

Understanding the drivers of soundscape perception

A pilot survey in the City of Rome

Mario D'Andreta¹

Introduction

The present paper describes the results of a pilot research carried out in three locations of the city of Rome, with the aim of identifying interpretative models of socio-cultural and psycho-physiological factors that influence the soundscape perception in urban contexts. It is aimed to better understand the drivers of soundscape perception in order to contribute to the scientific debate on this topic (Amphoux 1991, Davies et al. 2009, Cain et al. 2008, Dubois et al. 2006, Gidlöf-Gunnarsson and Öhrström 2007, Guastavino 2006, Hellström 2002, Schafer 1977, Yang and Kang 2005). The research was conducted in the following sites: a busy crossroad in one of the main shopping streets of Rome (shown in fig. 1), an outdoor cafe in a residential and administrative district (shown in fig. 2) and a local market in the pedestrian area of a historical working-class neighbourhood (shown in fig. 3). The locations were selected on the basis of their specific features and differentiation in terms of urban, historical and social development.



Fig. 1 First location: the busy crossroad

¹ mdandreta@protonmail.com



Fig. 2 Second location: the outdoor café



Fig. 3 Third location: the local street market

Methods and procedures

Data collection and analysis were carried out according to the methods developed in the field of soundscape studies (Amphoux 1993, Augoyard and Torgue 1995, Davies et al. 2009, Guastavino 2007, Järviluoma and Wagstaff 2002, Kang 2007, Mayr 2006, Raimbault 2006, Schafer 1978), with reference to the more general approach of the grounded theory (Glaser and Strauss 1967), the theory of social representations (Farr and Moscovici 1984, Palmonari and Emiliani 2009) and the theory of collusion (Carli 1995). In each of the selected locations, several sound recordings were taken between ten and twelve o'clock in the morning, on weekdays during spring 2011. Afterwards, an audio clip² was extracted from the recordings referred to each location and used to evaluate the soundscape perception of a small sample

² Audio files of these clips can be listened at the following web links: <https://archive.org/details/appio-latino>, https://archive.org/details/eur_20210507, https://archive.org/details/pigneto_202105

of Roman citizens. Participants were asked to listen to the clips and fill out an open-ended questionnaire and an estimation form of perceived muscular tensions. The collected data were processed using multivariate statistical techniques (factor analysis and cluster analysis) in order to identify cultural and postural patterns related to the three soundscapes under examination. In particular, open answers to the questionnaire were analyzed according to the methodology of Emotional Texts Analysis (Carli & Paniccchia 2002, 2007), which is based on lexicometric methods (Lancia 2004) and psychosocial models of social relationships. Moreover, preliminary to the survey submission, a careful research was carried out on historical, urban, and social development of the three locations (Accasto et al. 1971, Benevolo 1992, Insolera 2001). The sound recordings were also analyzed according to the system of sound classification based on the referential aspects of sounds, developed by M. Schafer in the seventies (Schafer 1978).

Results

Historical, social, town-planning and sonic aspects of places under examination

As regards historical, social and urban development of the places under examination, this research has brought out the following useful information. The first location is situated in the Appio Latino district, in the south-eastern area of Rome. This neighbourhood is mainly characterized by commercial and service activities. Its urbanization started at the beginning of the last century. and it is currently inhabited by the middle and upper-middle class of people.



Fig. 4 Appio Latino District³

³ Source: Markos90, https://commons.wikimedia.org/wiki/File:Appio_Latino.png, file licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license, <https://creativecommons.org/licenses/by-sa/3.0/deed.en>, change made

The second place is located in Europa district (better known as EUR), in the southwest area of the city. It is characterized by a high concentration of headquarters of public and private organizations and enterprises and its residents belong mainly to the upper-middle and high class. The area was originally planned by Mussolini as the site for the 1942 Universal Exhibition (EUR acronym stands for Rome Universal Exhibition), with the purpose of celebrating the twenty years of Fascism, the event which never took place due to World War II.

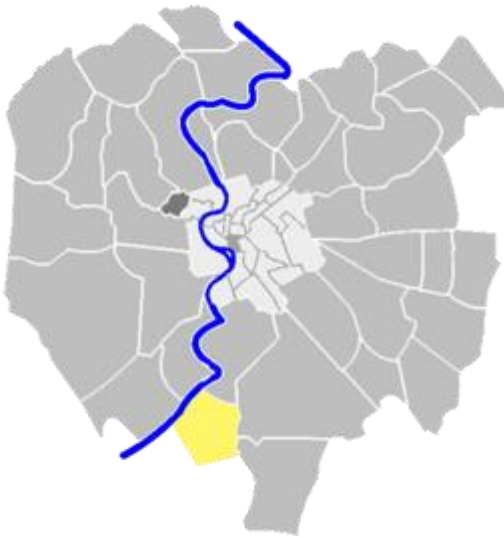


Fig. 5 EUR District⁴

The third place is located in Prenestino-Labicano district, in the south-east area of the city. The urbanization of this area started at the end of 19th century. During the first half of the last century, marked by industrial boom, it developed into one of the main industrial centres of Rome, populated by the working class. In the 70s, as the effect of industrial decline, the area suffered from urban decay, housing abandonment and crime, but in recent it has experienced a resurgence. After a period of extensive urban requalification, the area attracted new inhabitants, mainly intellectuals, artists, students and showbiz people. Lower rents also contributed to attract Rome's increasing foreign population, turning the quarter into an advanced multiethnic laboratory.

