“Architectural Myopia: Designing for Industry, Not People”

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We highlight a little-understood cognitive phenomenon that may play a key role in the maladaptive failures of the modern human environment. There are implications for the future ability to integrate built environments into sustainable ecosystems. By discussing vision we mean how architects interpret what they see in front of them, not the brave new world they envision populated with their own designs.

1. Seeing the World Differently

Have you ever looked at a bizarre building design and wondered, “what were the architects thinking?” Have you looked at a supposedly “ecological” industrial-looking building, and questioned how it could be truly ecological? Or have you simply felt frustrated by a building that made you uncomfortable, or felt anger when a beautiful old building was razed and replaced with a contemporary eyesore? You might be forgiven for thinking “these architects must be blind!” New research shows that in a real sense, you might actually be right.

Environmental psychologists have long known about this widespread and puzzling phenomenon. Laboratory results show conclusively that architects literally see the world differently from non-architects. Not only do architects notice and look for different aspects of the environment than other people; their brains seem to synthesize an understanding of the world that has notable differences from natural reality. Instead of a contextual world of harmonious geometric relationships and connectedness, architects tend to see a world of objects set apart from their contexts, with distinctive, attention-getting qualities.

There are many such confirming studies. For example, Gifford et al. (2002) surveyed other research and noted that “architects did not merely disagree with laypersons about the aesthetic qualities of buildings, they were unable to predict how laypersons would assess buildings, even when they were explicitly asked to do so.” The researchers traced this disagreement to well-known cognitive differences in the two populations: “Evidence that certain cognitive properties are related to building preference [was] found.”
This phenomenon has important consequences for the kinds of structures that architects produce — consequences whose seriousness we believe are largely under-appreciated, and, very likely in some cases, repressed. We can begin to explain common contradictions as, for example, when architects produce a building they clearly think is wonderful, but a large majority of non-architects are found to hate it. The phenomenon of “architectural myopia” may also explain the repeated mistakes that architects make in fashioning built environments for others, which turn out to be woefully unsuccessful in what may seem obvious ways to laypeople. Lastly, “architectural myopia” explains the often-disastrous attempts that architects have made to fashion urban schemes for entire neighborhoods and cities. Architects do not see how certain designs disconnect and isolate people and create hostile environments that cannot be shared.

We hasten to add that we do not use this observation to criticize architects as a group. Rather, we raise it as a cautionary alert. Every profession suffers from its own narrow perspective — its tendency to behave like the carpenter with a hammer, who sees every problem as a nail. Architects may only have a particularly strong variety of this narrowed view. In that sense, “architectural myopia” may prove to be a helpful model to explain some of the things that have gone wrong with the built environment, and ways that we can correct them with effective compensating remedies. At a time when we are faced with economic challenges, declining urban health, resource depletion, climate change and a host of other ills, it seems these issues are not trivial.

2. Academic Training is Rooted in Industrial Design

Why do architects see the world in this unique way? In part this seems to be because of the peculiar environment in which students of architecture are educated (Gifford et al., 2002). Students are typically asked to produce drawings that are pinned up next to one another, and then evaluated in a “crit” (or critique). In such an abstract setting, it is difficult for anyone to evaluate how well a project integrates with its context, if at all. Moreover, projects that are especially distinctive — object designs that stand out visually in an imaginative way by presenting an unusual structure — tend to get more attention from the faculty, and often, better grades. Those architects get rewarded, and selected out to be the later stars of the profession.

This focus on object-design has a deeper history in architecture. Up to about 1900, architects were understood to be practicing an adaptive craft, in which a building was an inseparable part of a dynamic streetscape and a neighborhood. “Blending in” respects the extant complex connective geometry, where components contribute to overall coherence. A building was assumed to meet the physiological and social needs of the people of that neighborhood first and foremost, and only then it would express its artistic qualities.

With the coming of the industrial revolution, and its emphasis on interchangeable parts, the traditional conception of architecture that was adaptive to context began to change. A building became an interchangeable industrial design product, conveying an image, and it mattered a great deal how attention-getting that image was. The building itself became a kind of advertisement for the client company and for the architect (and in the case of residences, for the homeowner seeking a status symbol). The context was at best a side issue, and at worst a distraction, from the visual excitement generated by the object.
Peter Behrens, the father of corporate branding, was given the challenge of developing the first architectural “branding” for the buildings of the German Electrical Equipment Firm AEG. He did so by using elementary industrial geometries, formed into a romantic and iconic expressive shape. The building itself was now a kind of billboard for the company — an attention-getting new product design in its own right. It was not a coincidence that three of his young colleagues went on to profoundly shape architecture in the 20th Century: Le Corbusier, Ludwig Mies van der Rohe, and Walter Gropius.

