Mumbling and Stumbling:
Paradoxes of Green Design Practice

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INTRODUCTION

Thirty years ago Ian McHarg wrote "Design with Nature", calling for architecture and planning to change the way human interventions are imposed on the natural world.[1] Today, others are making the same admonitions, only the environmental stakes are much higher. However, unlike other "world crises" such as the nuclear holocaust or overpopulation, where design interventions could only be minor and responsive, the environmental crisis is one where design responses can be major and generative. Almost 40% of the world's energy and resources are spent on creating, operating, or dismantling the built environment. This has a considerable impact on the biophysical world. Designers can be part of the solution but this is not happening.[2]

Despite the quantity of "environmental knowledge" developed over the last few decades, it has done little to change our daily lives, let alone reverse environmental degradation. Our society is equipped with more information about our biophysical world than it has ever had and yet our responses seem ineffective. This paradox is evident in the design community as well, whose lack of effective action in the face of such great environmental threats is startling. We are not changing the way we practice in order to lessen the harmful effects on the environment, let alone make things better. Most of us are stumbling along in the same direction, contributing to many of the environmental problems we now face.

Even more paradoxically, those of us who have decided to take up the environmental cause are often ineffective at expressing our "greenness" through our interventions. Our work mumbles, barely speaking of its underlying environmental agenda. This paper examines these paradoxes of "stumbling" and "mumbling" as they are manifested in works of design and how these paradoxes are symptomatic of some larger serious problems faced by humankind on this planet. Finally, this paper investigates what the implications are for educating environmentally responsible designers capable of dealing with the daunting biophysical challenges as they enter into a critical new century.

STUMBLING: PARADOX OF INEFFECTIVE DESIGN ACTIVITY

A paradox of ineffective activity is gripping the design professions. Despite growing evidence about global environmental degradation and the related roles that the design and construction of the built environment play, design practice is proceeding as usual.[3] Yet few among us would declare a deliberate effort aimed at degrading our environment. Most of us want the best for our children. So why the business-as-usual attitude, despite the knowledge, despite the care for our future generations? If these environmentally deleterious acts are not deliberate, why are they happening?

One of the possible reasons for this paradox is lack of knowledge, not of the environmental difficulties that face our biophysical world, but of the appropriate local design responses to those difficulties. The responsibility for acquiring this information lies largely with the institutions of design education. However, despite the importance of this facet of design education, environmental responsibility is a low priority in most of America's design programs. In 1999, I conducted a web-based survey, examining the required curriculum of the top thirty graduate schools of architecture in the U.S as ranked in 1997 by the U.S. News and World Report. Only two of these schools had any required courseware regarding sustainable issues in design.[4] These were the University of Minnesota-Twin Cities and Rice University. The University of Virginia with William McDonough as its former dean only strongly recommended their course on sustainable issues. It was not required. Most of the environmental courseware in the schools were related to HVAC, energy, and building systems.

The results of these surveys provide one explanation of why this paradox of ineffective activity persists so vigorously. Students are not being equipped with the information about how they can reduce the "ecological footprint" of their interventions. The bad news is that even if this scenario were to change today, it would be another five to ten years before the impacts would be felt in the built environment. This is how long it would take for a student to become a policy-making member of a professional practice.

Why is this deficiency of environmental design education happening in American universities? To attempt to answer this, one has to

investigate the forces that shape curriculum in design programs. Since design education is largely profession-driven, the concerns of practice are quickly impressed on academia through advisory boards and professional accreditation organizations. While advisory councils vary from program to program, accreditation groups are national in scope and reveal base-line standards for professional education. However, both the Foundation of Interior Design Education Research (FIDER) and National Architectural Accreditation Board Inc. (NAAB) have language relating to environmental education objectives. For example, the NAAB lists "environmental conservation" as one of 37 student performance criteria where students must show an understanding of "the basic principles of ecology and architect's responsibilities with respect to environmental and resource conservation in architecture and urban design."[5]

If it is not the external factors such as advisory groups and accreditation boards, the responsibilities for the existing state of design curriculum must lay with us, the educators and our institutions. In Sarah Hammond Creighton's book, Greening the Ivory Tower, she discusses how to "improve the environmental track record of universities, colleges, and other institutions."[6] Although she devotes only a few pages to the issues of curriculum, none of which related to design education, Creighton does make some good points.

