

Hybrid environments: sonic interfaces in public spaces

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Abstract: Sonic interfaces modify sound environments thereby generating other listening states, in individual or collective ways, and may also change the spatial environment perception. The purpose of this article is to discuss possibilities and limits brought about by merging audio and spatial environments in public spaces, perceived collectively, and define concepts for sound interventions. This article is a presentation of a study in progress, conducted at Nomads.usp. This research seeks to suggest different perceptions of public spaces via sonic interfaces, revisit sonic environment concepts and provide experiences and opportunities for intellectual estrangement by means of mediated listening.

Key words: Architecture; Digital Media; Sound Environment; Public Spaces.

Introduction

Sound, as anthropocentrically defined, may be characterized as vibrations perceived by the human ear. As compared to a wide spectrum of physical vibrations, sound is just a narrow range of frequencies perceived by human ear; it is, however, interdependent on cultural and social processes. Sound may be categorized as music, voice, ambiance, sound effect, deriving from machines, bodies, animals, natural phenomena, among other sources. Sound is produced by movement and is considered to mirror a set of actions, life styles, and uses of technologies. *“Sound is one of the most sophisticated senses we have since we regularly experiment and create innovative displays specifically for our ears. From the time we are very small, our entire world is filled with sounds targeted at stimulating or affecting our behavior. We grow to expect pleasure or annoyance at surprising new sounds as well as established ones”* (Shedroff, 2009, pp. 165).

As in speech, without technological mediation, the reach of sound is reduced by physical closeness between speaker and listener, constrained by its own space and time and dependent on memory for information continuity. Sound technologies, e.g., recording, reproduction, and amplification, can change this context, conferring independence from closeness between the sound source and listener. The reach of sound is amplified by means of a phenomenon known as transduction, i.e., transformation of the mechanical and acoustic nature of sound into another, e.g., electrical, magnetic, optical or digital nature, which enables its storage. The term ‘audio’ refers to transduced acoustic, mechanical sound waves, which may be linked to sonic interfaces. Since the advent of transducers, sound has been disconnected from its source, which allows its repetition, simultaneousness, and mass transmission, regardless of physical closeness between emitter and receptor. Not only do audio nature and transduction enable sound reproduction, but also its amplification (thus promoting higher sound intensity and wider spatial reach), transformation (via signal modification and/or edition), and creation through digital media and simulations without the need for a concrete source or its recording. Electronic and digital devices offer the possibility of transmission, reproduction, alteration, and storage of signals or data that can be transduced to acoustic form.

The advent of sound reproduction technologies promoted the transformation of social and cultural processes of sound practice and listening. Assuming sound reproduction to be a social

process, Sterne (2003) claims that the possibility of reproduction changes the direction of sound reproduction. As to listening processes, devices like the telephone have broadened the field of sound communication, thus instituting other listening modes, mediated by sonic interfaces, also known as indirect (Obici, 2008) or acousmatic listening (Schaeffer, 1988).

Along these lines, it is believed that the “*electric revolution*” has introduced techniques that separate sounds from their original contexts, allowing for amplification and reproduction in diverse places and spaces (Schafer, 2001, pp. 131). The term ‘*schizophonia*’ (Schafer, 2001, pp. 135), purposely coined to resemble schizophrenia, highlights the disconnection between sound and its source via electro-acoustic reproduction. According to Schafer (2001, pp. 135), the fact that sound is no longer directly associated to its source is an aberration because there is not a single sound identity anymore, since sound can behave in a repetitive mode, devoid of origin. Schafer’s *schizophonia* concept does not evaluate mediated listening positively, thereby defining the consequences of loss of original context as detrimental, on the way to the homogenization of soundscape.

In spite of that, this study sustains that possibilities of transformation of sound elements via interfaces broaden sound space, thereby providing hybrid spatialities that can contribute to the emergence of different experiences. Hybrid spatialities are the result of virtual instances overlapping in concrete spaces (Tramontano; Requena, 2007). In the field of sound research, creation of hybrid spatialities takes place through sonic interfaces, from individual and personalized listening to collective listening, which combine virtual spatialities into concrete and physical environments.

According to Shedroff (2009), interfaces enhance experiential possibilities. Collectively mediated listening superimposes sound environments on physical environments, thereby providing different perceptions about physical space. In this context, interface-mediated listening facilitates other experiential modes in urban spaces, which may lead to different perceptions about physical spaces and sound environments.

People usually hear without being necessarily conscious about this perception. When permeated by constant sounds, as is the case of sonic environments found in cities, humans adapt to these sounds. This may be attested by one’s noticing the sound of air-conditioning equipment only when it has been turned off. This listening function is deemed by Schaeffer (1988, pp. 62-63) as “*hearing*”, perceiving with the ear, i.e., one hears what is given by perception. Nevertheless, there is adaptation to the constant sound background, benumbing perception. By interchanging sounds in communal spaces, it is possible to accomplish other listening functions via intellectual estrangement provided by mediated sounds, which, subjectively speaking, do not belong there. Thus, this study encompasses not only sounds deemed musical, but also ‘noise’ (not in the derogative sense of the term).

