermoz (in English). See also "Istanbul Diary" in *Soundscape* 5:1 (Spring-Summer 2004): 23–25.

18 *Time Lines,* Exhibition Catalogue; Aksanat, Istanbul; December 2004.

Semiographics: From "Work" to "Proposition"

The images, sounds, and texts produced during our fieldwork were structured and edited into individual "propositions" about the City or, more precisely, about our attitudes and perceptions of the City: two of us "insiders" (Duben and Incirlioglu), five "outsiders" (Goldwater, Mermoz, Otterbach, Rucklidge, and Wright), and one "in between" (Cepoglu). Although great care was taken in the presentation of the material, our propositions are not to be treated as beautiful artifacts—as art or design *objects*. However seductive it becomes, for us, *form* always is a means of generating *insights*.

I use the word "insight" in preference to "knowledge," because knowledge presupposes a systematic organization of facts and propositions. Initially, by their very nature, our interventions aim to generate insights. However, in the long term, these insights may, in combination with other methodologies, develop into forms of knowledge oriented towards action.

Our direct engagement with forms and signs (graphic signs, in the broadest sense of the term: typo, photo, and phonographic)—through an applied graphic semiotics—is part of our plan to theorize the graphic design field as the sum of semiological processes through which signs relay information as representation, expression, and communication; oriented towards a process of interpretation which opens onto concrete action. This is a discrete feature of the City of Signs project, which aims to explore the capacity of art and design to extend into both research and action. Unlike in conventional, academic, text-based research; we formulate propositions, which are deliberately not explicit so that—through a degree of ambiguity, and via the detour of a complex aesthetic-semiotic engagement with form and media—we invite readers to extrapolate from our propositions, rather than to accept or reject readymade conclusions. This "semiographic" strategy presents knowledge in the making; in the form of "open" propositions, rather than knowledge as a *fait accompli*.

By inviting viewers and readers to engage with the rhetoric of our "texts"/propositions, and with the specificity of the media used—in particular, the relations and differences between pictorial evidence and that provided by other media (sound or text)—we depart from traditional forms of academic enquiry, in their marked reluctance to address the effect of their own rhetoric in the production of knowledge. For us, however, form and rhetoric are not to be demonized but valorized, semiologically, if they are to enhance communication. We consider them an intrinsic part of the process through which we structure our perception and our ideas; and externalize them as graphic "texts," offering them for "reading" and interpretation. Without rhetoric, there would be nothing left to see, hear, say, read, and ponder over; except, perhaps, for a mythical crystal goblet of "pure" ideology.

The Lab

The City of Signs project exists as a network of activities centered around the concept of the "lab." The City of Signs lab is concerned with the development of fieldwork involving: research, dialogues, design activities (making concrete propositions, evaluations, adjustments, and changes of direction), exhibitions, publications, seminars, etc. along a cyclical axis. The focus of the City of Sign lab is the City, in all its aspects.

The lab is committed to extending the role of graphic designers and artists in society by putting the "critical dimension" back into graphic design—working at the micro levels of a graphic semiotics—and by promoting two lines of action: the artist/designer as author/reader and the author/reader as artist/designer.

Towards an Evaluation

Although the images of Istanbul that emerged from our first encounters with the City differ somewhat from the versions presented in tourist guides and other promotional materials, our intention was not to produce alternative "pictures" of the City but, more appropriately, to develop alternative modes of approach through the strategic use of graphic media. Our concern was twofold: to avoid stereotypes and the seduction of the picturesque, and to consider how a critical and creative use of media might open up different perspectives about the City.

Before we went to Istanbul, I had imagined that our findings could, in an ideal world, be used to design alternative public information material—books, posters, signage, tourist brochures, guides, and postcards—which may, in the long run, help to modify people's attitudes. But we do not live in an ideal world, and the pressures of globalization, for which "alternative"—as defined by Istanbul's *Time Out* Magazine and by the global elites of the City—essentially means "aspirational" in consumerist terms. Promoting Istanbul as the "cool," "in" place, and "flavor of the month" for "global" cultural tourists may be too strong, considering the fact that the City and its "Europeanized" inhabitants are caught in the ideological bubble of globalization.

Today, Istanbul continues to offer visitors opportunities to experience an exotic/orientalist cultural "dépaysement" [East meets West], we should not forget that, as Harbison pointed out, "Perhaps in all cities the past so overbalances the present that they are more dead than alive; certainly the one which inspire pilgrimage and far-fetched love are the deadest, where one goes for the remains not the activity;" [19] nor should we loose sight of that, in the wake of the collapse of the Ottoman Empire, minorities suffered violence, unfair taxes, expropriations, forced expatriation, and, in the case of the Armenians, ethnic cleansing.

19 Robert Harbison, *Eccentric Spaces* (Cambridge, MA: MIT Press, 2000).

Since, for foreign travelers, the cultural richness of the City owes more to the legacy of its past—threatened as it is by the opportunistic, short-term goals of those responsible for its economic revival—than to the insights of those who hold the powers and ride the economic and political waves. History remains an important guide in the City of Signs.

By engaging Istanbul in non-consumerist ways, striving to avert clichés and the seduction of the picturesque, we experienced the vulnerability of the myth, as well as the vanishing traces of the City's multicultural past, slowly eroded by the proliferation of bars, restaurants, shops, and galleries; which replace tradition with the seductive values of global consumerism. Our residency in Istanbul reminded us that traveling is, above all, a fact-finding exercise involving ourselves. Focusing on the signs through which the City manifests itself, in the spirit of Calvino, led us to challenge our assumptions about history, culture, and identity.

