Sustainable architecture teaching in non-sustainable societies

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ABSTRACT: In the era of escalating consumerism and endless growth, the spirit of sustainability sounds out of tune; nevertheless it has managed to find a place in several design schools as an inevitable response to growing environmental concerns. In its infancy, sustainable architecture education encounters several obstacles such as its ambiguous identity and objectives, academic inertia and limited expertise, social conformity, as well as the lack of inspiring prototypes to counter-balance the mesmerizing models of non-sustainable lifestyles.

The present paper reviews these setbacks, concluding that sustainable architecture necessitates a restructured academic curriculum, technically and socially alert professionals, and above all a bold revision of social priorities.

Conference Topic: Sustainable architecture education
Keywords: education

introduction

It's been 12 years since UIA released the ‘Declaration of Interdependence for a Sustainable Future’ [1], suggesting that the architectural profession should seek “to achieve ecological sustainability within the limited time that is likely to be available”. And it’s been 9 years after the release of UIA / UNESCO ‘Charter For Architectural Education’ [2] that registers among educational goals “an ecologically balanced and sustainable development of the built environment”.

Since then, many architecture schools have introduced or upgraded courses on technical aspects of sustainability, like ‘energy conscious design’ or ‘bioclimatic architecture’.

The integration of sustainability in design schools up to now has been reviewed by several surveys. Most of them share two conclusions:
- first, that not many schools have embraced the subject in a thorough manner, pointing at ‘the low level at which sustainable design concepts have been incorporated into the regular curriculum’ and noticing that “environmental education in architecture has been done on an ad-hoc basis, ...fragmented and insufficient” [3];
- second, that sustainable design requires teaching methods quite different than the long-established ones (for instance [4], [5] or [6]).

For those who are familiar with architectural classrooms, such remarks are not surprising. What is surprising is the fact that environmental crisis and its foreseeable effects are still a marginal issue in the academic discourse at schools supposedly dealing with the environment, perhaps because crises are not an attractive subject in our ‘feel-good’ era. As a result, those who will have to tackle the looming crisis in the near future are not adequately prepared.

Still, the need to implement sustainable design is widely recognized by the educational community, at least in principle. A telling example is a survey among architectural educators in more than 30 European countries in 2001 [7], where “nearly 90% of the respondents are voting for a rather dramatic shift from a currently rather low to a high consideration of ‘Sustainable Development’ in future architectural education”. According to the survey, “only 19% of those said that this concept is currently receiving a very/quite high level of consideration, and 83% said it should receive a very/quite high level of consideration in architectural education”, identifying as an “aspect of leading importance” the "integration of sustainability-issues into all studio design (not as optional add on)".

In spite of such consensus, there is still a long road until sustainable design is firmly rooted in architectural learning. There is a number of reasons for this, within and outside the academic perimeter:

academic obstacles

• ‘fringe’ reputation
In most schools that show environmental concern, related issues are usually confined in elective classes, detached from design studios. This creates a ‘fringe’ reputation for sustainability, shunning its principles from the main design projects to the periphery of architectural learning. As a result, no practical experience is gained in how to introduce sustainable qualities in the 'core' design agenda.

• number crunching
In many cases the emphasis is on quantitative rather than qualitative matters. As a result number crunching eclipses design, and students tend to associate sustainable concerns with numerical performance
outside the classroom

The introduction of sustainability in architecture schools encounters further difficulties stemming from the outer side of the academic walls:

• ambiguous identity
  Sustainable design has yet to find a clear identity:
  - Is it a building technique, a blend of architecture and engineering that can be applied on any architectural variety just like, say, fire safety or seismic proofing?
  - Is it just one more architectural fashion, perhaps with extra consideration to the environment than the rest, with its own stylistic trademarks like solar collectors, conservatories, or green labels?
  - Or is it a novel design mindset, where nature & society, today & tomorrow are equal partners in the design framework?

