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Towards a Theory of Museological Soundscape Design: Museology as a 'Listening Path'

By Michail Zisiou

Museological experience takes place in a fine-tuned 'museological scene' where time and space unfold as the visitor wanders among exhibits. It is indeed like telling a story…

Abstract

The traditional image of museum as a peaceful, monumental institute, where cultural heritage is preserved and presented in an uncontested way to be worshipped, is being challenged little by little in many parts of the Western world. The fulfillment of the educational and entertaining role of a new museum may be achieved through active and interactive ways of learning so that the visitor can be 'touched' and eventually acquire a complete museological experience. However, with the exception of certain innovative projects, there seems to be little awareness in the museological community at large of the communicational potential for methodically designed soundscapes. This essay underlines the necessity for the existing knowledge and experience around the fields of Soundscape and Museology to be gathered and combined in order to form a theory of Museological Soundscape Design along with an expanded model of methodology which would be incorporated in museum studies. Such a theory may be outlined in a framework of certain principles derived from various scientific fields such as museology, acoustic communication, education theory, music aesthetics, acoustics, psychoacoustics, architectural theory etc. Finally, a new field of expertise is proposed, that of soundscape designer–museologist by analogy to architect–museologist, archaeologist-museologist or educator-museologist.

The 'New Museum'

According to recent trends in museology, "both museum communicators and audience are construed as active meaning makers with the field of meaning being in permanent flux" (Hooper-Greenhill 1994, 17). Having multiple ways of perceiving exhibits is encouraged by the contemporary museological theory which has been generally influenced by the main concept of post-processual archaeology. According to this relatively new field of theoretical archaeology, material culture may be perceived as a reflection of multiple meanings which are produced through social action (Hodder and Hutson, 2003).

In the process of finding successful ways to communicate the meanings of a certain collection to the public, museologists make key decisions regarding the aspects of an artefact's context (social, personal, historical, gender, economical, technical, aesthetic, etc) which could be highlighted in order for it to form the appropriate *museological scene*. These decisions also involve classifying and grouping artefacts as well as tracing routes for the visitor to follow.

As far as the interpretation process is concerned, it is obvious that the final effect is built through a multitude of interpretations and noetic interactions starting from cross-fertilization within the creative team and ending with the multilevel/multithread dialectic relationship between the cultural and personal background of visitors and the museological scene.

In many ways, contemporary museology can be regarded as the setting up of a *cultural/communicational act* by the museological team which is finally performed by the visitors. It is thus expected that the museologists will make use of all means at their disposal to promote certain communicative approaches. But isn't soundscape design an optimal strategy to encourage communication through sonic environment?

Museology as a 'listening path'

A few acoustic designers and sound engineers, such as N. Frayne and M. Stocker, have explored this possibility for quite some time now and applied their ideas in innovative projects (Stocker M. http://www.msa-design.com/ProjectsMain.html, Frayne N. http://www.resonantdesigns.com/projects.html). They have also provided some valuable information about their work and ideas in related reports or articles (Stocker 1994 and Frayne 2000, 2004). Other pioneer projects have focused on the development of intelligent platforms compatible to information protocols (Hatala et al. 2004) in order to control a personalized, real-time designed soundscape which is transmitted through headphones. Although a promising technique with unique potentiality, we shouldn't underestimate the social dimension of visiting a museum (Falk and Dierking 1992). The use of headphones may create too much of an acoustic/social separation from the museum environment and thus discourage social interactions. Museological research has pointed out the fact that the presence of specific companions has a crucial effect on the museological experience, especially on the visitor's learning behavior, (Economou, 2007). After all, museums have always been ideal places for social interaction and the sharing of knowledge, interpretations and experiences.

Apart from exceptional projects such as those mentioned above, common uses of sound in museums tend to involve segmental approaches such as audio guides, multimedia interfaces or documentary video projections, far from the idea of a *holistic soundscape design*. The fact remains that both theory and practice of museology lack a methodically designed soundscape adapted to both architectural and museological planning and design.

The communicational impact of a holistic approach in the museum's soundscape has been rather underestimated by the museum community. More than ever before, we have acquired an understanding of soundscape's functional principles – such as balance, listening levels, acoustic orientation, contextualization, symbolism – and its inner structure in terms of textural, spatial and temporal articulation. (Truax 1984; Frayne 2002)**.** Electroacoustic music – including all contemporary forms of sound art, e.g. sound design, acousmatic music, computer music, etc has developed into a rather 'global language' featuring a characteristic suppleness, as far as the continuum between mimetic and abstract aesthetic approaches is concerned (Emmerson 1986; Field 2000). Acoustics and psychoacoustics have undoubtedly made progress throughout the past century, providing extensive theoretical knowledge about the nature of sound itself, the mechanism of auditory scene analysis (Bregman 1994), as well as practical experience in architectural acoustics. Similarly, the unprecedented technological maturity in creating and controlling complex networks, sensor based installations and interactive interfaces, as well as recent developments in sound distribution technologies such as ambisonics and directional (ultra)sound speakers provide a vast range of technical solutions to support a sophisticated approach to soundscape design. All of the above make *Museological Soundscape Design* an integral part of the "new museum".