Extending the work begun in *Istanbul Diary,* the next phase of the City of Signs project, entitled *Monuments,* will focus on the fate of minorities in Turkey and explore, in collaboration with the Turkish government, mutually acceptable ways—acceptable both to Turkey and Europe—of rewriting history. It will do so in such a way as to bring out the collective responsibilities of all those involved in the forced redesign of the map of the Middle East; and in the little- publicized "massacres" of Muslim civilians, Assyrians, and Nestorians; and in the contested Armenian genocide. The series *Monuments* refers to the symbolic space in which contested histories may be rewritten—and graphically reinscribed in public consciousness—to elicit, from us all, a collective sense of shared responsibility.

This is an ambitious design project, but in keeping with the initial intellectual and artistic ambitions of the City of Signs project: to reinstate the designer as author.

Acknowledgement

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Book Reviews

Leslie Atzmon

Design and Crime and Other Diatribes by Hal Foster (London: Verso, 2002), ISBN 1-85984-453-7: 143 pages, excluding notes and index; 170 with notes; 176 with index.

When a new ideology trumps an old one, the intellectual baby frequently gets thrown out with the bath water. The new philosophies are embraced as messianic truth and self-congratulatory conclusions are allowed to eclipse real analysis. In *Design and Crime,* Foster makes way for the sort of critical analysis that dumps the bath water while rescuing the baby. He focuses on the need to revisit and revamp the "political situatedness of artistic economy... the historical dialectic of critical disciplinarity and its transgression"(xiv).

The title suggests that the book is about design's relationship to aspects of criminal behavior. It is somewhat misleading until one understands the reasons behind Foster's choice (the subtitle, *and Other Diatribes,* is helpful). Foster's "Crime" is metaphorical. The title is based on an essay by architect Adolph Loos entitled "Ornament and Crime" in which Loos attacks "the indiscriminant spread of ornament in all things," but in reality the overarching theme of Loos' essay is the need for the kind of frank analysis that allows a discipline to develop a critical dialogue of the sort that will "provide culture with running room"(xiv). *Design and Crime* shoots down the circuitous rhetoric tossed out by purveyors of cultural *schtick* and replaces it with a range of critical possibilities.

The book is divided into two halves, with four essays each. In the first half of the book, Foster focuses on "the branding of identity... [and] the advance of spectacle" in design and architecture (xiii). The first essay, "Brow Beaten," is a piercing analysis of *The New Yorker* critic-at-large John Seabrook's book *Nobrow: The Culture of Marketing, the Marketing of Culture.* Seabrook trumpets the ways in which class identity has been supplanted by a personalized, mix 'n' match identity fabricated at the cultural "Megastore." According to Foster, Seabrook first pilfers and then glibly recoups notions of identity and class from contemporary cultural studies to pitch his Nobrow "whatever-is-hot rules" thesis.

"Hot" also rules in graphic design. "Design and Crime," the next essay, has particular resonance for me as a graphic designer. Foster proposes that our "hey, that's me" design culture has become bloated with all-consuming brand images and hyper-mediated information. Although my first reaction is to come to my discipline's defense—even though I know Foster has a valid point—I will save that for later in the review. I am more than persuaded by his analysis of graphic designer Bruce Mau's book *Life Style,* which Foster calls "a massive manifesto-for-myself." Mau aims to "wrap intelligence and culture around the product" but this process is doomed to failure—intelligence and culture are not value-added commodities. Foster doesn't elaborate on Mau's tedious blend of hip graphic design writing peppered with the lingo of visual culture studies. Mau is for the most part an ineffective cultural critic, I suggest, precisely because he is so entrenched in Mau's "Little Red Book"—the facile rhetoric of his own field of design writing. Mau's design-o-centric attitude is rampant in much graphic design discourse.

The next two chapters examine design discourse in the work of Frank Gehry and Rem Koolhaas respectively. Foster's analysis encouraged me to reconsider Gehry's work. Although at times Foster may be too hard on Gehry, Foster perceptively suggests that the architect's current design thinking is subservient to the "magic" of computer-aided design technology. The result, according to Foster, is that Gehry's work is "all structure and all surface with no functional interior"(35). Foster reveals the blobby underbelly of Gehry's work—a disconnect between building and site and between interior and exterior that passes for creative freedom. Koolhaas fares better as a creative tour de force. Foster explains that although Koolhaas is not completely immune to "glib conflations" of public spaces and commercial icons, his authenticity is bolstered by his multimodal thinking and insightful analysis.

In "Archives of Modern Art," Foster offers as background three historical shifts in the discourse of art practice, art museum, and art history. He poses interesting, open-ended questions about the "dialectics of seeing" in our present era of electronic information and finally asks, "What cultural epistemology might a digital reordering underwrite for art practice, art museum, and art history alike?"(80) His answer is that he has "no conclusions at this point," but in fact he does. He continues: "Design and display in the service of exhibition and exchange values are foregrounded as never before: today what the museum exhibits above all else is its own spectacle value"(81).