She suggests that universities often "green" the curriculum on a single department basis or in a few academic specialties, most often in the environmental sciences. What about the remainder of the student population who graduate from these institutions? Anthony Cortese, the renowned environmental educator, provides an answer:

> "Because all members of society consume resources and produce pollution and waste, it is essential that all of us understand the importance of the environment to our existence and quality of life and that we have the knowledge, tools, and sense of responsibility to carry out our daily lives and professions in ways that minimize our impact on the environment. That is, we need an environmentally literate and responsible citizenry."[7]

Cortese argues that environmental issues should be introduced to all students, regardless of discipline, just as writing skills, numerical fluency or physical education are listed as requisite courseware at most of today's institutions of higher learning. Ultimately, this approach could cause the category of "green design" to disappear. It would become an expectation to be taken for granted. Just as today we expect buildings to stand up and appliances to work, we would expect all design to be ecologically benign, if not restorative.

Another reason for the persistence of this paradox has to do with values. It is not that designers do not care about the biophysical world, but they care about other issues more, especially those which appear more immediate. Profits, litigation, client satisfaction all provide justifications for this disparity between knowledge of the environmental problems and professional responses. For many practitioners, environmental issues rank low on their list of consider-

ations. In the recent book "Architectural Knowledge: The Idea of a Profession", most of the writings were centered on issues of scope of practice, information technology, and the role of professional associations.[8] Of the eighteen chapters, not one specifically dealt with the environmental issues that face the profession. Nowhere was there any discussion about new forms of professional engagement that would make an environmental difference. This apathy is not limited to this particular book. It is widespread in the design professions.

Compounding the problem of the devaluation of green design is the perspective that ecological issues are viewed as technical issues and therefore less important than formal design. Mainstream practice views sustainable design as marginal to the true task of form giving. Recent history may have had something to do with this devaluation of green design in architecture. The awkward built responses to the energy crisis of the 1970's produced works where the technologies overpowered the program and form. This "solar stigmata" is still with us today.[9] Green designers are seen as "techies", not as designers. Few design magazine "stars" refer to the biophysical considerations of their work.

This is not to say that the design professions are not making any efforts to respond to this challenge. Five years ago, Susan Maxman, then president of the AIA, declared 1995 the "Year of Sustainability". Sustainable design became a specific Professional Interest Major (PIM) of the AIA, ASID, and IDSA. New books, periodicals, and trade journals have appeared in response to the growing demand for information on sustainable design of the built environment. However, this knowledge has not exactly revolutionized the profession. Rarely has this expertise been demonstrated as central to a new or provocative design expression, a seemingly necessary condition for redirecting visually oriented professions.[10] Designs are still being created that manifestly express their environmentally insensitive values, often unbeknown to the designer. David Orr describes how conventional school architecture communicates its damaging moral convictions:

> "First, it tells its users that locality, knowing where they are is unimportant...Second, because it uses energy wastefully, the building tells its users that energy is cheap and abundant and can be squandered with no thought for the morrow. Third, nowhere in the building do students learn about the materials used in its construction or who was downwind or downstream from the wells, mines, forests, and manufacturing facilities where these materials originated or where they eventually will be discarded. And the lesson learned is mindlessness, which is to say that disconnection is normal."[11]

It is the normality of this disconnection that green design seeks to correct. An awareness of environmental responsibilities is what fundamentally differentiates green design from others. However, upon closer examination, many examples of green design also suffer from this malady, ineffectively expressing the deeply held environmental values of their creators. This expressive failure reveals a second paradox.