Their buildings all certainly celebrated the individuated form, as objects standing dramatically apart from context. To heighten this drama, those architects masterfully employed the then-alien new language of early industrial technology (cubes, planes, cylinders, repeated rectangles, etc). As we have written elsewhere, this was a kind of “geometrical fundamentalism”, combining these elementary forms to create dramatic, attention-getting objects, fundamentally different from the model for architecture up to that time (Salingaros, 2006). Coherence was abandoned.

Since the early modernists saw their work as a revolution, this radical break was an important symbolic element of their agenda. Previously, architects took relatively straightforward, human-adaptive building types, and created elaborate ornamentations of them. These artistic ornamentations were fantastic, exciting, moving; yet they remained within the discipline of a human-adapted building. After the caesura of the Bauhaus, one could mutate the entire structure to create some kind of extravagant dramatic visual statement — perhaps sheer size, or daring engineering feats of cantilevers and the like. Those would show our technological prowess, our economic prosperity, or our status as enlightened moderns.

This “Novelty Spectacle” approach has become the dominant model for architecture, remaining very much with us up to the present day. However surprising and novel the forms of today’s new architecture might appear, they remain tightly bound within this almost century-old model. Indeed, the Novelty Spectacle became the model not just for buildings, but also for whole cities.

Jane Jacobs, in her classic 1961 book The Death and Life of Great American Cities, was not kind to Le Corbusier in particular for employing this seductive (to other architects) form of architectural drama:

“Le Corbusier’s dream city has had an immense impact on our cities. It was hailed deliriously by architects, and has gradually been embodied in scores of projects... His city was like a wonderful mechanical toy. Furthermore, his conception, as an architectural work, had a dazzling clarity, simplicity and harmony. It was so orderly, so visible, so easy to understand. It said everything in a flash, like a good advertisement.”

But she went on to say that, as to how the city actually works, Le Corbusier’s city told “nothing but lies”. This was because it was not a contextual solution within a real, living city, but rather, an object inserted onto the landscape for mostly visual effect. It was an imaginary vision of a city drawn on paper by someone who had no idea of how a living city functions: namely, that it operates not through the power of abstract imagery but through networks and connectivity, information exchange, and energy flows on different
scales (Salingaros, 2005). People will connect only if a city’s human-scale geometry creates shared spaces with the right complexity.

A related disorder confuses between the structures of life and the structures of art. As Jacobs also noted, art is an enormously important part of city life — but it is not the same as city life. We cannot treat the fabric of buildings and neighborhoods as mere canvas for our art, and expect that if the art is great enough (by whose criterion?), all will be well. This is not unlike the “magical thinking” of ancient cave dwellers who drew bison on the walls, hoping to ensure a successful hunt. Yet many architects today seem wholly ignorant and even disdainful of the real social and psychological needs of the human beings in their care, and much more concerned with the look of their buildings as expressive objects of art. Jacobs noted later in her book, “to seek for the look of things as a primary purpose or the main drama is apt to make nothing but trouble.” And the trouble, as she documented, came in torrents.

In the last half-century, the clear result of “architectural myopia” is buildings whose makers have been so concerned with the drama of their appearance that they fail on the most fundamental human criteria. They isolate people; they do not provide enough light; or provide a poor quality of light; they provide a hostile pedestrian environment at their edges; they cause excessive shade; or create winds in what is known as a “canyon effect”; or they trap pollutants in the “sick building syndrome”; they use resources wastefully; etc. Moreover, the buildings themselves are a wasteful use of resources, because they are not likely to be well-loved, cared for, repaired, modified, and re-used over many years. In short, it is not just that people find them ugly, but they represent a fundamentally unsustainable way of building human environments.

### 3. Training to See a Parallel Reality

Training is required to induce “architectural myopia” in a student, as the research suggests. The reason is that the peculiar industrial aesthetic now considered normal within architecture runs contrary to our physiological needs (Salingaros, 2006). We humans have evolved inside a complex, fractal, structurally hierarchical environment, so that our neurophysiology responds positively to and receives sensory pleasure from natural environments. Traditional architecture and urbanism in all of their multiple variations manifested over millennia and across geographical distances precisely follow this natural geometry, which is why our brains recognize them and respond to them.