⁴ Source: Markos90, [https://it.m.wikipedia.org/wiki/File:Europa_\(quartiere_di_Roma\).png](https://it.m.wikipedia.org/wiki/File:Europa_(quartiere_di_Roma).png), file licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license, <https://creativecommons.org/licenses/by-sa/3.0/deed.en>, change made

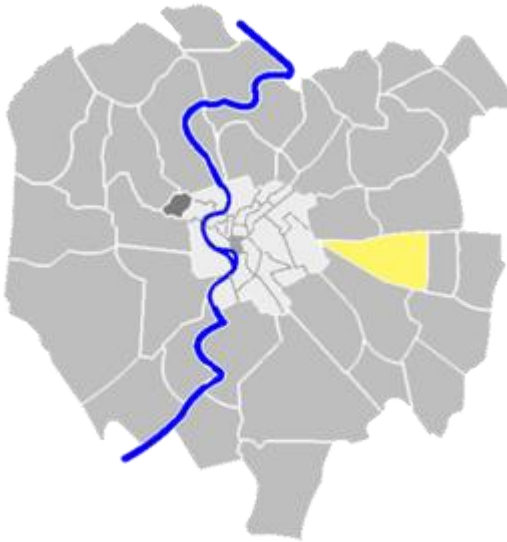


Fig. 6 Prenestino Labicano District⁵

From the sonic perspective, the first location (the busy crossroad situated in “piazzale Appio”) is characterized by human and mechanical sounds, mainly represented by voices of passers-by and a loud traffic noise in the background.



Fig. 7 Piazzale Appio

The second location (the outdoor café situated in “piazzale Koudor Adenauer”) includes typical sounds of a bar (handling of cups, spoons, glasses, etc.) and a barely audible traffic noise in the background, in addition to human and mechanical sounds (conversations and phone calls). With reference to the Schafer’s referential taxonomy, the sounds of the bar can be considered as sounds of entertainment and sounds of trades, professions and livelihoods, within the macro-category of Sounds and Society.

⁵ Source: Markos90, <https://commons.wikimedia.org/wiki/File:Prenestino-Labicano.png>, file licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license, <https://creativecommons.org/licenses/by-sa/3.0/deed.en>, changes made



Fig. 8 Piazzale Kouder Adenauer

The third location (the local market in the pedestrian area situated in “via del Pigneto”) introduces a new sonic element, the sounds of nature, in the form of birds singing. Human (voices) and mechanical sounds (traffic), as well as sound of society (the sounds of the local market) are also present, but mixed in different proportion, in comparison to the first two soundscapes. Here, the sound of traffic, far back in the background, is almost imperceptible, while the sounds of human conversations at the local market are distinctly audible in the foreground.