MUMBLING: PARADOX OF INEFFECTIVE AESTHETIC COMMUNICATION

This paradox of ineffective communication can be seen as "mumbling", where messages are being sent but they are unclear or confusing. Within the green design movement as a whole, there is a widespread ineffectiveness in visually communicating a sense of "greenness", despite the deep ethical fervor. The rhetorical potential of design is being ignored. For me, the irony of the mumbling paradox is more troubling of the two.

This paradox is especially evident in publications dedicated to promoting green design. In a recent review of "architecture of the environment", forty-four buildings were selected from around the world "which address environmental issues and nature in a cogent and intelligent manner."[12] Upon reviewing the case studies, the reader is struck by the stark, machine-like quality of the majority of these buildings' facades. Their visual messages are diametrically opposed to their conceptual environmental agenda (see Figure 1).

Upon closer examination, the greatest ironies of expression are found in the materials chosen for building facades. Choices made here are extremely important, as these are the locations where most of the building's meanings are visually communicated into the public realm. Of these forty-four examples, only sixteen projects utilized renewable materials in their facades. Only five projects used recycled materials in their cladding. Most of the projects use aluminum or glass. Both of these materials are derived from open-pit mining, are high in embodied energy, and are non-local and non-renewable. This is more of a display of wealth than of restraint, where the ends (performance) justify the means (production). Short-term goals outweigh the long-term environmental effects. Most of the facade configurations are simple, regular and orthogonal, not only reflecting the technology of their assembly but the technophilic orientations of their creators.
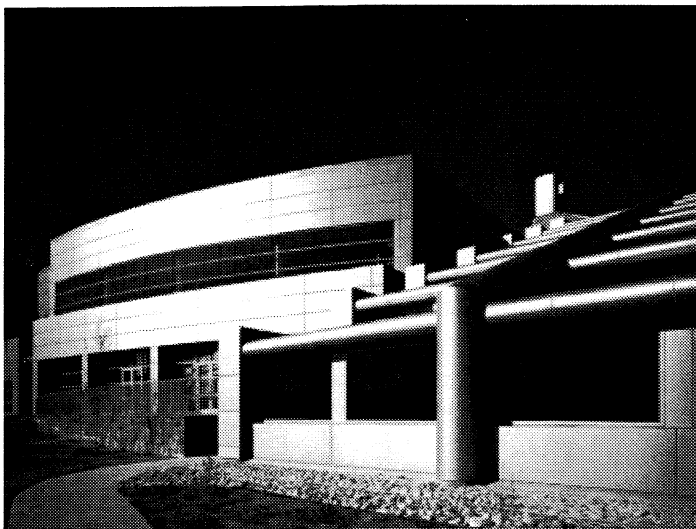

Figure 1: Anderson Bartolo Pan. Inc.. NREL Solar Energy Research Facility. Golden. Colorado. USA. 1993.

Figure 2: Viaduct des Arts. Patrick Berger and Jean-Michel Wilmotte. Paris. 1995.

Another way a building communicates visual messages is in relation to its age. Of the forty-four projects highlighted, only two projects in this survey are renovation projects, a minimal impact intervention. All the rest of the buildings were new. One of the exceptions was the refurbishment of the Viaduct des Arts along the Avenue de Daumesnil in Paris. In a world of diminishing resources, this is the kind of architectural intervention that needs promotion, not the creation of new monuments to designers or their clients. Not only does rehabilitation use less material and energy; it maintains a connection to the history and culture of the place (see Figure 2).

The Viaduct des Arts also demonstrates how a building can provide meaning through its relationships with its urban context. Almost all of the other projects are stand-alone works, situated in suburban office parks or industrial zones. As such, these projects discourage pedestrian activity, support car-based access, strain urban infrastructures, and contribute to urban sprawl and the disappearance of green space. Any amenities they provide are available only within the private realm. On the other hand, the Viaduct des Arts enhances the pedestrian experience, allows car-based access, strengthens existing urban infrastructures, densifies the city, and provides new green space within the public realm.

