Health-Promoting Places: Architectural Variety

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Abstract. There are pristine landscapes that are believed to stimulate the processes of healing. The purpose of this research is to find the features which can be installed into the urban environment to promote health and well-being. Many researchers stipulate that one of such qualities is a certain level of complexity and details. Dull, repetitious environments are linked to modern diseases. One of the important health-promoting features seems to be the architectural variety. In this paper selected aspects of architecture and health-promotion are discussed using examples from ecological neighborhoods in Europe.

1. Introduction
Contact with the landscape of physical beauty is believed to have a salutogenic effect on human health and well-being. Gesler defined therapeutic landscapes as places where "physical and built environments, social conditions and human perceptions combine to produce an atmosphere which is conducive to healing" [1]. Thus the therapeutic landscapes combine the material (build environment), social, spiritual & symbolic aspects that facilitate the health-promotion. The landscape is ‘a product of the human mind, and material circumstances’ [2]. The term health-affirming landscapes are more extended than extraordinary places of miraculous healing and refer to everyday places that unite the qualities of therapeutic landscapes to influence people's physical, mental and spiritual healing [3]. However, as each person may perceive it differently, the “therapeutic landscapes” should be regarded more as ‘potentially therapeutic landscapes’ [4]. On the other hand dull, repetitious environments are linked to modern diseases, especially anxiety and depression.

This study was undertaken to find the features which can be installed into the urban environment to promote health and well-being. Christopher Alexander coined a theory of beauty perception conveyed in fifteen “fundamental properties” [5]. Those properties are usually apparent in beautiful buildings and objects, although it is not that each of them occurs in every beautiful object. What is interesting is the fact that all the fundamental properties coined by Christopher Alexander seem related to a certain level of ordered complexity. Many other researchers also stipulate that the quality of health-promoting places require a certain level of complexity and details.

2. The features of urban environment that promote healing and well-being and relate to complexity and order
First, a literature review was undertaken to determine the features relating to human health and wellbeing connected with complexity and order. The following aspects were found: contact with nature, natural physical beauty of the environment, the optimal level of complexity, legibility, focal points and landmarks, and human scale.
2.1. Contact with nature
There is numerous research evidencing the health benefits resulting from contact with nature within ‘green’ and ‘blue’ settings. Moreover, the fundamental properties seem to be connected with fractal geometry and golden ratio relationships observed in nature [5]. Apart from ecological advantages, greenery offers natural complexity and order. The plants offer sensory stimulation with their colors, taste of fruits, scent of flowers, rich textures, and rustling leaves.

2.2. The physical beauty of the environment
Researchers point to the fact that magnificent scenery, tranquility, beauty, and remoteness are all associated with the therapeutic landscape [6, 7]. Observing natural physical beauty is believed to be a salutogenic experience. The therapeutic landscapes of well-established reputation e.g. Lourdes in France or St. Anne de Beaupre in Quebec, Canada, unite the natural physical beauty of the landscape with sacred and symbolic qualities [8].

2.3. The optimal level of complexity
There is abundant research evidence that the human mind needs a certain level of complexity organized in orderly frames [9, 10, 11]. Organized complexity elicits a harmonious response [12]. Exposure to the patterns of living forms helps accelerate postoperative recovery [12]. Humans need an environment with intricate details to stimulate our brains. Salutogenic patterns in architecture and design are constructed with legible elements that form a complex composition. The optimal level of complexity requires the human scale, i.e. distances small enough to determine human face expression and mimics, and hear the human voice.

2.4. Legibility
One of the key qualities of successful public places is legibility. The structure of architectural components must be organized into a coherent pattern to inspire a feeling of emotional security [4]. The spatial relationships between buildings and objects should form a readable structure. The human brain needs a certain hierarchy of open spaces to construct mental maps that facilitate orientation and wayfinding [13, 14]. We need landmarks, central points, dominant points, etc. to guarantee the perception of safety.

3. The need for architectural variety
The study of literature leads to the conclusion confirming that people need an environment with an optimal level of complexity. The interesting question was how to translate the complex order into the material environment. It was determined that architectural variety, which can be found in historic town centers could be beneficial to human health.

