Theories and architectures towards new city soundscapes

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1. Introduction

Why sound?

Given a set of definitions and practices, well-established today, of sound as a quality dimension of built space, new questions arise. Starting from the theoretical experiences of: Soundscape Ecology that considers sound as an ecological parameter for environment (Schafer, 1977); the multidisciplinary approach to Sound Architecture of France Research (Laboratory CRESSON, 1990) that introduce qualitative Sound Maps to describe the urban space; and from the interpretation of Scandinavian research on Sensorial Design that illustrate how the senses can become parameters for architectural process, sound can be considered as a contemporary "code" for the government of quality of urban space. As demonstrated by theories and built or imagined architectures, sound, in the large and middle scale, can be today considered not only a “property” that describe and characterize, but also an operative “tool” for modifying or safeguarding the sound-quality of space. Moreover the architectural production reveals today, in advance and before every urban regulation, the innovative qualities of sound in design field. Some virtuous projects (LoLa Landscape Architects, MVRDV, Zumthor, Mangado) anticipate the idea of using sound as aesthetic component of design and demonstrate the possibility to generate “sound ambiance” employing the use of “sound effects”. Design practice and critical and analytical theory share in defining a new “way” to understand and transform space in sound key. The theme of sound, born in 70's, needs now a new interpretation after forty years of productions of “sound-oriented theories” and “sound-oriented architectures” that can (re)direct today the urban debate on the theme of sound.

2. Theories

Definitions between sound and noise

There are many definitions of sound and noise, are items from art, music, architecture, urbanism, which marked the basic steps in defining the relationship between sound, noise and space. Among the first, one of the collaborators of Kevin Lynch, Michael Southworth\(^1\) introduced a method for interpreting and mapping urban sound, developing one of the first examples of sound analysis of built environment in key quality. Of great importance in the series of definitions of sound and noise is the concept expressed by contemporary musical experience, for which the it is noise more than sound that assumes quality expression.

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\(^1\) The theories expressed by Michael Southworth is the result of discussions arising from the work on The Image of the city and are collected in the text: SOUTHWORTH, M., The sonic environment of cities, in «Environment and Behavior» vol.1, n. 1, p. 49-70, 1969.
The futurist Luigi Russolo, in 30’s, suggests the interpretation of noise as aesthetic material, just like the French composer Pierre Schaeffer, in 60’s, which introduces the theme of real sounds of city and rural environment as possible elements of a musical composition. And then, John Cage, in 90’s, with his compositions of purely percussive music, emphasizes the idea that noise (spontaneous or induced) can assume the same value of sound. Furthermore in architecture and urban planning, the practice of protection from noise, suggested by building regulation, are challenged with the positive concept of noise. The noise, as sound can be reduced, but not completely cleared to give qualification and identity to a built space. In the article Espace de la ruemeur (1993), Pierre Marietan remarks the possibility of classifying an area not only monitoring sound levels, but also considering the background noise, the sound emerging events and the sound signals, which in turn provide insight into a fuller reality of space, giving it depth and sensorial thickness. And, more recently, Henry Torgue (2005) perfected a sound reading system by introducing the concept of “Sound Urban Form”. In contrast to the vision of the canadian school of Murray Schafer (70’s) that emphasizes the beauty of rural soundscape, the laboratories of Grenoble CRESSON now work on sound especially in urban context. The acoustic space of city, with all the noise artificial and human, is intended as a “toolbox” of sound events that can be reviewed and approved to become sound actions governed by actions of man. Sound events are proposed not only as

acoustic phenomena to read and interpret for describing the space of a built site, but as an operative tool reproducible and repeatable thanks to design actions.

Figure 2. Boston Sound-Map. Murray Schafer

3. Architectures
Practices on sound as an aesthetic data

The projectual examples demonstrate today the strong application of sound as an aesthetic data space. The examples are useful sources to provide elements that define what are the operation modes, the recurring characters in the use of sound in design. They anticipate a qualitative view of sound, still not present in technical standards or building regulations, therefore not widely applied in common urban construction.