The way a design functions also communicates values. Only three projects utilize in-situ sewage treatment. Only one project integrates other living systems into its operations. None of these projects generate more usable energy than they consume. None are explicitly designed for re-use or disassembly. None are designed to improve local ecologies through their interactions with their sites.

Most of these buildings singled out for publication do nothing but reinforce our detachment from Nature through their aesthetic expression and functional performance. These selections may be more a case of the author's bias than an accurate representation of the state of environmentally responsible design. However, published as exemplars, they exert considerable influence on practice

reinforcing an ironic disconnection with Nature already widespread in the design world.

If "green" designers cannot communicate a project's eco-ethical program through the form of the design, who can? Sadly, the answer is not many. The presence of gaps between designers' professed values and their formal expressions are nothing new. In fact, this gap is intentional, freeing designers from passing judgement on their clients or their activities. This "veil of innocence"[13] which the early modernists tried to lift with their social housing programs, has been firmly put back into place. Ethics is limited to practice and contractual obligations. Social and environmental ethics rarely enter into the picture.

Perhaps this paradox is linked to a deeper flaw in our collective worldview, not just as designers, but as global citizens of the "developed world." Roger Scruton, a philosopher of aesthetics, points out how we describe the world in two different ways, as the spontaneous, self-organized world of nature - as the world which *contains* us, and as the deliberate, intentionally organized world on which we act. He points out that "we are part of nature, obedient to natural laws. But we also stand back from nature, and make choices we believe to be free,"[14] independent from the natural laws we actually depend on. It is this "illusion of free choice" that sustains the belief that design practice can be reduced to a system of rational, prescriptive rules, independent of the natural world that contains it. This uniquely modern relation should not be taken for granted; it epitomizes the crisis of contemporary design, if not society at large.

Scruton's concept of the "illusion of free choice" is extended even further to the idea of "entrapment" in the writings of the French Marxist philosopher, Herbert Marcuse.

> *"Science by virtue of its own method and concepts, has projected and promoted a universe in which the domination of nature has remained linked to the domination of man - a link which tends to be fatal to this universe as a whole. Nature, scientifically comprehended and mastered, reappears in the technical apparatus of production and destruction which sustains and improves the life of individuals while subordinating them to the masters of the apparatus."*[15]

We have become victims of our own technical success. In order to reap the rewards of an instrumental approach to the natural world, we have become instruments ourselves by the system we have created. What are some of the ways our society in general and design in particular can escape this rationalist, technological entrapment? Marcuse offers some answers. He sees contemporary technology in terms that underscore its intrinsic instrumentalism. The procedures of abstraction, calculation, and rationalization allow technology to become a form of social control and domination.[16] Marcuse suggests that if instrumental rationalism is behind the domination of Nature and humanity, then new practices, linked not to a metaphysics of domination but rather to a metaphysics of liberation, might alter everything. He describes this metaphysics as founded on, "a new sensibility - aesthetic, life affirming, and liberatory in character -". It would be based on aesthetic dimensions and a

regard for beauty as a check against aggression and destruction."[17] This is a call for social and political criticality in art and design. Rather than being the handmaiden of the established apparatus, beautifying its business and its misery, design could become an instrument for its transformation. Design could become part of the solution, instead part of the problem. In order to do this design must revise its values.

THE ROLE OF ETHICS IN GREEN DESIGN EDUCATION

How can we as design educators help bring about this change in values to enable greater social and political criticality in art and design? One way is to change the focus of our worldview, especially as it pertains to ethical matters. The prevailing anthropocentric worldview is not working. However, a truly non-anthropocentric or biocentric worldview is not possible either since "nature" is a human construct in both theory and practice. This paper argues for something in between, a movement towards a fuller sense of anthropocentrism, one where humankind is still at the center of the worldview but where sympathies many people already feel and experience towards things natural are revitalized and expanded without sacrificing their concerns for each other. People must be aware of the global impacts of their local acts. This modified worldview could enable designers to fulfill their goals while respecting the lives of all things they impact. By caring about natural systems in general, they are caring for themselves in particular.