This astute observation is inevitably colored by the thesis he presents in the first half of the book—the negative view that contemporary design is more often than not mere spectacle. He demonstrates in his wonderful essay on Koolhaas that he understands the complexity of effective design. However, in *Design and Crime* he never extrapolates from the intricacies of Koolhaas' design thinking to design as a discipline. I am impressed by the way that Foster examines multiple aspects of issues. For some reason design as a discipline doesn't merit the same multifaceted treatment in his discussion. Even though Foster ends the chapter on a semi-neutral note—he explains that spectacle may be the primary

form of public art today—his bias is clear. I suspect this bias prevents him from examining design or design history in the provocative discussion of criticism and visual culture that follows.

This failure to consider design history extends to the next chapter, "Antinomies in Art History." Foster analyzes modern art historical methodology followed by an insightful discussion of visual culture studies. He observes that the discipline's unrelenting anti-historical and pro-image credo—in which the viewed and the viewer become fetishistic commodities conflated by desire—deletes the notion of autonomy in art with one (silent) click. Reconsidering autonomy in conjunction with and in resistance to this credo, Foster suggests, could refresh this stalled discipline. Foster also calls for a re-energizing of historical analysis. For the record, some emerging design historical analysis—which analyzes the formal qualities of designed artifacts in their historical and cultural contexts—already moves in this direction.

The penultimate chapter, "Art Critics in Extremis" outlines the rise and fall of the modernist (a lá *Artforum*) and postmodernist art critic. Foster concludes that the "essential subjects of Art" today are "Shock and Sensation held over as fun standbys or sideshows to feed the mass media"(122). He develops this idea in the final chapter, "This Funeral is for the Wrong Corpse." After a brief review of postmodernist "end of art" ideologies of the 1980s, Foster sketches several provocative directions for contemporary art, for which he coins the term "living on." Such art, Foster says, manifests a complex mix of "traumatic," "spectral," "nonsynchronous," and "incongruent" aspects. Foster claims that although these practices

> often treat given genres or mediums as somehow completed, they do not pastiche them in a posthistorical manner...they are committed to formal transformations—as long as these transformations also speak to extrinsic concerns. In this way these practices point to a semi-autonomy of genre or medium, but in a reflexive way that opens up to social issues. (130)

The examples he sites are fascinating, but they leave me wanting more—they remind me of the thought-provoking contemporary design that is conspicuously missing from this discussion. Foster next returns to his narrow, one-sided view of design in our culture: "Through formal transformation that is also social engagement...such work helps to restore a mnemonic dimension to contemporary art, and to resist the presentist totality of design in culture today"(130). The vision in this exciting book has one obvious blind spot—the failure to see the full range of developments in contemporary design.

Norman Crowe

The Nature of Design: Ecology, Culture, and Human Intention by David W. Orr (Oxford and New York: Oxford University Press, 2002), ISBN 0-19-514855-X, 231pages, $25.00 hardcover, $16.95 paperback.

The Nature of Design is an anthology of essays by the author that reflects the interrelationship of ideas, design, and the environment. Most of the essays were written expressly for this book while others are repeated and re-worked here, having been drawn from David Orr's earlier works.

Although the title may suggest to some a combination of case studies and prescriptive approaches to design, it is instead a broad-brush background for environmental responsibility on behalf of designers—in effect, a mind-set and ethos for approaching design. David Orr has written extensively on environmental issues prior to *The Nature of Design*, but this time his focus was driven by the experience of working with architects, engineers, scientists, faculty and college administrators on the design of a new science building at Oberlin College in Ohio, where he is a professor in Oberlin's Environmental Studies Program. The science building project, he explains, "began as a fairly straightforward design and construction project" but soon became "a crash course in architecture, engineering, materials analysis, ecological engineering, landscape ecology, energy analysis, philosophy, institutional politics, and fund-raising" (p. vii).

Orr's arguments for a foundational ethos rest on what he regards as a "natural" foundation. For instance, he asserts the authority of evolution: biological evolution as a model for environmentally conscious design—in his words, "the foundation for ecological enlightenment is the 3.8 million years of evolution" (p. 4)—and traditional design methodologies—that is, the way designs for useful artifacts progressed before the advent of modern science and technology, thereby avoiding most unintended and unpredictable consequences that would have been catastrophic in scope. Some now familiar examples of unintended and unpredictable consequences are: the long term effects on biological systems of synthesized chemicals; the use of chlorofluorocarbons as refrigerants and subsequent damage to the ozone layer; the damming of waterways and draining of wetlands for flood control and crop irrigation resulting in the long term salinization of soils as well as causing immediate damage to ecosystems; our reliance on a petroleum based economy and its the effects of global warming; and the introduction of electronic communication along with the ubiquity of automobiles, super highways, and automobile ownership and the sociological impact of these inventions. These are examples of now recognized and especially broad negative consequences of historically recent invention and design. In addition, there are countless every-

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day small ones, and while they tend to be unnamed or as yet unrecognized, they add up to produce unintended consequences all their own. It is an ever-growing list.

David Orr refers to the *tabula rasa* approach to design fostered by scientific theory, modern technology, and modernist theory as guided by "fast knowledge," while the incremental and often anonymous traditional approach to design is guided by "slow knowledge." In his words, "[What I call slow knowledge] has to do with avoiding problems in the first place. Fast knowledge deals with discrete problems, whereas slow knowledge deals with context, patterns, and connections… slow knowledge is freely shared within a community… fast knowledge is about know-how and know-why… fast knowledge is often regarded as private property… slow knowledge is owned by no one…in the culture of fast knowledge, man is the measure of all things; slow knowledge, in contrast, occurs as a co-evolutionary process among humans, other species, and a shared habitat" (p. 40). Fast knowledge, in Orr's parlance, is not meant to be understood as anything close to what could eventually become incremental pieces of slow—or broader, cultural—knowledge. As I read it, his fast knowledge is to broader cultural knowledge as sound-bites are to the body politic. Just as sound-bites are a means to quick but temporary results—and in the long term often destructive ones—fast knowledge short circuits the development of a stable, sustainable, and harmonious cultural and technological presence in a similar way.