• confusing implications
  The sustainable design family includes variations like ‘energy conscious’, ‘bioclimatic’, ‘solar’, ‘ecological’, or ‘green’, any of which could be applied in a non-sustainable manner. For instance, an energy-saving scheme could employ non-ecological materials; bioclimatic skyscrapers use more resources than low rise, and the sustainability of a huge ‘green’ mansion with just two occupants is questionable. It is clear that sustainable design in full scale is a complex endeavour that requires a holistic alertness on a broad array of subjects, technical as much as social: “Although there is much interest and curiosity about the subject, no one would say it’s easy to learn or apply in practice” [4].

• the magic flute
  The architectural ‘haut couture’ of our era markets themes rather far from sustainability. As a result prudence and ‘μετρον’ (metron = Greek for measure) are ostracised from the main architectural values. Given that architecture is always learned by example, many students - and many grownups too- clone the glamorous paradigms of the grand maîtres, striving for visual originality and style above all. The glossy architectural press hardly advertises the non-sustainable features of the grand œuvres because that would spoil the merchandise. Therefore attention is often focused on 2D ideas rather than 3D space or 4D matter, and hollow impressions count more than the material and societal aspects of the built environment. As fashion outshines matter and time, sustainability is a loosener.

• the question of aesthetics
  Students are the last to blame for that; given the predominant aesthetic values, there are not too many sustainable examples stimulating enough to inspire students. On the contrary, a frequent claim is that sustainable buildings are per se unattractive, as if all other types of architecture have only good examples to show.

only, detached from issues like comfort, resources, or societal ethics. In that manner, sustainability-related courses are considered similar to those on technical fields like structural or mechanical design, but not ‘real’ architecture.

• the old guard
  Sustainable design is a rather recent theme, not very familiar to the old guard that administers schools. Most tutors have had limited or even nonexistent training in their past, and practical experience is even more rare. Consequently, “a lack of importance placed on sustainable design by many architectural educators” [3] is no surprise. As a result, it is difficult to introduce ‘obscure’, ‘uninteresting’ or ‘useless’ new topics to the curriculum, especially in view of the fact that sustainable design challenges the predominantly artistic stance of architecture.

• holistic vs. fragmented
  Sustainable design is a complex architectural approach, encompassing diverse fields of knowledge and requiring multi-discipline teamwork. Therefore its teaching cannot fit with the conventional linear approach where different technical skills are segregated in different departments, with rare opportunities to bring them all together through joint projects in a holistic manner. Furthermore, “sustainable architecture is a complex subject that should be covered throughout the curriculum” [3], not just in sporadic projects.

• the Beaux Arts tradition
  Furthermore, design projects are frequently detached from earthly reality as if they refer to a space station, hardly interrelated with nature or society. Societal ethics or environmental awareness are not embedded in the agenda, confining training in merely technical skills with major focus on the aesthetic. “An architectural student suddenly transported to many of our architecture schools from 1900 Paris would feel right at home” [5].

• “what crisis?”
  Environmental crisis is repeatedly under the limelight of the media but, remarkably, it is seldom included in the academic discourse. There is little systematic awareness of the relationship of building and urban design with vital environmental issues like energy & water shortages, air & ground pollution, urban heat island & ecological footprint, or resources depletion. And certainly such topics are not included in project briefs or ordinary student work.

• lack of support
  Furthermore, there is insufficient supplementary input through technical classes like building physics or environmental technology, that could support sustainable design projects. When students do not understand the dynamic linkage between structures, environmental conditions and users, it is not easy to differentiate, say, between “building in the landscape” and “building in interaction with the landscape” [8].
• is sustainability expensive?
Another repeated assertion is that “environmental buildings cost more”. Here, the cost comparison basis is rather vague, disregarding the distinction between building- and running-cost, or the fact that “trying to inject sustainable criteria later, instead of earlier, in the design process is the cause of any added expense” [4]. Even when the ‘extra cost’ is true, it is also true that clients are often ready to pay more for decorative elements but not for, say, a more efficient boiler.