3.1. Traditional complex order
Traditional cities were gradually growing with material form and physical architectural substance. In historic cities, each building was build and decorated by individual family or entrepreneur, and displayed a certain level of personalization and originality. They are offering details organized into legible patterns (Figures 1 and 2). To some extent, the traditional and vernacular details are emulating the forms encountered in nature, i.e. plant ornaments. Traditional building techniques allowed for construction which is within human scale. We can also observe how the historic cities are often decorated with planters full of trees, bushes, and flowers. The architectural variety needs to be completed with street greenery.
If we look at the successful new additions of contemporary architecture to historic urban tissue, we can see legible patterns of organized complexity of construction elements, repetitious rhythms and variations of forms within symmetry (Figures 3 and 4). There are various strategies for new additions: blending the new architecture using traditional building forms and materials (Figure 5) or creating a pronounced contrast of new architecture with historic structures (Figure 6).

3.2. Modern neighbourhoods offering architectural variety.
The construction of new neighborhoods provokes a challenge to organize a new manmade environment into legible but complex patterns to create salutogenic landscapes. The failure of large scale housing projects e.g. Pruitt-Igoe resulted not only from social problems but also the physical aspects. The uniformity of dull, repetitious blocks of flats is perceived as depressing and provokes feelings of sadness [15]. The study of the new successful neighborhoods in Europe demonstrated that the ecological design goes in pair with the creation of architectural variety. There are neighborhoods where each of the buildings is designed by a different architect but must comply with specific rules stipulated by the general masterplan. Among the conditions are requirements concerning the choice of materials, textures, and colors, not only the building dimensions and setbacks. The examples of good practices, which were chosen among the visited neighborhoods are discussed below.
3.2.1 ZAC Fréquel-Fontarabie. This urban regeneration project covers only 1ha in the 20th arrondissement of Paris. This tiny operation is organized around a garden, part of which is public and another associative. The garden is rich in species and provides a quiet refuge for mental regeneration. The neighborhood presents a high degree of architectural variety, partially also due to functional diversity. The new buildings offer apartments, various services, and cafes. What captures the attention is a great variety of architectural details, which create a sensory-stimulating environment. The optimal level of complexity was achieved with architectural forms and individual details. The neighborhood is tiny, therefore the architectural variety is established by new constructions as well as existing historic buildings.
3.2.2 ZAC Trapeze. This urban regeneration project is located on the former Renault factory brownfield. The area was divided into macro lots, given to well-known architects, such as Jean Nouvel, Norman Foster, Dominique Perrault, etc. The strive for architectural variety was one of the objectives from the very beginning. At the same time, the masterplan for the entire neighborhood served as a base to avoid cacophony. This operation was assessed as successful when it comes to creating an interesting and high-quality urban environment. The urban composition is legible and human-friendly. This neighborhood offers the optimal level of complexity, with pronounced focal points, centers of activity, edges, and boundaries. The centrally located public park is a valuable heart of the district, always full of people. The park can be perceived as ‘green’ and ‘blue’ setting, as the SUDS – Sustainable Urban Drainage System was developed in the new neighborhood directing the stormwater to the park. Inside the park, a water reservoir is serving as a place for rainwater retention and infiltration.

![Figure 7. Garnizon, Gdańsk, Poland. Source: photo by author](image)

3.2.3 Garnizon, Gdańsk, Poland This urban regeneration project aimed to combine apartment buildings with shops, other services, hotels, office buildings, and cultural facilities. The objective was to create an interesting multifunctional neighborhood with inviting public spaces. The trend to create physical beauty led to the creation of architectural variety. The urban pattern is legible and wayfinding is rather easy. The optimal level of complexity was achieved with a rich variety of architectural details and attractive open public green spaces. The pocket park offers effortless contact with nature.

4. Conclusion
This study led to the conclusion that the human need for complexity and order can be satisfied with both daily contact with nature and stimulating man-made environment. Thus, apart from accessible open public green spaces, people need architectural variety. We need the optimal level of complexity in our environment to feel good and stay invigorated. The historic cities, often regarded as favourite places for holiday can serve as inspiration for complexity and order. The strategies which are being employed in new eco-neighborhoods in Europe demonstrate that diversity of architectural forms and details goes in pair with successful urban regeneration projects.

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