Beyond sustainability: reconsidering the healing qualities of the built environment

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Abstract. Sustainability, resilience and other concepts have recently emerged as a response to the most urgent problems of our time including the ones of the built environment. Throughout the last century little attention if any at all was paid to the adaptability of the built environment to nature and the needs of human beings. The ideology that shaped Modernism was hostile to the psychological qualities of the built environment and instead cared about shaping new aesthetics and advanced technology in building industry. The ascent of Modernism during the last century among other things was associated with dissemination of certain building doctrines and dogmas that neglected environmental issues and played their role in discrediting traditional ways of building architectural structures as well as traditional urbanism. As a result the built environment lost its adaptability to natural environment as well as its human qualities. Thus a new approach to building and rethinking of the legacy of Modernism as well as current practices is urgently needed. Though the rise of environmental consciousness gave an impetus to reconsider present quality of built environment, more steps in this direction are required. Reconsideration of architectural and urban design practices could and should be triggered by the new findings in psychology, neuroscience as well as re-reading of pioneering work in architectural and urban theory done by Christopher Alexander and his co-workers and more recently revisited by Nikos Salingaros. Reasoning that the development of technology in itself can solve the problems of the built environment is deeply flawed and thus should be transcended.

1. Introduction

There is more and more evidence that the present course of human activities on earth is hardly sustainable, thus efforts have been and continue to be made to make it more liveable, moreover so that knowledge about the scope as well as reasons of contemporary environmental crisis has essentially expanded during recent decades. The need for a new vocabulary and new practices have been expressed by the introduction and wide dissemination of such important notions and concepts as sustainability, resilience and the like. The built environment is directly connected to these concerns about the future quality of human life in various parts of the globe especially as problems of climate change have become a pressing global issue. Renowned American theologian, philosopher and environmentalist John B. Cobb whom has contributed significantly to the concept of sustainability in the early stage of its conceptualization has timely and persuasively insisted that "The finitude of our planet requires us to work toward a human society that accepts limits and seeks a decent life for all

within the. Such a society should live in a balance with other species and primarily on the renewable resources of the planet. It should use non-renewable resources only at a rate that is agreed upon in the light of technological progress in safe substitution of more plentiful resources." [1] As energy and economy analyst Richard Heinberg has suggested while discussing the problems of economic growth that is adopted as present global paradigm, "most of the basic elements in our current way of life will have to adapt or become unsupportable." [2] Meanwhile forecasting the future of humanity in the mid-21st century Jorgen Randers – one of the authors of original *The Limits to Growth* study commissioned by the Club of Rome (1972) has recently argued in his new book that by 2052, "the new paradigm – 'sustainable being based on renewable energy' – will be exerting increasing influence on policy making. Not only because of the ominous threat from the approaching climate disaster in the second half of the twenty-first century, but also because the energy sector by then will have completed one-half of the transfer from a fossil to a solar base" [3] The common awareness about the situation of the earth in this respect (environmental damage, climate change, greenhouse effects, etc.) has largely expanded, meanwhile the notions and strategies of sustainability and resilience has been incorporated into both architectural and urban theory as well as practice [4] Studies in the analysis of the built environment and environmental quality have been abundant and there is hardly any need to name any of them.

However, one must admit that despite new (and promising) notions, concepts and encouraging slogans we are still dealing with the burden of the last century and modernist ideology that has largely shaped the urban tissue of contemporary cities and their architecture. Despite of the advent of post-modernity that questioned the legacy of Modernism, its essential assumptions are still largely dominating the practices of architectural and urban design and are rarely subjected to rigorous questioning. More often than not calls for sustainability and resilience mask the unwillingness to essentially revise the legacy of Modernism in the sphere of architectural and urban design, even some efforts are made to introduce sustainable practices, the building industry largely follows the route taken during the ascent of Modernism during the last century. That is why the revision of Modernist architectural and urban design is necessary and consideration of alternative approaches is not just meaningful activity but is of utmost necessity while dealing with complex issues of the built environment.