Fast knowledge is associated with "high modernist ideology," placing us "on the cusp of the perfection of extreme evil," in the words of Bill Joy, quoted by Orr (p. 71). The chief problem with fast knowledge, Orr points out, is that it results in "social traps in which the benefits occur in the near term while costs are deferred to others at a later time." Fast knowledge, citing Thomas Kuhn's discussion of fixed and inflexible paradigms, "creates power structures that hold at bay alternative paradigms and worldviews that might slow the speed of change to manageable rates" (p. 38). Orr's conclusion urges traditional processes, materials, and "natural" paradigms, while at the same time employing modern means when and where they may be appropriate. In other words we may assume he opts for an approach to design processes that work toward a hybridization of traditional approaches along with modern analytical means as well as a careful but very cautious and skeptical application of modern paradigms, techniques, and processes. One is reminded of architectural critic for the *Boston Globe* Robert Campbell's description of a tradition-weighted approach to architectural design as "innovating on the edge of tradition." For Orr, this is "ecological design," which he further defines as "a large concept that joins science and the practical arts with ethics, politics, and economics" (p. 4). The theoretical basis of the fast knowledge approach bequeathed to us either directly or indirectly by Descartes, Galileo, Bacon, and Newton, has encouraged us to separate "subject from object, humankind from nature, and fact from value" (p. 206).

Traditional urban form, having evolved "naturally"—that is, urban order that evolved over thousand years of trial and error, building and rebuilding, success and failure—fosters "true neighborliness, good lives, decent communities, conviviality, democratic deliberation, real prosperity, mental health, and the exercise of true intelligence" (p. 52). He points out that traditional urban form, a product of slow knowledge, has now been usurped by sprawling suburbanization, a product of fast knowledge that disrupts "the exercise of true intelligence" and "a certain pace and rhythm that can only be harmed by being accelerated" (p. 52).

Still another example of a "natural basis for design" rests, albeit somewhat obliquely, on the eighteenth century concept of Natural Law. Orr quotes Thomas Jefferson in a letter to Madison regarding the natural rights of those yet unborn as opposed to the freedom of an individual to do what ever he or she wishes with his own land: "[T]he earth belongs in usufruct [*sic*] to the living… [and] no man can, by natural right, oblige the lands he occupies, or the persons who succeed him in that occupation, to the payment of debts contracted by him" (p. 212). This becomes in part the basis for the argument that no generation may impair the stability, the integrity, or the beauty of biotic systems, "the consequences of which would fall on subsequent generations as a form of irrevocable intergenerational remote tyranny" (p. 212).

Orr squares off against postmodernism, with its often tacit acceptance of what is as what ought to be, and especially its anti-natural bias that assumes we are free to reinvent nature. The sole usefulness of postmodernist theory, he tells us, is "a reason to organize conferences in exotic places and for keeping postmodernists employed at high-paying, indoor jobs" (p. 195). Orr quotes Peter Coates in reference to deconstructionism, integral to postmodern theory, which "cuts the ground from under the argument for the preservation of endangered species" (p. 195). Orr does not discuss the often challenged anti-humanist bias of so much postmodernist theory, even though one suspects it would support his broader argument. While he does not cite specific proponents of postmodernism in any detail, his criticism of an implicit anti-environmental bias implicit in much of postmodernist theory tends to parallel that of Harvard biologist E. O. Wilson (see Edward O. Wilson: *Consilience: The Unity of Knowledge*) Orr urges a gentler world where unbridled commercialization, consumerism, and economic globalization—which he refers to collectively as "hypercapitalism"—is restrained by local and regional prerogatives, themselves guided by tradition. Traditional

societies, he emphasizes, "have evolved as a continual negotiation within a community and between community and the ecological realities of particular places"(p. 9). It may be said that Orr's ultimate emphasis places culture, community, and society first, with design in a distinctly supporting role: "The problem is not how to produce ecologically benign products for the consumer economy, but how to make decent communities in which people grow to be responsible citizens and whole people" (p. 12).

Ultimately, the question becomes, "How can such a gentler world be achieved?" While Orr's answer includes the political necessity of democratic practices, his primary focus is on the essential role of education. He argues for the curbing of abstract and compartmentalized areas of knowledge, to be replaced or supplemented by more holistic knowledge guided by a vision of the integration of human societies into "natural systems"(p. 154). Orr believes that higher education restricts the way we design because of its focus on unitary and necessarily disjointed objectives, while allowing the long perspectives and awareness of broadened effects to go begging. Universities for instance, in his words, promote "agribusiness, genetic engineering, artificial intelligence, the consumer economy, weapons research, and the excessive resource extraction"(p. 154) at the expense of more broadly defined goals having to do with solutions to problems created by the interaction of these and other similarly myopic and narrowly specialized fields of endeavor. He expresses the hope that fellowship recipients in graduate study be encouraged to cross boundaries of disciplines and to connect fields of knowledge, rather than to exclusively bore into specializations with such intensity that the relationship of a given specialty to all else is lost.