As a design educator, I am faced with the challenge of changing the focus of the worldviews of the students I encounter by expanding their scope of environmental awareness. These students are eager and earnest to find ways to make the world a better place. However, many of them lack an intrinsic appreciation of what it is that is in need of protection or regeneration. Most of them come from urban/suburban environments where nature is glimpsed on the Discovery Channel or through a car window. Compounding the issue are the conventional models of design education where students only consider the appearance of inanimate things when constituting a built environment for people. Before I can help them design in an environmentally responsible manner, I must help them revise their conceptual frameworks about their world and their place in it. The design professionals of tomorrow must be aware of the ecological challenges we face as a biotic community and care enough to do something about it. Resource depletion, global warming, habitat loss, toxification of indoor and outdoor environments are real issues that require real action. They must be made aware of more than the visible matters of meaning. They must probe into the hidden realms of ethics to reorder their own personal worldview.

This is not a simple educational task. Providing information is easy. Changing values is hard. These are matters of moral education where the objective is to reduce unethical behavior. A number of techniques have been developed by educators to increase moral competency such as fostering the development of moral reasoning and encouraging sensitivities to moral issues.[18] This can be accomplished in the classroom through the study of moral dilemmas, presenting all sides of the arguments. However, other social obliga-

tions and personal desires often present themselves in opposition to ethical responsibilities, thereby weakening the link between moral judgement and behavior. Consequently, some researchers suggest that educators should do more to incorporate ethics into people's self-concepts[19] and on building moral character.[20] This can be achieved by putting students into active, real world situations involved with ethical issues. Nature walks, site visits, and community service projects with environmental agenda are effective techniques for bring green design issues home to the students.[21]

Other research in ethical education has shown that greater moral competence does not necessarily lead to greater moral behavior as this paper has already documented with regard to "mumbling". Unethical behavior is often not the result of a disconnection between moral judgement and behavior but rather a corruption of the ethical resolution process where immoral behavior is rationalized in order to justify a desired outcome.[22] This corruption results in the erroneous conclusion that an unethical action is actually morally acceptable. This behavior is not a result of a moral judgement failing to determine action but rather of a corrupted judgement driving action. In this case, it is vital to augment ethical discussions with students by demonstrating how and why moral reasoning can fail, despite good intentions and the absence of guilt. Students need to be trained to recognize fallacious arguments and other forms of flawed moral reasoning in order to inoculate themselves against the type of motivated arguments they might be tempted to use later in life, both personally and professionally.

CONCLUSIONS

This paper set out to investigate why the design community has been ineffective in changing the way it does business in the face of today's great environmental degradations. The investigation was structured through the exploration of two major paradoxes labeled "stumbling" and "mumbling". Despite a concern for the environment, most design practitioners continue to stumble along in the same professional direction, contributing to many of the environmental problems we now face. This is a matter of ineffective action. Many of those who have decided to take up the environmental cause mumble as they express their "greenness" through their interventions. This is a matter of ineffective expression. These paradoxes of "stumbling and mumbling" are symptomatic of some larger serious problems faced by humankind, namely a loss of sensitivities and consequent values for things natural, non-rational, and non-human. These devaluations for the natural world has major implications for educating environmentally responsible designers. A focus on knowledge is not enough. The focus has to be on values.

Education can bring about positive change. That is why many of us are in this profession. Minds are young enough to incorporate new ideas. They are free enough to explore new views and values. It is vital that these minds experience the powerful effect of an active, critical design process "doing good" in a real world context. It is my profound hope that once experienced, most of the students will be forever changed. They will enter the world as critical individuals, as design activists, not satisfied to "sustain" the way things are, but to work towards making things better.

