Rethinking The Design Curriculum: Sustainable Futures

(*Response to 10 questions submitted to invited participants to the conference held on Oct. 22, 1998, in conjunction with the Cooper-Hewitt Museum's The Solar Conference: Design, Business and Sustainability.)*

1. *Imagine possibilities....*
Forgetting all current limitations, describe the sustainable design/solar education program that you would most like to see in place?

To answer this, I am assuming that the sustainable/solar design education program envisioned here is not a 'professional' one - that is, not directed to engineers/designers training in the technological performance and/or maintenance of such systems. What I am primarily interested in is the problem of providing an awareness of the value of such systems.

One of the largest difficulties facing anyone teaching sustainable/solar design (and, I might add, this seems true for the teaching of any *specialized* focus of inquiry which necessarily finds itself constantly modified by the vicissitudes of the culture within which it operates) is how to get at what it *is*.

Certainly one can teach its technological aspects from a functionalist perspective (how to assemble and operate a photovoltaic system for maximum performance, etc.), and one can criticize it on aesthetic grounds (how well it formally integrates w/ a larger design scheme, etc.); however, it is more difficult to convey its larger utility - *why it really matters*. 'Alarmist' scenarios (even those which are very real) have become less effective in mobilizing social change in a late 20th century culture wherein *expertise* (the authority of 'experts') has become increasingly questioned amidst a multiplicity of voices, information, and representations vying for authority. Consequently, convincing students of the value of sustainability requires a more measured argument which *strives* to inspire a sense of its' logic within a world that might be better than the one we have now. This notion is similar to Richard Rorty's idea of 'Progress' as the measure of how we have made things better for ourselves rather than our increased proximity to a goal (telos).

I suspect that it is the very *specialization* of solar design (as if it is proper to conceive of it as simply another discrete "option") that problematizes its place in the design curriculum. This limiting focus, on one hand, polarizes positions and inadvertently serves to maintain its' marginal status in design thought, while, on the other hand, it promotes a tendency to see it as an "add on" to an architecture rather than as potentially intrinsic to it. The first case is self-evident (some 30 plus years after solar design's advent) while the latter case can be seen in either the countless designs of eclectic forms wearing indifferent solar helmets or the insipid formlessness of purely environmentally-driven architectures. There are, of course, great examples of architectures which have avoided either condition; however, these seem to emerge less from the doings of the architecture schools than that of individual imaginations in the profession.

If what one is after is truly a cultural shift in thinking about sustainability, etc. the task is not to teach it as a discrete discipline in the design studio but rather to broaden its' context - to understand solar design not simply as energy efficient in the utilitarian sense, but, more importantly, as efficient within an inextricably linked system of chemistry and physics of which we, as human beings, are the vital part.

Firstly, studies in fundamental ecology as it pertains to natural biotic systems should be the sine qua non of any sustainable/solar design program. I can think of nothing which better situates the complexity and 'relatedness' of our world and have seen many student pre-conceptions (and worldviews) dramatically overthrown by even the briefest exposure to this view of the earth. What is so compelling about natural ecology is less its arguments for environmentalism per se than its description of the world as a systemic matrix that operates from top to bottom irregardless of social constructions. Understanding this 'relatedness' makes it relatively easy for the student to step back and begin to see the relationship of buildings to landscapes, mechanical & structural systems, space-use conditions, etc. in a similar systemic manner which is neither mimetic nor metaphoric but rather synthetic.

Secondly, selected studies in philosophy and cultural theory provide a useful background for situating sustainability within the larger context of human history. This seems particularly important in a time of 'post-modernist' (or post-structuralist) thought which views much of the world as primarily a social construction. The primordial (pre-human) chemistry - which we call Nature - seems to resist quite well attempts to reduce it to a problem of social language: however, its' representation in language is an ongoing problem and could use some more thoughtful scrutiny than that which much of present day discourse has inherited from earlier times.

These two areas of study represent my own interests and are included in the readings and seminars which are attached to my design studios. Ideally, however, they would be part of required first year courses providing the foundation from which to then pursue the design, development, and implementation of specific strategies.

2. *Use what we have.....*

Within the existing curriculum of your school, describe current courses that could be used as part of a sustainable/solar design curriculum?

(My answer to question #1 previews this answer). The diverse science and humanities curriculum of The New School for Social Research has always been under-utilized in its relationship to The Parsons School of Design. Again, the present reluctance in the Academy to loosen the 'classical' distinction between the Arts and Sciences (further reinforced by professional *specialization*) makes it difficult to introduce courses which are not viewed as professional to the vocation of architecture.