Training adds additional layers of preference on top of our instinctive, evolved responses. Architecture school invests several years conditioning the student to respond preferentially to abstract industrial forms and surfaces. At the same time, this industrial aesthetic is touted as superior to all previous, traditional expressions of built geometry. Elaborate theories of history and technology are given as apologias for this now-correct aesthetic, solely appropriate to this wholly unique climax period in history (Banham, 1960; Giedion, 1941; Gropius, 1965). All of this effort creates individuals that see things differently from the rest of us.

This long-term program of psychological conditioning, has, since its development in the original Bauhaus, turned out to be extraordinarily effective. An architect experiences the world in a very different manner to any person who has not undergone the same training. By internalizing preferences derived from abstract images that override our
neurological structure, over time, responses become automatic and crowd out other, more innate responses. The result of this aesthetic hegemony is the phenomenon of "architectural myopia", an interpretation of reality that conforms to ingrained beliefs.

In those situations where emotion isn’t triggered instinctively by human physiology, our evolutionary makeup is not decisive and can be bypassed. Thus, in front of drawings or designs on a computer screen there is sufficient emotional isolation, and an architect judges the industrial, minimalist, “contemporary” designs positively as isolated objects possessing a pleasing clarity and monadic legibility. (As Jacobs put it, the designs “say everything in a flash, like a good advertisement.”) At the same time, anything that resembles the complexity of traditional architecture is automatically judged negatively (its meaning is supposedly associated with reactionary or philistine culture) and it is rejected without any reflection.

The situation becomes much more complicated, however, whenever the architect experiences a structure in person, immediately, physically, at full scale. Here, cognitive dissonance comes into play any time he/she physically confronts a structure. For example, in front or inside a building sporting a contemporary “look” with minimalist industrial characteristics and perhaps deliberate structural imbalances, the architect’s body gives definite signals of alarm, whereas his/her mind recalls the positive prejudgment imprinted during training. In the opposite instance, in front or inside a traditional building with all the human-scale complexity contributing to compositional harmony, the architect’s body receives positive signals of wellbeing and informational nourishment, while at the same time his/her mind is retrieving the acquired negative prejudgment.

In both these situations the architect is receiving mixed signals — in fact mutually contradictory ones — from the built environment. Whenever ordinary intuition is short-circuited, our organism can no longer trust its visceral interpretation of the world. Our self experiences an alarming sensation of disembodiment. The brain thus turns to stored reference images in order to interpret reality — it is forced to adopt whatever lies at hand, in this case, the images of an abstract industrial modernity assimilated during training. From that point on, many architects do not “see” the connective, coherent complexity of the world, but instead substitute their eyes’ visual image with an alternative artificial reality constructed in their minds.

4. How Architects Justify Cognitive Dissonance

Discordant signals will continue to clamor for attention during the entire time the architect physically experiences a building, producing stress that could lead to physical illness. The same stress is felt, however, by the non-architect who is forced to experience a building embodying alien, non-adaptive geometries.

Architects have managed to adapt to this resulting stress in a rather disturbing way. They have embraced it as an actual goal of the work of art itself, rationalized as a way to provoke deeper thought and experience (Eisenman, 1982). This is a common rationalization of what was once called Deconstructivist architecture. Of course it’s one thing to provoke such stress in a gallery setting where viewers have some preparation and choice to attend, and quite another to do so at the scale of a neighborhood or city.
Yes, our architect friends share much of the blame, but let us remember that city officials, corporate executives, urban developers, mortgage bankers, and many others were part of this process of “architectural commodification”, creating attention-getting product design rather than good sustainable environmental design. Clients, following what they took to be general consensus on what is great architecture, commissioned architects to build inhuman structures.

There is abundant evidence that individuals will go along with the herd to an extraordinary degree, and with what they perceive as credible authority. Psychologist Stanley Milgram’s famous study showed that people surprisingly suspend their own moral judgments, beliefs, and ethics in the presence of perceived authority (Salingaros, 2011). The same is true with perception and aesthetic preferences in the presence of others. Group opinion can override one’s own senses. People will decide that they see or like something merely because they think others see it or like it. But the “others” may be doing exactly the same thing — meaning that no one really believes or likes what they see!

This effect echoes the old fable of “the emperor’s new clothes”. No one wants to be the one to say the emperor has no clothes, for fear of being laughed at. Only the little child has the nerve to do so, shaming all the adults around him. In a similar vein, many non-architects are frankly afraid to speak out — afraid of being seen as architectural philistines, ignorant of “good design”, ignorant of “professional excellence”, or simply out of step with what they perceive to be the majority. In fact, they may have their fingers on real issues of concern that the architects, in their zeal to make a “statement” or an attention-getting sculptural object, have ignored or repressed: such matters as whether people feel well in the building, or can find their way to the entrance, or find it disagreeable to walk down the street in front of it.

