

AN EXPLORATION OF URBAN SOUNDSCAPE IN ULUS, ANKARA

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## **ABSTRACT**

### **AN EXPLORATION OF URBAN SOUNDSCAPE IN ULUS, ANKARA**

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Master of Architecture, Architecture  
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The relation between human beings and environment in perception of space has been a long-standing research interest in environment and behaviour studies. Human perception of space is a process that includes senses to assign the related urban setting a meaning. Establishing a subjective urban imagery, spatial experience is a multisensory process, which allows different senses to jointly trigger each other. However, there has been an abundance of attention on visual perception, which results in the hegemony of vision in the field of architecture. The thesis problematizes the aforementioned single sensory approach by placing the main focus on the underestimated potentials of the sense of hearing. Sound is a powerful associative medium to denote space, time and memory in urban context, which makes the sound an integrated and inseparable input within urban environments. That is why; the thesis draws attention to the need of an urgent sonic awareness in urban context to build an embodied and enmeshed spatial experience. The thesis aims to explore dynamic urban trajectories from an alternative sonic perspective. Therefore, the notion of soundscape as an interwoven feature within urban context is introduced and exploited. The soundscape of the world is changing; thus, the thesis intends to map subjective soundscape interpretation and document the changes in the sonic behavior of individuals within spatiotemporal dynamics of urban environments. In this scope, Ulus that is the historical center of Ankara, is selected due to its rich and diverse

acoustic content which is under the risk of substitution, suppression or disappearance resulting from the transformation process. The case is specified as a soundwalk following Anafartalar Street, Hal Street, Tenekeçiler Street, Çıkıkçılar Yokusu, Koyun Pazarı Street and At Pazarı Street.

Keywords: Multisensory Integration, Psychoacoustic Perception, Sonic Awareness, Soundscape, Soundwalk

## ÖZ

### ANKARA ULUS'TA BİR KENTSEL SES PEYZAJI İNCELEMESİ

Biçer, Nehir Bera  
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Çevre ve davranış çalışmalarında insan ve çevre arasındaki ilişki uzun süredir devam eden bir araştırma alanı olmuştur. Mekan algısı ilgili kentsel düzene bir anlam belirlemek için duyuların dahil olduğu bir süreçtir. Öznel bir kentsel imge oluştururken, mekansal deneyim farklı duyuların birbirini ortaklaşa tetiklemesine izin veren çok duyulu bir süreçtir. Ancak, mekansal deneyim sırasında görsel algıya oldukça fazla ilgi gösterilmiştir ve bu durum mimarlık alanında görmenin egemenliği ile sonuçlanmıştır. Tez ana odağını işitme duyusunun hafife alınmış potansiyelleri üzerine yerleştirerek bahsi geçen tek duyulu yaklaşımı problem kabul eder ve eleştirir. Ses, kentsel bağlamda zaman, mekan ve hafızayı işaret etmek için güçlü bir çağrışımsal araçtır ve bu durum sese, kentsel çevrede bütünleşik ve ayrılmaz bir girdi olma özelliği kazandırır. Bu sebeple tez, bütüncül bir mekansal deneyim inşa etmek için kaçınılmaz bir gereklilik olarak kentsel bağlamda işitsel farkındalığa dikkat çeker. Tez, dinamik kentsel yörüngeleri alternatif bir işitsel perspektiften incelemeyi amaçlar. Dolayısıyla, kentsel bağlamla iç içe geçmiş bir olgu olarak ses peyzajı kavramı tanıtılmış ve ses peyzajından yararlanılmıştır. Dünyanın ses peyzajı değişiyor nitekim tez de bireysel ses peyzajı yorumlarını haritalamayı ve bireylerin kentsel çevrede zaman-mekansal dinamikler içinde değişen işitsel davranışlarını belgelemeyi amaçlar. Tez kapsamında, zengin ve çeşitli akustik içeriği dönüşüm sürecinden kaynaklı olarak değişme, baskılanma ya da yok olma tehlikesi altında olan Ankara'nın

tarihi merkezi Ulus seçilmiştir. Çalışma alanı; Anafartalar Caddesi, Hal Caddesi, Tenekeçiler Caddesi, Çıkrıkçılar Yokuşu, Koyun Pazarı Caddesi ve At Pazarı Caddesi ses yürüyüş yolu olarak belirlenmiştir

Anahtar Kelimeler: Çok Duyulu Entegrasyon, Psikoakustik Algı, İşitsel Farkındalık, Ses Peyzajı, Ses Yürüyüşü

In Memory of My Grandmom

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## TABLE OF CONTENTS

ABSTRACT .....	v
ÖZ .....	vii
ACKNOWLEDGEMENTS .....	x
TABLE OF CONTENTS .....	xi
LIST OF TABLES .....	xiii
LIST OF FIGURES .....	xiv
CHAPTERS	
1. INTRODUCTION .....	1
2. MULTISENSORY INTEGRATION IN THE PERCEPTION OF SPACE .....	13
2.1. Sensory Experience Constituting a Subjective Imagery .....	14
2.2. Multisensory Space Experience .....	17
2.2.1. Hegemony of Vision in the Field of Architecture .....	19
2.2.2. Sense Modalities as Inseparable Correlatives.....	23
3. AN INTERWOVEN INPUT WITHIN THE URBAN CONTEXT: SOUND ...	31
3.1. Diverse Characteristics of the Sound .....	31
3.1.1. Sound as a Matter with Tangible Qualities.....	32
3.1.2. Sound as a Cognitive Phenomena with Intangible Qualities.....	34
3.2. Association between Space-Time, Memory and Sound.....	35
3.2.1. Dependence of Sound and Physical Space, Contextualized Place .....	36
3.2.2. Unfolding Time through Sound, Sound-Time Company : Acoustic Memory .....	38
3.3. The Notion of Soundscape .....	40