Design can bring about positive change. Design does not need to be a passive mirror of the way things are. It can present a new optimistic worldview, about how things can be. It can influence people through the values it expresses. Therefore, it seems reasonable that as a public art, design should affect the minds of the audience for the sake of the public good. As described by Tzonis and Lefaivre, "It should edify wisely, consult and comment judiciously, defend and praise, rouse consciousness, and criticize."[23] Given that design can provide leadership through its aesthetic expression, it would seem to be a missed opportunity if it fails to express publicly the environmental ethics affecting its realization.

NOTES

[1] Ian McHarg, *Design with Nature* (Garden City, NY: Doubleday, Natural History Press, 1969).

[2] Gary Pask, "Introduction", *Canadian Eco-Architecture* 5 (2000): 3. Pask's fist line reads,"Sustainable design isn't taking hold."

[3] Thomas A. Dutton and Lian Hurst Mann, "Modernism, Postmodernism, and Architecture's Social Project", in Thomas A. Dutton and Lian Hurst Mann, eds., *Reconstructing Architecture: Critical Discourse and Social Practices* (Minneapolis: University of Minnesota, 1996), 3.

[4] These results came from a web survey of the top thirty graduate schools of architecture as ranked in 1997 by the US News and world Report survey.

[5] Taken from the NAAB website at http://www.naab.org/information1726/information_show.htm

[6] Sarah Hammond Creighton, *Greening the Ivory Tower: Improving the Environmental Track Record of Universities, Colleges, and Other Institutions* (Cambridge, MA: MIT Press, 1998).

[7] Anthony Cortese, "Education for an Environmentally Sustainable Future," *Environment Science and Technology* 26: 6 (1992): 1108-1114.

[8] Francis Duffy with Les Hutton, *Architectural Knowledge: The Idea of a Profession* (London: E & FN Spon, 1998).

[9] Richard Ingersoll, "Second Nature: On the Social Bond of Ecology and Architecture", in Thomas A. Dutton and Lian Hurst Mann, eds., *Reconstructing Architecture: Critical Discourse and Social Practices* (Minneapolis: University of Minnesota, 1996), 137-138.

[10] Exceptions may be the recent work of Starck, Piano, Rogers, Foster, and Yeang.

[11] David Orr, "Architecture as Pedagogy" in Charles J. Kibert, ed., *Reshaping the Built Environment: Ecology, Ethics, and Economics* (Washington, D.C.: Island Press, 1999), 213.

[12]David Lloyd Jones, *Architecture and the Environment: Bioclimatic Building Design* (Woodstock, NY: Overlook Press, 1998), 9.

[13]Phrase "veil of innocence" provided by Pauline Morin in discussions about Alberti and architectural practice.

[14]Roger Scruton, *An Intelligent Person's guide to Philosophy* (London: Penguin Press, 1996), 22.

[15]Herbert Marcuse, *One Dimensional Man: Studies in the Ideology of Advanced Industrial Society*. (Boston: Beacon Press, 1964), 166.

[16]Ibid., 157-158.

[17]Ibid., 146.

[18]J.R. Rest, "The Major Components of Morality" in: W. Kurtines and J. Gewirtz, eds., *Mortality. Moral Behaviour. and Moral Development*, (New York, Wiley), 24-38.

[19]A. Colby,and W. Damon, *Some Do Care: Contemporary Lives of Moral Commitment* (New York, The Free Press, (1992).

[20]J.R. Rest, 38.

[21]One well documented example of this approach is outlined by Leslie Kanes Weisman, "Re-designing Architectural Education: New Models for a New Century", in Joan Rothschild, ed., *Design and Feminism: Re-Visioning Spaces. places. and Everyday Things*, (New Brunswick, NJ: Rutgers University Press), 159-173.

[22]David M. Bersoff, "Explaining Unethical Behaviour Among People Motivated to Act Prosocially", Journal of Moral Education, Vol. 28, No. 4, 1999, 413.

[23]Alexander Tzonis and Liane Lefaivre. *Classical Architecture: The Poetics of Order* (Cambridge, MA: MIT Press, 1986), 5.