Fig. 9 Via del Pigneto

Socio-cultural and psychophysical dimensions of perception of urban soundscape

With regard to socio-cultural dimensions, data analysis of the open-ended questionnaire allowed to highlight two important aspects that characterize the urban soundscape perception of the three locations under examination and to develop a psycho-social explanatory model for each of them. The first aspect is represented by the tendency of the respondents to distinguish the perceived elements of a soundscape into sounds and noises, where “sound” stands for a positive and pleasant sonic experience, while “noise” stands for that perceived as negative or unpleasant. The second aspect is represented by two opposite attitudes toward the soundscape elements evaluated as negative and referred to as noise: one is inclined towards the identification of strategies for change; while the other limits itself merely to asserting the negativity of these elements (called noise), without even conceiving the possibility of taking action. The elaboration of interpretative models of these two aspects is derived from the following considerations. In relation to the first aspect mentioned, it emerges that the sonic elements that compose a soundscape are not positive or negative in themselves, but their connotation as such seems to depend on the socio-cultural dimensions that steer their perception and evaluation. In fact, several elements of the three soundscapes taken into consideration were evaluated positively by some subjects and negatively by others. For instance, voices of vendors, buyers and passers-by at the local market of Pigneto were positively connoted as sound because they evoke a social dimension of a small town, where people know each other and have greater possibilities of relating on a daily basis. These same voices were, instead, connoted negatively by others and defined as noise, because they convey an impression of monotonous daily repetitiveness, while the conversations were judged superficial and meaningless. Hence, the factor that steers the differentiation of sounds from noises, on the basis of positive or negative perception of soundscape elements, is referable to the meaning attributed by the listener to the specific sonic component and to its source. This attribution of meaning appears to be related to the level of cultural proximity between the listener and the sound source, or better, to the extent to which the cultural models expressed by the soundscape are similar to those shared by the listeners. It seems that the greater the cultural proximity is, the more meaning will be given to those sonic elements and consequently, the more positive will be their connotation, as sounds. As for the voices at the local market, the results show that the most negative evaluations (as “meaningless sound elements”) come from people (especially male subjects) who have only ever lived in urban environments, with no experience of a small town lifestyle and who are very critical of the urban lifestyle, of the superficial relationships it generates and more generally, of the modern society. The positive evaluations, which are related to the idea of a better life quality in small towns, come from people (especially female subjects) who have lived, especially during their childhood, in similar social contexts and who have a less critical view of modern society. In the second case, it seems that the sounds of the local market evoke the myth of the small town, as the idyllic place from their childhood memories. With regard to the two different attitudes towards the soundscape elements perceived as negative (one oriented to the change and the other limited to the complaint), they can be ascribed to a different ability to imagine the change and the personal involvement in it and more generally, in changing social reality. These different approaches can be related to a different way to conceive the nature and the origin

of soundscapes. In the first case, the soundscape is conceived as a result of human activities that take place in specific places, or rather, as a social object, shaped by social interactions. Consequently, its change is conceivable by means of interventions on the human activities within the physical and social context that shapes it. In the second case, the soundscape is conceived as something which has no relation with human activity, or rather, as something independent from the social dimension of reality. Therefore, it appears impossible to do anything but complain about it, expecting that something or someone else makes the change. The two attitudes described above can be put in relation with more general approaches to the issue of social change. They express different positions, of those who think to be (directly or indirectly) personally involved in creation of social reality and, therefore, capable of producing change in social phenomena (such is soundscape); and those who consider the social phenomena as being autonomous and independent from social contexts in which they occur. In other words, the first approach conceive reality as a result of cultural processes, while the second considers it being a natural process. In this way, different attitudes towards negative elements of a soundscape emphasise the typical dichotomy between nature and culture, which lead to the “naturalization” of cultural phenomena, having as a consequence that of making people feeling powerless (Sahlins 2008). In other words, the capacity of conceiving change and solutions to problems seems to depend on conceptual categories and ways used for conceiving reality and problems. As a consequence, the first mode of representation of the phenomenon seems to be more efficacious in a perspective of development and improvement, in terms of awareness, responsibility and personal involvement; the second tends to maintain the status quo and to encourage immobility and discontent, without allowing to formulate hypotheses of change. With regard to the results related to the psychophysiological aspects (Ruggieri 1987, 2010), considered in terms of psychophysical subjective experience related to the three soundscapes under examination, they seem to confirm the hypothesis of a twofold attitude towards the soundscape and the possibility of change of its elements perceived as negative. They show, in fact, two different types of postural responses to the soundscape, one characterized by the tendency to closure, in a defensive attitude against negative sounds, while the other outlines a movement towards the sounds, whether positive or negative. This second pattern could be related to the tendency make an impact on reality. However, as regards this particular issue, further studies are needed, also to identify possible links with the socio-cultural dimensions highlighted by this research.

Conclusions

The results of this research provide a double contribution, both theoretical and practical, to the understanding of the psychosocial dynamics that drive relations between people and their sonic environments. On the one hand, two psychosocial interpretative models were identified for the two characterizing aspects of soundscape perception, emerged in this research: the distinction between sound and noise and the different attitudes towards soundscape elements considered as negative and referred to as noise. On the other hand, these same interpretative models of the phenomena provide useful insights to draw up more targeted and effective strategies of the urban soundscape improvement, based on the development of citizens involvement and participation in improving their life contexts. This

research yields some new indications for further investigations, which should verify the proposed interpretative models and deepen the study of socio-cultural dynamics that shape the relation between man and his sonic environment. They include cultural models and shared representations of reality, social and working activities, social organization of urban contexts, values, cultural and artistic expressions, attitudes towards the environment and ways to use natural resources, expectations for the future, forms of mobility, political orientation, level of civic engagement and more widely, models of social coexistence. As for the different attitudes towards social reality and change, further studies could help us to identify possible developmental paths towards higher awareness of the socio-cultural dimensions of soundscape and of the role each of us plays in contributing to create it, and thus, to change it. For this reason, the issue of the quality improvement of the sonic environment could be considered within the broader framework of quality of life in the globalized world and social development issues.

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