The purpose of this article is to address aspects deemed relevant with regard to the influence of urban sound interventions on communal spaces in order to create hybrid spatialities, thereby providing different experiences.

Sonic interfaces and mediated listening in the construction of hybrid spatialities

Graham Bell’s invention, the telephone may be considered one of the most important audio devices that changed human’s relationship with sound. The existence of remote sounds, as in telephone communication, engenders different listening modes, reinforcing idea of an “*electric revolution*” (Schafer, 2001). Sound is no longer confined to the same concrete space, thereby transforming human relationships in space as well. As communication technologies evolve, relationships expand beyond the concrete level, instituting intimate conversation moments amidst the crowd. The radio and other phonographic devices also dissociate what is seen from what is heard, leading to different perceptions. The audiovisual complex (Chion, 1994), i.e., the combination of what is seen and heard, is no longer obligatory such as the local association of a given sound to its origin. In the same way that acoustic sound is transformed by space, sound signals can undergo different treatments, no longer directly associated to their source, edited, distorted, and amplified or even devoid of a concrete origin, virtually constructed.

The history of sonic interfaces is wide-ranging, based on devices such as the stethoscope, which amplifies sounds of the human body. Nevertheless, this study only addresses sonic interfaces deriving from the development of electric and digital communication, i.e., interfaces that enable the collection, storage, reproduction, amplification, sound signal transformation or creation in a virtual way.

Sound manipulation methods may lead to loss of reference or inexistence of the original sound, as in the case of sound signals.

Schafer (2001, pp. 133) names the loss of causal sound reference as “*schizophonia*”, discouragingly referring to this phenomenon. Defragmentation of sound space and time is seen by Schafer as a process of loss of sound unity, while the current process is a consequence of aspirations effectively imagined in the past (Schafer, 2001, p.134). Yet, *schizophonia* is recognized as “*a vertiginous meaning-making condition capable of overcoming, inventively and subversively, this state of numbness of the ear*” (Obici, 2008, pp. 38).

The audiovisual complex indicated by Chion (1994) consists of directly listening to sounds, by associating the sound to its emission source, in a visible location related to a context-sensitive perspective. Pierre Schaeffer (1988) calls this process direct listening. The loss of visual relationship with what is heard is known as “*acousmatics*” (Schaeffer, 1988, pp. 56), either by mediated sounds in locations different from that of the emitting source or by what is heard and not seen. Acousmatic listening removes hearing from a context imposed by images, enabling other listening modes and thereby refusing the cultural conditioning inflicted by the view which names sounds according to their causes. This transformation, formerly accomplished by a curtain, is now carried out by sonic interfaces along with their entire chain of production and electroacoustic transformation (Schaeffer, 1988, pp. 163), including analog and digital media.

Audio media incorporate and expand a set of elements of social formats, whether analog or digital mediations (Sterne, 2003, pp. 337). The possibility of reproduction also modifies production itself. To illustrate these aspects, we take the example of a band in a studio given by Sterne (2003): this possibility only exists because of the copy process. Without copies the original sound would not exist (Sterne, 2003, pp. 219). Therefore, sound mediation is considered to encompass processes that fall beyond signal and listening generation and these processes are seen to generate different ways of listening and perceiving sonic and physical environments. Sonic interfaces are conducive to dialog, interfering with and influencing current and concrete processes.

Interfaces, not only sonic interfaces, are naturally incorporated to daily life and have greater reach when within physical space, thereby enhancing hybrid spatialities and promoting other ways of perceiving and understanding.

Experience and sound environments

As aforementioned, sonic interfaces may redirect listening perceptions by transforming sound environments. By collectively overlapping physical and sonic environments it is possible to achieve greater scope as compared to that of headphone-mediated listening. Headphones provide deeper immersion, greater separation between listener and physical environment, i.e., natural listening, but this is not the purpose of this research.

In addition to employing sonic interfaces, other sensory stimuli, e.g., sight and body movement, facilitate the understanding of individual actions in sonic environments, leading one to reflect on one’s own influence on sonic environments. Thus, the sense of collectivity is enhanced. Collective sound interventions reinforce social and cultural aspects inherent to listening. As stated by Raimbault and Dubois (2005, pp. 341), relevance of the activity affects the receptivity of people exposed to the sound since it combines physiological, psychological, and sociological dimensions conducive to individual and collective meaning-making of sound effects.

It is believed that perceptions deriving from mediated listening together with natural listening are conducive to after-experience reflection, intensifying the hybridity of listening processes. The mediated listening process should not be omitted, as it is believed that reflection on experience derives from the estrangement caused by the dissociation between sound and its source, i.e., by the process transparency. “*The engagement is the experience itself. It needs to be sufficiently different than the surrounding environment of the experience to hold the attention of the audience or user as well as cognitively important (or relevant) enough for them to continue the experience*” (Shedroff, 2009, p. 4). By overlapping several sound environments within the physical environment, the action of sonic interfaces emerges and the unaltered perception of natural listening is enhanced, thus removing natural listening from numbness and enabling different reflections on sound environments.

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