To begin the process of educational reform he proposes that between undergraduate education and graduate school would be an opportunity for service that is, for instance, akin to the Peace Corps. He refers to the time between undergraduate and graduate education as a "great and mostly untapped time to influence young people before they commit to one career or another"(p. 157). This would entail a program that would involve practical experience under a mentor, conducted over a two-year period. Participants would submit periodic reports to administrative authorities during the process, and at the end of the two years they would submit their final project in the form of a book, journal, special compendium of reports, articles, or a documentary film. This, then, would become a principle catalyst for changing graduate education.

A superficial reading of *The Nature of Design* may suggest to some that Orr is something of a latter-day Luddite, his terse polemical arguments often stated without elaborate case studies or backed by thorough quantification, as well as his unremitting critique of contemporary economics and culture. However, the critique of present practices in relation to environmental sustainability are for the most part now broadly acknowledged—except of course by industries that reap gains from environmentally unsustainable practices and political administrations that derive their support from those same industries. Orr's prose flows smoothly, and the occasional humorous turn of phrase or clever jab at current practices make for lively reading.

Because each chapter is an essay, complete in itself, any one of them may be read independent of the rest for its focus on a particular topic. While this provides certain advantages, it suffers some of the usual problems of an anthology in occasional repetitiveness and sometimes disjointed connection from one chapter/essay to another.

Like most of us, his biases and intents may be predicted from a list of his mentors and inspiration. They include Aldo Leopold, Thomas Berry, Wendell Berry, Rachel Carson, Paul Ehrlich, Jacques Ellul, Vaclav Havel, Ivan Illich, Jane Jacobs, Thomas Jefferson, William McDonough, Bill McKibben, Neil Postman, and E.O. Wilson. This is a list primarily of people who figure in one way or another into the environmental movement, but it includes few designers. That explains the rather tangential references for the most part to actual design. For a designer, however, it may be read as I presume it was intended—that is, as broad-brush background for environmental responsibility on behalf of designers, with the intent to foster a mind-set and ethos for approaching the problem of design in general. While the reader is filling in the blanks for his or her particular field of design, he or she necessarily assesses the relationships between what is being said and the consequences for a particular design field or focus. One may argue that this sort of active engagement in the text has distinct advantages all its own.

The book ends with a chapter on children. The intent is to make concrete the natural law tenet that we are responsible to bequeath to those who follow us a society and environment that are in harmony with one another. Orr asks for a broad rethinking of all the paradigms that direct our designs, paradigms we so easily take for granted. Designers who consider themselves professionals recognize that their greater responsibility to the broader public, as well as to the environment we all share and depend upon, supercedes their responsibility to any individual client. It is especially in this light that *The Nature of Design* provides a useful guide to design.

Shelley Evenson

Design Research: Methods and Perspectives Edited by Brenda Laurel (MIT Press: Cambridge, 2003), 0262122634, 336 pages, $39.95

I first spotted *Design Research* sitting in a rather large pile at the 2003 AIGA conference book sale in Vancouver. When I saw the title I was immediately drawn to it. The book smelled as though it was fresh from the bindery. The book's jacket was invitingly smooth. The design stood out from the other piles of books on other topics on the same table. As I opened the book I was struck that our world had changed. One goal of the AIGA conference was to look at design in a new way and clearly so was this book.

Many academics had been talking and writing about design research again in the last few years, probably because of the growth in popularity and awareness of interaction design. With the publishing of *Design Research* was doing research mainstream? Was it out in the open for everyone to participate in? The pull quote on the back cover from Bill Moggridge said the book provided the "how to" for employing research to inform design that meets the needs and desires of people who interact with products, both virtual and physical. That is quite an endorsement from the man who coined the term "interaction design."

Leafing through the book I wondered was it time for a celebration? Could our practice finally be reaching a new level of maturity? On the inside flap I found the suggestion that "*Design Research* charts the paths from research methods to research findings but also principles and results..." If true, this book was poised to deliver on more than design research. This assertion suggested that the "how to" would extend to the challenges that we face in understanding not only what something needs to be, to understanding what something might be like.

A diagram follows the conventional table of contents in the book. This matrix is a mapping of the content categories the book addresses. Across the top are people, form, process and action. Down the side are domains, subjects, contexts and research methodologies. The diagram suggests a promise that there are relationships among the articles.

In the preface Peter Lunenfeld characterizes the vast territory of ideas in the book as the design cluster, drawing a parallel between an astronomer's groupings of galaxies into clusters. Lunenfeld fails to define the design galaxies but jumps right to the cluster. This artfully written preface dedicates a paragraph to historical context but fails to reference the work from HfG, J. Christopher Jones, Christopher Alexander and others. There are few references to recent essays on design research, most notably Richard Buchanan's "Design Research and the New Learning"[1] instead Lunenfeld references Christopher Frayling's modes of research into design, research through design and research for design. He suggests that research into design is addressed in the "process" and "people" and "form" sections of the book, but the relationships to Frayling's other modes are not as clear.

Christopher Ireland introduces the people category, in my opinion the strongest section. Ireland writes "on the pages that follow you'll meet people who have built successful careers understanding people in order to improve and enhance design." Looking back at the opening matrix yon notice that the pieces in the content categories are not identified by their titles but by the author's name. As Ireland points out, you are meeting people brought together by Brenda Laurel. These people's ideas on design (and design research) are loosely organized by general categories. Laurel's community of friends is diverse and in some ways likely to be representative of the larger design community.