Among the latest, the one of MVRDV with Penelope Dean “Noisescape”, is an example of generative architecture in the neighbourhood scale. The reflection on noise starts, in this case, from the densification of cities phenomena. If urban areas are designed with an increasing population density, it results a much closer contact between infrastructures and core functions (working, housing). The solution suggested by the architects is a form, the hollow form generated through geometric parameterizations of urban noise introduced into a software, usually used for the measurement of traffic. Another example is the project, “Living room”, completed in 2007 in Glenhausen, a German small town characterized by a quiet sound climate. The architects Gabi Seifertet Götz Stockmann in collaboration with a sound artist Achim Wollscheid have introduced a system of small invisible speakers and microphones along the outer surface and inside the building, projecting sounds different combinations. Here we find the theme of the social function of sound, that creates a link between the private space of dwelling and the quiet neighbourhood through an immaterial interface, but strong and distinctive. However is the project of LOLA Architects to better show how the manipulation and the production of the noise is well-integrated in the architectural practice. The project called Wilgevende (2009), transforms a neighbourhood near a rail crossing. It has noise problems, but also a very pleasant nature, often made of trees shaken by the wind. This suggested an action on open spaces, made of natural elements modelled in the shape and texture of plants. The high soil “clods” were designed to create paths where the noise of the train is attenuated. These clods not only perform this function, but with many green textures interact with the effect of noise “filtering”\(^5\). The filtering varies with the grass

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texture that ranges from time to time on the faces of the prism, which gives form to the grass. In this way noise is handled, but is also produced by an additional trick: the inclusion of trees with different leaves in a windy area. And so Peter Zumthor experiments with the alternation of varied sound effects of resonance in the Swiss Pavilion presented in Hanover in 2000. Crossing the halls, you will hear variations of the acoustic response to the sound made by footsteps and voices and varied by the different textures of wood. Similarly Manuel Mangado recreates a background noise produced by the water to follow a metaphorical process that brings the Spanish pavilion of Zaragoza (2008) to resemble a forest. The building, surrounded by thin pillars covered with clay, approaches each element with the sensory sphere, the acoustic, tactile and visual one, and also it recreates an allusive humidity and temperature. Materials and shapes reproduce a natural environment, transferring from the spontaneous to the artificial. The system is simple, but suggestive. Even here, in an experimental building, a pavilion, the sound is within the parameters of the project, recreating a cultural condition of sound that evokes a natural environment. Space with sound becomes narrative and it is enriched by sense.

Figure. Noisescape. MVRDV

4. Towards new city soundscapes
Extension and communication of new concepts of sound

Both the types of examples, definitions and architectures, are significant attempts to bring out the sound as active dimension of urban context. This dimension is also highlighted by local backgrounds, it starts from the awareness of sound by people, or artist groups or designer and researchers. This dimension expects now to be part of a global vision that involves the local and the individual in a more general context. The quality definitions of sound that come from different cultural fields and the application of sound as aesthetic data in architectural design field, are concepts that require now a new expansion and communication. This work aims to highlighting a series of points as a suggestions for

the extension of this concepts, using the method that underline definitions and phenomena (projects). Definitions set the possibilities and the cultural value of sound and phenomena highlight the possibility to control, promote and plan the sound dimension as spontaneous action for design approach. These phenomena are often incidental and not a real system. It could address the sound dimension in a perspective of creating integrated strategies, guidelines and actions oriented to the sound dimension. Resuming what we propose for a more complete view of the urban sound dimension is to:

- develop the definition of sound dimension as an active component of urban context;
- encourage the development of the awareness of sound dimension for citizens;
- encourage the integration of survey instruments for the acquisition of sound data of urban context in qualitative terms;
- translate the spontaneous aesthetic application of sound in design field in local strategies and global guidance;
- enhance and promote actions to safeguard, planning and design the sound dimension of urban landscape.

References

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