The aim of this paper is to discuss some of the reasons why discourse of sustainability and resilience often misses its target despite its ambitious and far-reaching goals. It suggests and outlines the need to go beyond conceptualizations of Modernism and its practices while trying to find appropriate patterns for design our living environment while taking into account adaptability of architectural and urban design and psychological comfort provided or not provided by the built structures. At the same time attempts are made to revisit and reconsider some of the theoretical concepts of architecture and urban design that could be especially helpful in rethinking the forms of architectural and urban design largely conditioned by the theory and practice of Modernism and the general course of the twentieth century's design. Focus on the pioneering work by Christopher Alexander and its recent revisiting made by Nikos Salingaros is expected to provide a new perspective while discussing the healing character of the built environment that is often missing in contemporary design practices.

2. Methods

The article is of theoretical and inevitably interpretative origin, thus it employs the qualitative methods peculiar to the theoretical critical analysis, i. e. those of critical analysis of sources, historical analysis of discourse in this particular field as well as critical interpretation of written sources.

3. Discussion

3.1. The Mental Legacy of Modernism and Its Ambiguities

Discussing the legacy of Modernism is still a somewhat taboo subject in Western architectural and urban scholarship that continues to be deeply committed to its key assumptions despite of the obvious fact that the architecture of Modernism was not based on ideas that are currently needed to establish a framework urgently needed for sustainable and resilient building practices. As architect and urban designer Leon Krier has recently argued, "Modernist architecture is an architectural Esperanto dependent on the synthetic building materials and climate control machinery. The problem is not so much its nature and existence but its pretension to be the only legitimate language of modernity, declaring traditional architecture and techniques to be "historical" and thus "outdated" and "anachronistic." [5] Architect and architectural critic Kenneth Frampton who obviously has a different opinion about architectural Modernism than more "Orthodox" thinker like Krier, nevertheless has argued that whatever one might think of its roots, "modernizing barbarism" as a part of global contemporary building production is "appalling". [6] Some other authors, like Michael W. Mehaffy and Nikos Salingaros have recently demonstrated that the very term "modern" in itself crates a phenomenon that they call "a false dichotomy of values" [7] According to both researchers, this category is largely responsible for giving up the accumulated principles throughout human history and instead offering a pursuit of a "false utopian promise of progress" [8] Furthermore, the reign of Modernist aesthetics and general view is associated with the making of an industrialized world that imposed its own models on urban (as well as architectural) structures. [9] The general failure of modernist architectural practice has been examined in detail by Malcolm Miles, who has provided a well-researched documentation on how as large number of the world's iconic buildings failed to meet requirements both in terms of function and aesthetics. [10] One of numerous notorious examples of famous, iconic and often paradigmatic modernist architectural buildings that were destined to fail despite of ambitions of their designers is the Unite d'Habitation in Marseilles, France designed by Le Corbusier and uncritically presented as exemplary piece of modern architecture in a large number of overviews and anthologies of the last century. [11] Despite of growing dissatisfaction with modernist legacy in architectural design and urban planning expressed by the people who are their users and reputable academic researchers, the myths of novelty continue to haunt imagination of most contemporary architects. The damage done by modernist urban planning and urban design have been discussed by a variety of authors, including architectural historian Vincent Scully who was extremely critical of its attitude to the old, historical cities [12] as well as such perceptive urban historians like Spiro Kostof [13] and more lately Peter Hall. [14] At the same time, architectural Modernism remained hostile to traditional building techniques and aesthetics as it was focused on the ideas of progress and technological future. Because of modernist design practices traditional ways of building have been either eliminated or marginalized in most parts of the world and homogenization of the built environment was offered both a s a global remedy and as a visible image of modernizing ideology. Thought architectural design in many ways recently started to move beyond simplistic Modernism in many aspects, its essential assumptions, especially contempt and ignorance of the past still persist in a architectural as well as urban design as well as in criticism and architectural theory. There is an urgent need of transcending the modernist ideology and practices in architectural and urban design in order to take a course toward more mentally and psychologically rewarding built environment than that one that was constructed following short-sighted visions of Modernism and its expropriation by the global building industry.