Ireland's *From Boring to Brilliant* includes three categories of qualitative methods with descriptions of the different types of methods under each category. These descriptions are useful for thinking about and explaining qualitative methods.

Tim Plowman's *Ethnography and Critical Design Practice* includes a diagram of research tools for conducting ethnography that is very similar to one John Rheinfrank and I developed a few years ago.[2] I include this only to suggest that we can be confident that we are closing in on a view of tools we should all agree on and teach to students.

Three articles bring together the ideas of ethnography and theatre. *The Paradox of Design Research* by Bonnie McDaniel Johnson defines "design research is an act of imagination." She introduces the concept of informance which she defines as "a set of techniques in which actors and/or researchers study what is known about consumers and role-play." Eric Dishman's ideal model of methods ties methods to stages in the design process. He also advocates performance as a way of interpreting observational research. The idea is dearly brought to life in Laurel's *Design Improvisation* demo and student Eun-Kyung Chung's improvisation of dispensing ice cream. The only thing missing was a reference to anthropologist Victor Turner's approach to "performing ethnography" as bringing the data home to us un their fullness, in the plentitude of their action-meaning.[3]

1 Richard Buchanan, "Design Research and the New Learning" *Design Issues* (Autumn 2001).

2 Scient corporation "CEA School" Training materials for Customer Experience Architects 2000.

3 Turner, Victor, "Dramatic Ritual/Ritual Drama: Performative and Reflexive Anthropology," *From Ritual to Theatre: The Human Seriousness of Play* (Baltimore: The Johns Hopkins University Press, 1982), 89–101.

This trio is followed by an article by Caros Santos on Hispanic culture. Carlos offers five things to be aware of with Hispanic research. This article points to the need for more direction on dealing with the "Glocal" with regards to research and practice.

The section on Form opens with Ann Burdick's intro titled *Design (as) Research*. This section provides examples of making to "generate new information" and as Burdick admits the work documented was created in "the more rarefied realms of academia, Literature,...High Design and Art." This makes the articles interesting to read, but hard to use.

Laurel introduces the process and action categories. Process, as the third section, ranges from overviews of design process (Rhea) to techniques for use at specific stages of the process (Shedroff, Donahue) to mixtures of process and technique (Zimmerman, Fogg) and other (Svensson, Loch, Moon, Canaan) Looking back, Abbe Don and Jeff Patrick's article seemed better suited to this section.

The last section, Action, is a collection of case studies that utilize the ideas and practices from the previous sections. This set of cases addresses audiences from at risk game players to army game players to design for kids. They are good cases, which are useful to study. They show the breadth of design challenges from interaction to brand. However, it is hard to pull out the specific research methods and approaches that made cases the exemplars for the book.

Looking at the book as a whole the connections between the authors and their ideas are not well defined beyond their ties to Laurel. The intros to the categories and embedded page number/author references do provide some context and threading together of ideas, but Laurel admits in the conclusion that many of the ideas and processes "are incompatible with each other." What makes the book valuable is that Laurel and her community bring valuable insights to design practice even if the connections between them and frameworks of design research are not clear.

So it may be time for a partial celebration. Some contributions in *Design Research* do reflect a new level of maturity. In Laurel's conclusion she writes "the hypothesis that drives this book is that there is a direct relationship between the quality of design and the willingness of the designer to take on mindful explorations of what lies beneath a beautiful surface." Design Research does not offer a framing of design research, or even a harmonized view of research in practice. It does succeed as a compilation of "how tos" for taking on those mindful explorations of what lies beneath the beautiful surface.

Derek Wallen

Monographics series:

Chip Kidd by Veronique Vienne (New Haven, CT: Yale University Press, 2003), ISBN 0-300-09951-7, 112 pages, 105 color illustrations, $19.95, paperback.

Kyle Cooper by Andrea Codrington (New Haven, CT: Yale University Press, 2003) ISBN 0-300-09952-5, 112pages, 238 illustrations, 154 in color, $19.95 paperback.

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Veronique Vienne, the author of *Chip Kidd,* begins by describing Kidd's childhood fascinations with popular culture that eventually lead to his current success as a book jacket designer at Knopf Publishing in New York. Throughout the introduction Vienne emphasizes Kidd's seemingly instinctual use of conceptual photography, giving his jackets a peculiar sense of modernity and

freshness that compliment and distinguish contemporary literature. Similar to the structural style of *Chip Kidd* by Vienne, *Kyle Cooper,* by Andrea Codrington, introduces us to Cooper's background, schooling, inspirations, ambitions, mentors (Paul Rand), and celebrated work in the film title industry. Although both Kidd and Cooper's specialties within the graphic design field are appreciated, in Cooper's book we witness the transition from a traditional typographic background to work in film titles, which delivers added intrigue. Codrington also gives the reader insight into Cooper's use of the actual film as inspiration for his titles, along with frequent director collaborations that tend to result in captivating sequences. Both Vienne and Codrington do an exceptional job at researching and relating the life of these celebrity designers given the brief twenty-page introduction they have to work with.