3. *Invent new designs out of playing, tinkering .....*

What kinds of studios/classes can you imagine that would allow students and faculty to experiment with sustainable/solar design principles? ..... classes that might allow students to invent new kinds of design?

Studio problems or exercises which focus on specific problems related to natural systems and the technological systems which are designed to confront and interact w/ them are particularly useful for providing a student w/ a more detailed awareness of how the artifacts we make are inextricably linked with the natural world. The cyclical processes of geological and botanic material from the earth through our buildings and back, the relationship of gravity and hydrology from storm to waste water, the effects of wind, rain and sun in the formation of land masses as well as settlements, etc. provide clear examples of the complex dynamics involved between natural and artifactual environments. Students must see that these processes are ongoing whether or not they have been designed for. Analytical exercises which focus on a range of specific cases are very helpful in this regard.

4. *Predict results .....*

What kind of classes/studios would enable design students to understand sustainable/solar design as an engineer might.... classes that would help students to formulate very specific design intentions and then develop their designs so the designs will be exactly as the students determined before beginning to design.

This is a difficult question to answer as I am not sure I would want a situation where "the designs (would) be exactly as the students determined before beginning to design..." Nor do I think it necessarily desirable that a student "understand sustainable/solar design as an engineer might..." Despite my concerns about specialization cited above, I believe strongly in the diversity of focal approaches to a problem. There will be those students whose turn of mind directs them to a purely technological interest motivated by a desire for predicting results - as we know, this is how science and technology propels itself from within . On the other hand, students whose interests are conceptual and/or speculative should be encouraged without being cast as superficial or avoiding the real need to find viable solutions. Each student will ultimately pursue a way of thinking about the world in the manner which suits them best. They will become an engineer, a designer, a producer, or whatever. And, as such, they will specialize. However, again, what I am arguing for is a body of *shared* knowledge about sustainability/solar design which links each of them to one another in the *collective imagination* . An imagination which has assimilated the natural utility of sustainability.

5. *Contextualize sustainable/solar design.....*

What story would you create, or have you created or heard, that describes the importance of design in a sustainable/solar society? .....a story that replaces the description of design in industrial society?

The pre-occupation with *form* which has characterized Western architecture is changing. From its' hylomorphic roots in Platonic universals to the diversity of subsequent authorities (Palladio's harmonics, Semper's archaeology, Bauhaus

functionalism, etc.), architectural formalism has consistently (Schmarsow and other 'spatialists', notwithstanding) stressed the architectural *object* either as a totemic or iconic condition. By stressing the architectural object as a finite static "thing", it becomes more easily measured, or quantified, relative to the dominant standard. The 'standard' has become less easy to identify and much of the rambunctiousness of architectural design in the past years has been a response to the uneasy slipperiness of de-bunked ('de-centered') standards.

What is interesting about sustainability is its' introduction of a different picture for architecture, one that stresses processes over form and energy over matter. In this view, architecture can be seen as a dynamically responsive *system* which mediates the local social and natural ecologies. This is an architecture conceived as affective rather than essentialist - an architecture that cares less about what it *is* than what it *does*.

6. *Integrate sustainable/solar designs into earth systems.....*

In the long term use of sustainable/solar design, what should we be looking for, re: issues of production of parts, maintenance, disposal, etc. So sustainable buildings and designs can be better integrated with earth systems?

Many practitioners of explicitly directed 'sustainable' architectural design are better equipped to address this question than I. There are many examples of "breathing" and/or absorptive wall skins, differential circulation systems for water, passive and active solar and wind engagement, etc. as well as, a range of re-cycled material uses in the production of building material. These efforts while remaining far from mainstream gain currency daily and, as a result, technological innovation in these areas will only increase. When I think of an *affective* architecture, I imagine a mutable architecture which physically adapts itself to natural conditions as they occur. Examples of this range from Paul Virilio's description of the cybernetic transference of wind data re-forming the wing configuration of advanced military jets to the US Army Corps of Engineer's manuals on mechanical diverter systems for public buildings allowing flood water to flow through them without damage.

7. *Engage social, economic and political problems.....*

What social , economic, and political problems/conditions do you see sustainable design affecting?