All of these things are not, of course, trivial. They are the essence of a functional whole urbanism, in which people are able to walk, navigate, feel well, and even feel any desire to live there in the first place. In short, the desires and gut reactions of the community are the very essence of a great, living city, as opposed to a banal and dysfunctional one. The dysfunction of such image-based urban places — sadly all too common in the post-war era — is what has sent many people fleeing for the suburbs, with their simplistic ideas of retreat into a private garden. (Generations of developers have made fortunes by encouraging this suburban flight through the opposite misleading images: of mansions sitting in vast lawns). This too has turned into a dysfunctional failure of traffic congestion, blighted strip development, and isolated, car-dependent homes.

Clearly, if we want a sustainable form of settlement, our buildings will have to work much harder to create a convivial, salubrious environment for all human beings — not just appease the elite connoisseurs of object-buildings. This means, among other things, that the problem of “architectural myopia” be taken seriously, just as we take night blindness seriously among drivers. We need corrective lenses.

5. The “Corrective Lenses” for Architectural myopia

What are these corrective lenses? First of all, re-integrate the needs of human beings, their sensory experience of the world, and their participation into the process of
designing buildings. Leading design theory today advocates “co-design”, in which the users become part of the design team, and guide it through the evolutionary adaptations to make a more successful, optimal kind of design. Architects spend more time talking to their users, sharing their perception and understanding their needs: not just the architect’s selfish need for artistic self-expression, or worse, his/her need to impress other architects and elite connoisseur-critics. We are not dealing with objects in a sculpture gallery, which can be regarded or not by those who choose to do so, or do not. Clients, academia, politicians, and the media have forgotten this basic fact, which is the key to constructing living urban fabric.

We are now dealing with an environment in which such image-based sculptural buildings are imposed upon people, whether they choose them or not. Very simply put, architects have a professional duty of care to their clients and users. They are not artists free of all responsibility, contrary to all of their academic training that encourages aspirations to become the new “starchitect”. If their image-based sculptural buildings fall down, they are responsible. Likewise, if such buildings “fall down on the job” of meeting human needs — if they are unduly stressful, or damaging to the quality of life — then that is a kind of architectural malpractice, and nothing less.

Second, the obsolete model of architecture as a kind of product, mutated in dramatic sculptural ways to attract attention, gives way to a model of architecture as an integral part of a living human landscape. It’s not enough to initiate this change merely by speaking out: it is up to clients, politicians, and common people to insist upon an adaptive criterion for all buildings from this point onward, otherwise we will only see a continuation of business as usual. There is still ample scope for the adventure of art, for the dramatic illumination of real structural qualities, in place of the abstract expressionism that is far too close to product design and marketing.

Third, we can learn from the processes that nature uses to create complex adaptive forms. By comparison, those of our own time are crude and primitive, and no amount of imaginative artistry or “magical thinking” will make up for this fundamental weakness. An inherently dangerous arrogance is noticeable among contemporary architects who wish to defy nature. Such an attitude does not prepare a practitioner to learn from nature. Architects need a new way of celebrating the majesty and the beauty of the city, and its place in the natural scheme of things. This new way of designing is integrated with our own innate needs as human beings. That is “the place of art” within architecture — not as master, but as servant, to life.

The promising new field of biophilia suggests that human beings have evolved with certain basic aesthetic and physiological needs: the presence of vegetation, water, sunlight, animals, and also the geometric relationships that have accompanied our evolutionary experiences with these structures. By tapping into this rich vocabulary of biophilic design elements, we can have an extremely rich variety of design possibilities — a rich range of artistic expression — while still meeting the needs of human beings. And within the same life-affirming process, we can meet the ecological needs of the environment too.

6. A Problem of Opposites
So often we have debated the phenomenon of “architectural myopia” with architects, who dismiss it and insist that is all about aesthetics, or a matter of opinion. But that old relativist narrative is flatly contradicted by a growing body of modern scientific findings. True, people have enormous varieties of experiences and tastes — and it’s wonderful that they do — but these phenomena are generated by a common set of structural processes that are identifiable and sharable. Some experiences are unquestionably damaging to health and wellbeing, in the same way that, say, the structure of car exhaust molecules is damaging to health and wellbeing. It does no good to say our narrative about car exhaust is such and such, we want people to experience it and be provoked by it — that will not change the fact that we are making people unwell.

We can readily appreciate this point by imagining artwork being introduced into a psychiatric ward where suicidal depression is being treated. Imagine an artist who said, “I am an artist, and I have the right to put up my disturbing, dark forms wherever I like.” We would likely say, “No you don’t, not here.” But how is the rest of the city, with its mix of people in varying states of health, really any different?