Jacob Ristau

Signs of the Inka Khipu: Binary Coding in the Andean Knotted-String Records by Gary Urton
(University of Texas Press, 2003), ISBN 0292785402208
pages, illustrated, bibliography (19 pages), index.
$45.00 (hardcover)

Signs of the Inka Khipu: Binary Coding in the Andean Knotted-String Records by Professor Gary Urton (Dumbarton Oaks Professor of Pre-Columbian Studies at Harvard University and MacArthur Fellow [2001–2005]) is a text that could contribute to changing the way we, as designers, think about what is an allowable structure for written language. This makes it an important book in the history of design, as well as its more widely recognized subject, the language and culture of the Incas. The casual viewer might only see this text as another exploration into any ancient undeciphered written language. However, we need only remind ourselves that the Inca were the only major Bronze Age civilization to have not developed a written language and that the *khipu* are three-dimensional textile objects to see the implications on the field of design. There are no known man-made three-dimensional writing systems in existence, with the notable exception of Braille, and certainly not any developed by an ancient civilization like the Inca. Prof. Urton's main intentions set out in *Signs* are to prove that indeed the *khipu* were constructed as a representation of the Incan language, not simply mnemonic devices as believed by others, and that their construction consisted of sophisticated binary choices made by the writer of the text, the *khipu* keeper or *khipukamayuq*.

Four and-a-half centuries have passed since the discovery of the Inca and their *khipu* but still relatively little is known about them. They were a highly organized and stratified society that managed to achieve a kind of socialist utopia through a strict division of labor. Work was the primary form of currency through which the lower classes paid for food, clothes, and other necessities. With most of their basic needs met in this manner, crime was extremely rare (the severity of punishments for criminal acts was also a strong contributing factor to the low crime rate). We do know that the makers and keepers of the *khipu* were located on the lower end of the socio-political spectrum and that the *khipu* were used to record statistical information about the daily ebb and flow of workers and the goods they produced. According to many accounts all of this numerical information, and possibly more, was encoded into the *khipu,* which were kept as records by every community in the Incan empire. The *khipu* themselves consisted of one major string, or primary cord, from which was suspended anywhere from only a few to over 1,500 pendant strings possibly with subsidiary strings attached to these. Each pendant string had any number of three basic varieties of knots tied into them. The strings were constructed out of

either wool, a common material in Andean textiles, or, more commonly, cotton, and they were dyed in as many as 24 distinct colors or none at all. There are some 600 specimens of these objects known to still be in existence, which are held by various institutions around the world. Professor Urton has made a detailed analysis of approximately 450 of these known specimens.

Within this basic structure of the *khipu* Urton proposes that there are 7 points in the construction where the "writer" could make an either/or choice—a binary choice. To state them briefly they are as follows: the type of material that each string is constructed of (cotton or wool), the color class of each knot (here Urton divides the 24 colors into two groups as modern Andean weavers do, the Red Rainbow and Dark Rainbow), the spin or ply of the individual strings (s ply or z ply), their orientation in attachment to the primary cord (front/verso or back/recto), the spin or ply of the knot itself (s ply or z ply), the number classification for each knot (odd or even) and the information type (decimal or nondecimal notation). Due to the extremely three-dimensional nature of the manipulations involved in their construction it's difficult to visualize how apparent the differences would be to the reader of this notational system, but as Professor Urton points out, and rightly so, each manipulation would be readily apparent to someone familiar with textiles, as certainly a *khipukamayuq* would be. Each *khipu* was constructed by one *khipukamayuq* and these men were also the only people in the Incan Empire skilled in reading the *khipu*. This is a prime example of the stratification of Incan society and how the loss of this small societal group has created a handicap for those who are now attempting to study the Inca. The history of who constructed the *khipu* is not debated, but many currently involved in Andean studies hotly contest whether or not the system of construction was a standardized written language or arbitrarily chosen as simple mnemonic notation (memory aid), significant only to the individual *khipukamayuq* that encoded it. And, it is in attempting to dispel those arguments contrary to this position that Prof. Urton spends most of the book. But what questions does this raise for us as designers and encoders of visible language, regardless of whether Prof. Urton's theory is correct?

It is this urging to rethink the dimensional representation of language that makes *Signs of the Inka Khipu* so engaging from the design perspective. Prof. Urton has successfully articulated his theory from within the field of Andean anthropology and ethnographic study, but within the venue of design he still has some questions to answer and some questions still in need of asking. In the opening chapter Prof. Urton defines the basics of what constitutes a writing system versus a mnemonic notational system. In general this is well articulated, the definition of writing systems he uses is an adjustment of one used by Elizabeth Boone in *Writing Without Words: Alternative Literacies in Mesoamerica and the Andes* (1994, Duke University Press). Prof. Urton's version follows: "writing is 'the communication of specific ideas in a highly conventionalized, standardized manner by means of permanent, visible signs.'" This definition is problematic in its limiting use of the word "visible." One of the obvious and consequently fascinating aspects of the *khipu* is that they're not limited to flat visual representation but use three-dimensional qualities that are essentially impossible to capture in a purely visual manner. Interestingly this phraseology excludes Braille from the definition, as it is a purely tactile design in reference to its intended audience. By better refining this definition of written language I believe that the groundwork for other arguments surrounding the appropriateness of a three-dimensional language could be strengthened. After all, the apparatus of the human eye is predisposed to resolve objects in space rather than on two-dimensional surfaces. It only stands to reason that language should be allowed, if not encouraged, to evolve in a more intensely three-dimensional way that embraces the nature of the world around us and utilizes our senses in a more dynamic way.