• the unspoken price of sustainability
The human impact on the environment is proportional to population size, consumption per capita, and resources or waste per consumption unit; therefore these three factors should be reduced if we are to achieve a sustainable balance between nature and us. So far, we focus mainly on the third one -and that with marginal success. Decreasing the other two implies harsh measures that nobody really likes to face. Again, sustainable propositions are distressing pointers to a bitter outlook.

counteracting lethargy
So, even if architecture schools manage to bypass their obstacles and embed sustainability firmly in the curriculum, and even if sustainable design overcomes its own weaknesses, there is still the vital checkpoint of social acceptance. ‘Green’ architects need ‘green’ clients, otherwise their skills are useless.

People brainwashed to consume more cannot appreciate an architecture that requires less and wastes less albeit offering more. As long as show business is a powerful political tool used to strengthen today’s status quo, it will be difficult for sustainable design to be more effective in its actual results than, say, ‘Live Aid’ or ‘Make Poverty History’ campaigns.

It is true that people do change their view about the necessity of sustainability, although it is uncertain to what extend they are ready to accept the consequences and modify their way of living accordingly. But the pace of that change might be too slow compared with that of the environmental crisis, and nobody knows whether the breakdown will come slowly like a long illness, or suddenly like a stroke, without enough time to react smoothly.

Therefore it is not enough just to introduce sustainable design courses at universities, or to enhance the performance of sustainable buildings. Alongside those urgent requirements, it is equally imperative to enlighten the public about the merits of sustainability and the perils of ‘architecture as usual’.

Architects are the ones who shape up the stage of our collective and private lives; therefore they have the duty to do that with social responsibility as much as respect to our precious biotope –planet Earth.

the social context
Sustainable design is not an architectural exercise; it refers to the built environment and therefore it cannot flourish without social endorsement. Architecture has always been echoing the dominant societal values and forces, so the question is whether today there is room for change: "To transform this activity from a lonely one of counter-cultural rebellion into one of mainstream practice requires only a critical mass of people who take it for granted as the basis for technical/cultural merit" [9]. There are some signs that allow optimism, but the overall social trends look rather bleak for a sustainable design blossoming:

• against the current
In our era of “consumo ergo sum”, sustainable design sounds out of tune as euphoric consumerism inhibits motivation for restraint. Clients demanding glittering energy-guzzlers are more influential than those asking for sensible designs. Which school can train its professionals for the future while society looks the other way?

• lack of future
Almost a century ago, Modernist thinking was manifesting radical proposals, incorporating both technical and social issues along with a distinct aesthetic dialect. Today, as ‘internationalism’ has been replaced by ‘globalization’ and ‘citizens’ by ‘consumers’, most products in the post-Modernist supermarket have short expire dates. Many current architectural models rest between show business and virtual reality, and there is a shortage of real-life proposals offering an inspiring outlook for a future society and its architectural language. Sustainability does have the necessary ingredients and rationale to become the basis of such ideas, but it is still lacking a plausible broadcast –and an alert audience.

• the ‘ostrich’ syndrome
The apathy for the future and the censure of sustainable proposals can perhaps be explained: Alarming trends are all too evident as problems are swept under the ‘panem et circenses’ carpet. The escalating bad news about the environmental hazards triggered by human activities lead to the denial of facts and the replacement of painful realism by unfounded optimism. Nobody likes Cassandras, and sustainable architecture is associated with their warnings.
conclusions

Sustainability is a growing necessity that has to affect a wide range of our social priorities and objectives, starting with the acceptance of facts and, next, by realizing that it is mainly a socio-political rather than a technical topic requiring a earnest change of mindset.

In that respect, sustainable architecture is not one more fashion, a technique to save money, or a way to lessen our ecological remorse. It is no less than an urgently needed response to man-made environmental threats.

So far it has been difficult to modify the architectural curriculum effectively due to academic inertia, but schools have to acknowledge forthcoming realities in order to adjust teaching subjects and methods, and to instil sustainable spirit in the design attitude of future architects.

This is a hard task as the materialistic addiction keeps growing in our society, but is there another way? Or we frankly believe that after a generation we will still be building like today?

“Architecture is meant to be a holistic profession which combines both arts and science with social concerns. It is vital that this definition is re-invigorated within Schools of Architecture in terms of holistic sustainable design” [8].

references