3.2. The Need for a Healing Environment and its Foundations

Opinions about the flaws of the built environment constructed under the imp licit or explicit influence of Modernist architectural ideology are abundant. Most users often find out that the buildings that were supposed to be functional and beneficial to users embody the qualities that contradict their initial goals. Not much happens even if occasionally dwellers or users of particular modernist buildings are

interviewed about their attitudes: the building industry continues to follow the patterns that have been compromised long ago. It is often (and rightly) argued that the built environment in itself becomes a source of negative emotions and feeling and provides a setting for these to proliferate and take over. For example, Arnold Berleant - one of the pioneers who developed still largely novel the field of urban aesthetics maintains that "Architectural accomplishment is not universal, to be sure, and uninspired building continues to oppress most of the increasing population of an increasingly urbanized world.' [15] More lately another leading philosopher of architecture, Alberto Perez-Gomez concluded that "An environment that becomes increasingly devoid of qualities, reduced to a set of coordinates in a global positioning device, for instance, tends to exacerbate our contemporary psychopathologies – our sense of despair in view of the "meaninglessness of existence", contributing to debilitating nihilism. In other words, while the qualities of space remain directly assessable through our senses and our emotional consciousness, the technological world tends to deny the cognitive value of such perception and in fact reinforces the opposite assumption…" [16] Even giving up a complicated discussion about what really makes the legacy of architectural and urban Modernism and which trends in contemporary architecture might be viewed as its offspring and which as distortions imposed by international building industry, it is possible to speak about architectural structures and urban tissue in terms of healing environment and adaptive design that requires a paradigm shift as suggested by mathematician and urban and architectural theorist Nikos Salingaros. In this sense it is possible to speak about the present paradigm of industrial design based on a 'copying' rather than 'generating' form. [17] In the new framework of thinking that involves reconsideration of industrial design pattern that dominated throughout the last century, it is important to distinguish a more sensitive design meant for organism as opposed to that one that was mechanical and machine-like [18] it is well known that rhetoric of Le Corbusier was based on interpreting urban elements, like houses, streets, etc, as 'machines' for moving or living. This paradigm od architectural design is no longer feasible and thus should be transcended. This task can be accomplished by using the insights from contemporary science, taking into consideration such different phenomena: complex adaptive systems, the network city, geometry of resilience, fractals, self-organization, evidence-based and biophilic design, computation and evolution of patterns, etc. [19] The new approach toward design is needed as it is openly admitted that even if there had been progress in technology's influence over architectural work, the current principles of sustainable design 'remain far from holistic' [20] Moreover, already several decades ago some architectural theorists pursuing the course of phenomenology research came up with a questions about why such a large part of modern built environment has no appeal to human emotions, like for e.g. Juhani Pallasmaa in his essay "Geometry of Feeling', published as early as 1985 [21] or Joseph Rykwert. [22] Though introduction of phenomenology into architectural studies started with the writings of Norwegian architectural theorist Christian Norberg-Schulz [23] and phenomenological approach analyzing the role of human senses in interactions with natural and built environment was further developed by Pallasmaa and others, more lately some other options of understanding sensitive relations between human being and their environments were supplied by the findings of evolutional psychology and their application into the field of architectural studies. More lately there had been a lot of interest in appropriating the findings of psychology in architectural and urban studies. A lot of evidence has been provided on how people react to their immediate environment, on how important details and diversity are for visual perception making the students of architecture to doubt a number of modernist myths [24] Thus psychological qualities of the built environment prove to be very important and in many ways they determine whether people feel at home in interior and exterior spaces or experience feeling of estrangement, fair, desperation and even leading to the loss of meaning and eventual depression. Thus knowledge accumulated by a number of scientific disciplines, including evolutional psychology provides a firm basis to suggest that is no longer possible to rely solely on the modernist aesthetics, ignoring the implications of human psychological interaction with their living environment that architectural modernism has largely ignored and continues to do so. The findings of disciplines concerned with space and human senses have guided researchers into distinguishing between light, somatic, thermal and acoustic spaces and discussing the benefits of multisensory design. [25] The development of biophilic design and its theoretical foundations also reflects the

common tendency to transcend the legacy of Modernism that is taking root in various parts of the world.