Signs of the Inka Khipu is also lacking any real debate on why the Inca specifically were such good candidates to develop this type of linguistic representation. Prof. Urton is comfortable simply stating that the Inca affinity for and with textiles is the only noteworthy reason for their readiness to use this format. To me this is too simplistic and, for a scholar of Urton's obvious skill, possibly not unintentional in its oversight. It is possible that he is merely presupposing a certain level of background knowledge held by his intended audience of those involved in Andean studies. However, I believe that this is worth elucidating further, especially when one notes that textiles in their finished form are easily perceived as being two-dimensional surfaces. The Sumerians' use of clay as a central element in developing cuneiform or the Egyptians' use of stone could have easily lent itself to developing in a parallel direction but, as with virtually every other writing system known to man, these each progressed into a more intensely two-dimensional form of representation. Why did the Inca move into a more 3D format? Prof. Urton also sights the *khipukamayuqs* use of black and white stones in the reading and figuring of content for the *khipu*. Wouldn't another format have been far easier to read and adjust? Again, what is it about the Inca that caused them to utilize this system despite the apparent encumbrance of the technology?

In reading *Signs of the Inka Khipu*, I was struck by the degree of accuracy and specificity inherent in representing content with the full use of a seven-bit binary code, but immediately wondered why anyone would need a system of such complexity. (As of the publication of this book, the code of the *khipu* is still as enigmatic as ever.

However, with the detailed catalog of the *khipu's* binary features that Prof. Urton is assembling, we may see a substantial leap toward cracking the code in the near future.) As pointed out in the text, Prof. Urton calculates that there could be up to 1,536 distinct possible informational units (2 to the 6th x 24 colors = 1,536). This begs the question, what type of encoding was being used? Alphabetic systems tend to include between twenty and thirty recurring signs, syllabaries include between fifty and ninety signs and modern Chinese logographic writing requires a working knowledge of at least 2,400 separate signs. This being the case the *khipu* could encode virtually any of the known forms of written language, but why with the degree of complexity that a seven-bit binary code requires?

These are useful questions and ones that should be answered if not by Prof. Urton then by designers and/or others with intimate knowledge of the representation of written language. Also as designers we should be asking ourselves what value is there in a three-dimensional written language and, if it is deemed valuable, what use do we make of this format in the twenty-first century? Some of these issues about dimensionality and reading are being taken on by the likes of David Small of the Small Design Firm. Among others, Small has acknowledged the ability of computers to render text in a three-dimensional environment and is striving to develop interactive, dynamic and navigable three-dimensional typographic environments. However, his work is held back because to be able to communicate it is still necessary to rely on a two-dimensionally based writing system. Likewise, Francisca Prieto's Antibook and Antiposter are concerned with the application of conventional two-dimensional type onto complex geometric shapes, again hedging around the idea of truly three-dimensional type. Even his Antitype only hints at what is possible with the full articulation of three-dimensions. Perhaps these are valuable starting points for a radical, revisionist exploration of the dimensionality of language. Nature certainly has beaten us to the punch with the use of the descriptive quaternary code known as DNA, but now it appears that the Inca might have arrived at the same conclusion as well. *Signs of the Inca Khipu* is a well-crafted anthropological argument for Prof. Urton's theory and is well grounded in its research. However, as a designer and practitioner of visible language, I find it most valuable in the questions it leaves unanswered.

This trio is followed by an article by Caros Santos on Hispanic culture. Carlos offers five things to be aware of with Hispanic research. This article points to the need for more direction on dealing with the "Glocal" with regards to research and practice.

The section on Form opens with Ann Burdick's intro titled *Design (as) Research*. This section provides examples of making to "generate new information" and as Burdick admits the work documented was created in "the more rarefied realms of academia, Literature,...High Design and Art." This makes the articles interesting to read, but hard to use.

Laurel introduces the process and action categories. Process, as the third section, ranges from overviews of design process (Rhea) to techniques for use at specific stages of the process (Shedroff, Donahue) to mixtures of process and technique (Zimmerman, Fogg) and other (Svensson, Loch, Moon, Canaan) Looking back, Abbe Don and Jeff Patrick's article seemed better suited to this section.

The last section, Action, is a collection of case studies that utilize the ideas and practices from the previous sections. This set of cases addresses audiences from at risk game players to army game players to design for kids. They are good cases, which are useful to study. They show the breadth of design challenges from interaction to brand. However, it is hard to pull out the specific research methods and approaches that made cases the exemplars for the book.

Looking at the book as a whole the connections between the authors and their ideas are not well defined beyond their ties to Laurel. The intros to the categories and embedded page number/author references do provide some context and threading together of ideas, but Laurel admits in the conclusion that many of the ideas and processes "are incompatible with each other." What makes the book valuable is that Laurel and her community bring valuable insights to design practice even if the connections between them and frameworks of design research are not clear.

So it may be time for a partial celebration. Some contributions in *Design Research* do reflect a new level of maturity. In Laurel's conclusion she writes "the hypothesis that drives this book is that there is a direct relationship between the quality of design and the willingness of the designer to take on mindful explorations of what lies beneath a beautiful surface." Design Research does not offer a framing of design research, or even a harmonized view of research in practice. It does succeed as a compilation of "how tos" for taking on those mindful explorations of what lies beneath the beautiful surface.

Derek Wallen

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