All of them. Again, my thought here is less motivated by a "save the planet" concern (although I share some of the self same fears) than a conviction that sustainability may well represent one T.S. Kuhn's "paradigm" shifts. The understanding of humanity's inextricable link to natural systems (including the increased - but oddly difficult idea - that, after all, we and the things we make are also "natural") becomes more widespread daily through research developments in post-Darwinian evolution, genetics, climatology, etc. Furthermore, developments in critical and cultural theory from Deconstruction to neo-pragmatism have helped to underscore the contingency of our belief systems and unsettled old antagonistic dichotomies like *culture and nature*. The convergence of both an increased understanding of scientific (material) Nature and the

social construction of cherished “truths” seems to me to be a fortuitous one. It sheds a redemptive light on Heidegger’s distinction between earth and world. Because the natural earth (despite the problem of its’ representations mentioned above) eludes the grasp of social constructionists by virtue of its’ pre-human status, it presents for us a tremendous opportunity to re-think it and, consequently, our world. To paraphrase Richard Rorty (see his discussion of Dewey and Foucault in *Achieving Our Cou*ntry), if the subject is indeed a social construction and (Foucault’s notion of) discursive practices go all the way down to the bottom of our hearts, then ‘sustainability’, or something like it in its’ view of the earth, may be the beginning of a vocabulary with which we can discuss our social, economic, and political problems and attempt to develop a discursive practice suitable for socially constructing (re-constructing?) the earth and the world.

8. *Create new forms through sustainable design, use of solar.....*
How does sustainable/solar design affect our sense perceptions? what are the aesthetic possibilities that you see in sustainable/solar design? Examples....

Without intending philistinism, I have suggested elsewhere that both the prediction of results (even in the benignity of “aesthetic possibilities”...) and a privileging of *form* may be distracting from the more important notion of *process*. It seems to me that concerns with “what it might look like” set traps into which even the best intentions can stumble. Clearly, aesthetic taste has been shown to be contingent, culturally determined, and fleeting.

In any event, if pressed, I could imagine a design vocabulary based on principles of mechanical apparatuses (the technologies producing mutation and adaptation to natural conditions) as well as erosion/sedimentation (the slow but planned-for reformation over time - something which displaces what we presently call “falling apart”).

9. *Criticize current sustainable/solar design.....*
Looking carefully at the facts of the current teaching and use of sustainable/solar design, what do you think is going right, what is going wrong? Examples....

One of my bigger concerns has been the tendency to view active solar design as an energy ‘attachment’. This view accepts much of conventional architecture (styles, typologies, space/use configurations, etc.) and simply adds on sustainable components. As a result, other conditions of unsustainability are overlooked (e.g., resource consumption in production processes, wasteful patterns of use, material, etc.). While it is difficult for anyone to cover all the bases, inconsistency in sustainable/environmental practices seems to be the rule and good teaching should be alert to this. A more comprehensive approach would have to provide an awareness of as broad an ecological range as possible, touching not simply on resource management (as is the case with most ‘energy based’ approaches) but also biotic relationships such as diversity and habitat disruption. Choices will have to be made as in the case in California where wind generators were found to attract and kill members of the local raptor population. Again, sustainable issues are so complex and interwoven that conventional practices need to be scrutinized at a very fundamental level.

I am also concerned that some of the current teaching takes its' cue either from the wildly uncoordinated cultural politics of environmentalism (e.g., Wise Use vs. Earth First vs. The Sierra Club, James Watt vs. Bruce Babbitt, etc.) or apocalyptic scenarios. In my answer to question #1, I suggest why these strategies are not easily made effective in producing social change. Sustainable/solar design has passed through its' 'radical' stage and been recognized by most as making good sense. It now struggles, however, to convince the extant social and economic structures that its' utility warrants a modification of these structures. This is a political problem that 'design', by itself, is unlikely to solve any time soon. Even if the economics can be made to work out (as VP Gore suggests), the shift in lifestyle remains significant. It is because of this required shift in what our culture views as normative that I feel the need to teach sustainable design in a manner which avoids either the perception of 'political correctness' or 'doomsday'. While this position might appear glib in the face of real environmental problems, I feel that real change requires a foundational approach that foregrounds Carolyn Merchant's observation that our history has always been and will always be co-extensive with the history of how the land is used.

10. *Reason about sustainable/solar design....*

Based on your experience teaching sustainable/solar design, what do you think reasonably is possible to expect in the future vis-a-vis teaching design sustainability and building a sustainable designed environment? What "if...then" patterns present themselves to you? What makes sense to you for the future of sustainable/solar design education?

I remain fairly optimistic about the future for many of the reasons previously cited. Because sustainability requires a re-alignment of cultural perception that is as major as anything since the industrial revolution - major, precisely because of its' swerve away from the so much of the world view that the industrial revolution has produced - change will be slow. Furthermore, a true picture of "a sustainable designed environment" is still not particularly clear and will likely be rendered by advances and unexpected events that lie beyond present vision. Nevertheless, continuing to develop more and more comprehensive ways of talking about the issues through teaching and public discourse is our best strategy with the hope that 'sustainability', or whatever it might called in time, will become as foundational as Architecture itself.