3.3. Beyond Industrial Design: New Directions and the Virtue of Looking Backward

Architectural modernism has always associated itself with the vanguard in the development of human culture, promoted aesthetics novelty and yet, often failed to grasp the implications of knowledge provided by other disciplines. Architectural modernism itself was rooted in denial of tradition and continuity: it often claimed that it is necessary to break the shackles of the past in order to create a new brave living environment. However, after more than a hundred years have passed since this aesthetic ideology came into being, it is possible to conclude that most of its promises were not delivered. Instead it borrowed itself to industrial mode of building that proliferated all over the globe and largely homogenized the contemporary built environment. To cut a long story short, architectural modernism seems to have created more problems all over the world homogenizing the built environment and imposing simplified and often simplistic forms than it was able to offer aesthetics and/or technical solutions of complex and complicated problems of human habitat. Besides, instead of understanding the mental function of architecture as ways "to enrich, articulate and strengthen the relations with the world, and ultimately our awareness of ourselves' [26] it often chose an opposite direction – to create an environment that blocked the relations with the world, disregarded the human senses, by-passed or deliberately ignored architectural and cultural traditions and silenced communities. As was already mentioned, some trends in architectural thinking attempted to overcome this inbred ambiguity of architectural Modernism and development of phenomenological view might be seen as one of the responses to its dogmatism and narrowness of vision. There were, however, other options as well. Some forty years ago mathematician, architect and architectural theorist Christopher Alexander developed his concepts of "pattern language" [27] and "timeless way of building" [28] offering a way to get over the tendencies of architectural and urban design of the last century. In *Timeless Way of Building* Christopher Alexander has made an interesting remark on why patterns are needed. According to Alexander "in period when languages are no longer widely shared, when people have been robbed of their intuitions by specialists, when they no longer even know the simplest patterns that were once implicit in their habits, it becomes necessary to make patterns explicit precisely and scientifically, so that they can be shared in a new way – explicitly, instead of implicitly – and discussed in public." [29] Alexander maintains that timelessness is important element that is capable of describing the environment that was created by indigenous vernacular builders in various localities of the globe; besides he believes traditional builders were able to grasp the meaning of nature and while constructing their dwelling followed the course parallel to nature's creation. Eventually such reasoning provided the architectural theorist to claim a certain way of building - a timeless one. His concept of timelessness of building has been occasionally questioned and even opposed, especially in terms of overemphasized sustainable character indigenous buildings allegedly possessed For e.g. Nezar Alsayyad and Gabriel Arboleda have argued that this kind of view neglecting particular historical and regional varieties and peculiarities might be interpreted as mythological one as "in many cases, he buildings and settlement practices that may have been sustainable in the past are no longer so because the natural and built environment in most of the world's traditional communities have been profoundly affected by diverse factors. [30] However, the discussion whether Alexander's view really belongs to the realm of mythology (if any at all) does not seem grounded enough as nowhere in *Timeless Way of Building* or *Pattern Language* Alexander suggests that all and every indigenous building practice has been sustainable or resilient. Instead, drawing on numerous building traditions and historical periods he offered a possible way to develop a humane approach toward building environment. Moreover, his concept of "patterns" goes beyond indigenous architectural traditions and might be considered as being associated with human activity in the sphere of building in different historical periods under different circumstances. Accordingly the "pattern language" should be treated not as a theoretical hypothesis but as instrumental and theoretically valid building guidelines that have ben substantially researcher by Alexander and his associates. Moreover, it is difficult or almost impossible to ignore Alexander's insight about the universal character of the building patterns, since