Doctors have learned that certain aspects of the patient environment promote wellbeing, and they now use this “evidence-based design” to improve the quality of life of their patients. In the same way, adaptive, human-scale architecture and urbanism rely upon discoverable rules of design. We proposed the existence of such rules (Salingaros, 2005; 2006) while at the same time conjecturing that a non-adaptive aesthetic is easily reached from the adaptive design rules by simply reversing them. That is, since guidelines for designing adaptive, contextual environments are known instinctively, do the opposite to generate a form that strikes an observer by its visual novelty and lack of context.

Our colleague Jaap Dawson recently reinforced this idea in telling us of his teaching experience:

“The unconscious rules us, however hard we try to become conscious of a little bit of our lives. What I’ve also discovered in working with students the last 27 years is that they pick up the design rules of Modernism very quickly — without consulting their own experience of buildings or spaces. And if you look at those rules, then you simply have to conclude something else: in order to follow them, you need to know the normal, vernacular, classical, archetypal language of building. If you know that language, then you simply do its opposite in order to get Modernism. My conclusion: awareness of the timeless language is present in people, but they learn to suppress it. But there’s something underneath groupthink, I think; and that’s a fear of trusting your own experience — in body and soul — of buildings and spaces. Any child trusts that experience.”

And thus we conclude that “architectural myopia” is a symptom of adopting a contradictory and opposite way of viewing the world. It also explains architects’ insistence — continuous, strident, and bordering on the obsessive — of the need to “educate” the public. For every time public debate focuses upon the basic dichotomy in perceiving architectural form between architects and non-architects, the standard response by the former is to beg for more “education” of ordinary citizens, and to dismiss natural human responses to their work as being “unsophisticated” and
“philistine”. Architects really wish that normal people would undergo the same reversal, and then everyone might agree on the same non-contextual, non-adaptive building aesthetics.

Since the non-indoctrinated continue to see complexity and coherence in the living environment and refuse to accept “architectural myopia”, the architect’s strategy is simply to replace the built environment so that it no longer contains those essential elements of living structure.

Many of today’s leading architects feel compelled to change the world drastically to make it conform to their preferred lifeless industrial paradigm. Unless non-architects (i.e. the rest of the population) stand up to this pressure, we risk the slow loss from attrition of all of humankind’s most emotionally-nourishing creations. For example, architects see a well-functioning and beloved urban space but perceive it as ugly and offensive, desperately in need of immediate “re-qualification” to turn it into a contemporary hard industrial object. Politicians are happy to go along so as to please construction companies who profit from the unnecessary tearing down and rebuilding. The result is a sterile open space, unused, dysfunctional, and dead — but in the eyes of the architects, the operation has been a success!

A culture based upon an abstract, disconnected conception of space is re-shaping our world right now for the worse. The parallel reality is replacing the living one. Enthusiastically supported by politicians and the building industry, architects have been commissioned to destroy historic buildings and urban spaces worldwide. Because “architectural myopia” is justified as perfectly normal in the press, such interventions are praised by their promoters but turn out disastrous for the urban fabric, and are hated by potential users. Those projects all tend to look and feel the same. This is not surprising, since the designs are generated by the same abstract modernist images in the minds of architects oblivious of the connective geometry that would catalyze the eventual life in such a space.

7. The New Architect

We desperately need a new kind of architect: one more focused on process than on product, on context rather than on objects. Preparing our new type of architect for practice, we should re-examine the ways that architects are rewarded today: the corrupt and incestuous system of financial incentives, corporate branding, and image-making that rewards the extravagant “starchitect” over the contextual practitioner. Once we have created a consensus for radical change, it will be straightforward to find new ways of compensating good work, through more incentives such as awards, commissions, scientific research that identifies both successes and failures, and other, stronger feedback.

Most important of all, we must reform the architecture schools without further delay, and place a new emphasis on design that is evidence-based, that pays attention to post-occupancy evaluations, and that, in short, values the outcome for human beings and takes their needs seriously. It is a democratic society’s duty to teach students to see and interpret the world without ideological blinders.

Last but not least, we applaud medically blind architects who courageously practice despite their handicap. Giving an example to the rest of the profession, they visualize
spaces in their “mind’s eye”, experience with their fingers a building’s plan as printed on embossed paper, and physically walk through a building to optimize the user’s experience. Those blind architects put to shame their colleagues who, blessed with the gift of sight, refuse to use their eyes.

REFERENCES


<http://p2pfoundation.net/Cognitive_Dissonance_and_Non-adaptive_Architecture>