Multidisciplinary approach

Analysis and synthesis of existing knowledge and experience in various fields of applied sciences, such as museology, acoustic design, education theory and architecture make it possible to present a framework of certain distilled principles of *Museological Soundscape Design*:

Holistic design: Museological soundscape design may be most effective if treated as a whole. The soundscape designer could aim for an "overall cohesive functional design" (Frayne 2004, 17) which the visitor will discover step by step, providing a sense of continuity, narrativity and naturalness to the museological experience. It is thus expected that the designed soundscape may function as a holistic communicational framework of reference for the exhibits. Within such a framework each element of the design would contribute towards establishing a *functional entity*. Moreover, it is essential to control every aspect of the soundscape by controlling and incorporating in the design process any sound sources (human, mechanical, indoor, outdoor) that may occur after the museum opens its gates to the public. Holistic design, as a principle, may as well apply to the general museological design and it can only be achieved through constant and substantial cooperation between museum experts.

Balance as a paradigmatic feature of natural soundscapes: Truax (1984) has defined balance as a principle of acoustic design suggesting the notion of the variety/coherence dipole. Variety and complexity in acousmatic features, time scales and spatial dimensions, are important considerations for a promising listening experience, that would also convey meanings, information and concepts. Prudent/selective use of expressive means and techniques may promote coherence and may as well obviate the disadvantages of an overdesigned soundscape. Moreover, silence, as introduced by Schafer (1977), presents a very strong psychological impact, which can be wisely used in contrast to the extensive use of supporting sound material.

Museums as acoustic communities: Visiting the museum has always been a social activity and the term *acoustic community* (Truax 1984) could be applied to describe the 'habitat' of a museum's soundscape. It is thus possible that the soundscape designer will attempt to introduce visitors to a temporal idiosyncratic 'language', which may develop gradually throughout the museological experience. Another challenge for the designer is to encourage the process of **social learning** by introducing special features such as multi-user interactive interfaces to allow a real-time participation of groups of visitors in the formation of their local soundscape and thus a direct acoustic exchange of interpretations. Finally, this principle also points to the necessity of finding ways of distributing sound so that it could embrace all visitors rather than acoustically isolating them from each other preventing any attempt for an acoustic community to be formed within the museum.

Sonic museological design should generally support the main **museological concept.** Moreover, it is advisable that the **context** of *museological scenes* be taken into account at every stage of the creative process: "The presence of an artefact may not be nearly as important as its relationships with the surroundings, the artefacts, and the overall sights, sounds, smells, movements, and appearance of the exhibit" (Alter and Ward 1992, 208). Defining these relationships lies at the core of the museological design and therefore designed soundscapes have to be kept "*tuned in* to the site" (Frayne 2004) since it's not difficult to go astray into a sonic art or music technology show. **Authenticity** within a given cognitive framework – usually provided by the curator – is an objective of soundscape design in the

case of realistic representations. Furthermore, sound technology of any kind should be kept 'invisible' for "an authentic listening experience" to be achieved (Frayne 2002).

Emotional experience is of vital importance for human existence**.** According to modern education theorists, communication and learning come as a *result* of emotional experience (Bakirtzis 2003). Moreover, communication is not regarded as a mere exchange of information and meanings, but as the establishment of a deeper relationship with the environment involving all features of one's personality. The mechanism of *active listening,* which is the basis of the perceptual process of extracting valuable information from the soundscape, is triggered by 'new' sound, i.e. new forms, new textures and sound messages of low redundancy and small predictability (Truax 1984). As long as the overall effect remains attractive, original/inspiring concepts may initiate the required emotional experience for learning and communication to take place through listening to the soundscape. Finally, **enjoyment** should not be forgotten as it is one of the main purposes of museums, according to the latest definition adopted by the International Council of Museums ("ICOM Statutes", 2007, http://icom.museum/who-we-are/the-vision/museum-definition.html).

Acoustics, Psychoacoustics & Ergonomics: Specific standards in terms of audibility must be set from the early stages of programming. Possible failure in defining or meeting these standards could undermine the whole project of soundscape design. Furthermore, the *soundscape designer* needs to be familiar with practical solutions regarding common acoustic problems of exhibition spaces, and may also consider principles of auditory scene analysis to encourage segregation into separate perceptual units when dealing with mixtures of sounds (Bregman 1994, 29–43).

Technical efficiency & flexibility: As museum projects in some cases last for several years or even more, long-term planning and design requires adjustability, updating services and possible modular structures to maintain a level of basic operation when something fails. Many important decisions will be taken together with the architect during the early stages of planning, since sound control and distribution requirements may set several restrictions to the architectural design.

Problem seeking: Almost every design project can be defined as a problem solving process which presupposes a well-established method for problem definition, i.e. the stage of *programming* which must be clearly separated from the design. According to Pena and Parshall (2001, 52) "successful programming relies on analysis", whereas "successful design relies on synthesis". Soundscape museological design has much to benefit from architectural theory, adapting and rearranging wisely those methods of programming that will ensure the success of the design procedure.

Soundscape designer-museologist

Museum studies are commonly offered as postgraduate programs attracting curators of various scientific fields such as art historians and archaeologists, as well as architects, educators, managers, etc. Through the development of museological theory and practice a new field of expertise appears to be emerging. The soundscape designer – museologist will combine skills and training background not only in sound engineering, acoustics, acoustic design, music aesthetics, interactive and sensor based music technology, but also in museology, communication theory, education and cultural studies. Consequently, museology could be broadened by including the theory of museological soundscape design while the museum community may find it useful to adopt an expanded model of methodology: one that would place soundscape designer–museologist at the core of the museological creative team.

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