their existence can be well attested not only by theoretical speculations, but by both collective and individual experience. Among many other things he rightly argued that any single architectural structure should not be taken as an isolated element as it exists in the contexts of other buildings – a warning that modern architectural practice ignored and continues to ignore. The reason of this ignorance is most likely, the persistence of the ideology of modernism that stubbornly refuses to acknowledge that other paths are possible to create a psychologically comfortable, healing and rewarding contemporary built environment other than Modernism has envisioned. While critically re-examining the modernist paradigm of architectural and urban design, it might be highly beneficial to explore the possibilities set forward by Alexander's pattern language abandoning biases and prejudices associated with alternatives *to* architectural Modernism rather than *inside* Modernism.

While addressing the members of the Royal Institute of British Architects back in 1984 philosopher and historian Ivan Illich drew a striking comparison between the art of vernacular dwelling and the practice of modern housing, suggesting that unlike inherent human ability to dwell peculiar to different cultures "housing provides cubicles in which residents are housed. Such housing is planned, built and equipped for them. To be allowed to dwell minimally in one's own housing constitutes a special privilege: only the rich may move a door or drive a nail into a wall. Thus the vernacular space of dwelling is replaced by the homogeneous space of the garage. Settlements look the same from Taiwan to Ohio and from Lima to Peking. Everywhere you find the same garage for the human – shelves to store the work-force overnight, handy for the means of transportation. Inhabitants dwelling in spaces they fashioned have been replaced by residents sheltered in buildings produced for them, duly registered as consumers of housing protected by the Tenants' or the Credit receivers' Act." 31 This remark seems to be still valid, despite the proliferation of new building technologies and innovations, as housing continues to be understood in terms of homogeneous garage though often wrapped up in ecological discourse. Though taking a different approach (less anthropological, yet more practical) toward dwelling, Christopher Alexander's studies offer a way of understanding the disappearing vernacular values and using them meaningfully in contemporary architectural practice. Thus his pioneering work in studying the patterns of living deserves more attention than it had received so far.

4. Conclusion

The legacy of Modernism in architectural and urban design has proved to be burdensome as this aesthetic ideology has institutionalized a systematic assault on traditions and traditional modes of architectural practice and urban design. The intellectual agenda se by Le Corbusier and hordes of his associates and disciples and eventually adopted by the building industry in the west and east alike have compromised, damaged or even erased traditional building practices labelling them as anti-Modern and thus having no adequate place in the sphere of architectural and urban design. However, the promises of architectural Modernism have failed to face the challenges of contemporary environmental crisis, climate change and its avatars, neither architectural Modernism offered any meaningful alternatives. Currently emerging design projects oriented toward sustainability and resilience often fail to meet their goals despite their high expectations partially because Modernist concepts continue privilege novelty for the sake of novelty and promote only certain types of aesthetics that fits the narrow scale of expression drafted by its ideology and espouses contempt for the practices and concepts of the past. There have been attempts to overcome the phase of liminality and the legacy of architectural Modernism by revisiting "timeless" building traditions and working out design patterns that can potentially be applied universally in order to create more satisfactory built environment than one that was constructed throughout the last century not only in terms of sustainability and resilience but also as psychologically comfortable, inspiring and assuring environment strengthening the humanness of human beings and their psychic balance with surroundings. The contribution of Christopher Alexander and his collaborators is one of the possible and plausible ways of creating this kind of the built environment. Further inquiry into design patterns developed by Alexander and his team a few decades ago as well as critical revision and

reconsideration of his concept of 'timeless way of building' provides an ample space for further research in this direction that might help to create more positive qualities of the built environment going beyond the narrow and restricted framework of architectural Modernism and opening new vistas to human dwelling on the planet plagued by the lack of balance between natural and built environment and its debilitating effect on the human mind.

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