4. SOUNDSCAPE INTERPRETATION MAPPING AS A DOCUMENTATION TOOL.....	53
4.1. Soundscape as an Interpretable Construct and Soundscape Mapping .....	54
4.2. Introduction of the Methodological Framework.....	60
4.3. The Case : Soundwalk on the Line of Anafartalar Street, Hal Street, Tenekeçiler Street, Çıkrıkçılar Yokuşu, At Pazarı Street and Koyun Pazarı Street .....	72
4.3.1. Introduction of the Site.....	73
4.3.2. Application of the Methodological Framework on the Case .....	95
4.3.2.1. Data Gathering.....	95
4.3.2.2. Data Analysis.....	99
5. CONCLUSION .....	115
REFERENCES .....	121
APPENDICES .....	127
The Process of the Soundwalk Procedure .....	127

## LIST OF TABLES

### TABLES

Table 4.1. Soundscape Terminology Categorization .....	102
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## LIST OF FIGURES

### FIGURES

Figure 2.1. Poster for the Exhibition Sense of the City .....	23
Figure 2.2. Poster for the Movie The Third Man .....	28
Figure 3.1. Sound Barrier for Amsterdam Airport Schiphol Design Contest .....	33
Figure 3.2. Street Musician on Tunalı Hilmi Street.....	36
Figure 3.3. The Soundscape of İstanbul .....	37
Figure 3.4. WFAE Conducted Conferences .....	43
Figure 3.5. Hamamönü .....	47
Figure 3.6. Musicscape Ulus .....	48
Figure 3.7. Luciano & Neşet.....	49
Figure 3.8. The Soundsslike Project.....	50
Figure 3.9. Intersection (Arakesit).....	52
Figure 4.1. Lavenderweiber.....	56
Figure 4.2. Simit Sellers .....	56
Figure 4.3. Stove Sellers.....	56
Figure 4.4. Perceived Soundscape of Hamamönü .....	63
Figure 4.5. The Sound Source Map in Seoul.....	64
Figure 4.6. Soundwalk Line of the Case in Ulus.....	65
Figure 4.7. Sound Level Measurement Map .....	66
Figure 4.8. Grouping and Labeling Experiment.....	70
Figure 4.9. Cluster Analysis .....	71
Figure 4.10. The Historical Center of Ankara, Ulus.....	74
Figure 4.11. The Case, Soundwalk Line from Anafartalar Street to At Pazarı Street .....	75
Figure 4.12. The Direction of Ankara Trade Development.....	76
Figure 4.13. 1929 Land Use Map of Anafartalar Street .....	78

Figure 4.14. Anafartalar Street.....	79
Figure 4.15. Historical Events and Happenings Forming Today’s Anafartalar Street .....	80
Figure 4.16. Victory Monument .....	81
Figure 4.17. Anafartalar Çarşısı .....	82
Figure 4.18. Anafartalar Çarşısı Bombing Attack .....	82
Figure 4.19. 1963 Ulus Airplane Crash .....	82
Figure 4.20. 1929 Land Use Map of Han Street, Tenekeçiler Street, Çıkırıçılar Yokuşu .....	84
Figure 4.21. Hal Street, Tenekeçiler Street, Çıkırıçılar Yokuşu .....	85
Figure 4.22. Stove Sellers in Tenekeçiler Street .....	85
Figure 4.23. Current Placement of Coppersmiths and Ironsmiths on the Soundwalk Line .....	86
Figure 4.24. Commercial Activities in Tenekeçiler Street.....	87
Figure 4.25. Çıkırık .....	88
Figure 4.26. “Ankara Manzarası” in Rijksmuseum .....	88
Figure 4.27. Commercial Activities in Çıkırıçılar Yokuşu .....	89
Figure 4.28. Historical Events and Happenings Forming Present Hal Street, Tenekeçiler Street, Çıkırıçılar Yokuşu.....	90
Figure 4.29. 1929 Land Use Map of Koyunpazarı Street, At Pazarı Street.....	91
Figure 4.30. Koyun Pazarı Street and At Pazarı Street .....	92
Figure 4.31. At Pazarı Avenue .....	93
Figure 4.32. Current Condition of Koyun Pazarı Street and At Pazarı Street .....	93
Figure 4.33. Historical Events and Happenings Forming Present At Pazarı Street and Koyun Pazarı Street.....	94
Figure 4.34. Acoustic Intimacy in the Narrow Sections of the Soundwalk Line.....	96
Figure 4.35. Patchy Canopy Organization in Çıkırıçılar Yokuşu .....	98
Figure 4.36. Sound Level Measurement Map of the Soundwalk Line .....	100
Figure 4.37. Sound Section of the Soundwalk Line.....	100
Figure 4.38. The Demolition of The Undersecretariat of Customs Building.....	104

Figure 4.39. Ulus Marketplace / Hal Building .....	105
Figure 4.40. Grouping and Labelling Experiment.....	108
Figure 4.41. Cluster Analysis .....	111
Figure 4.42. Soundwalk Section Sample .....	114





## CHAPTER 1

### INTRODUCTION

At the outset of the study of perception, we find in language the notion of sensation, which seems immediate and obvious. [...] I might in the first place understand by sensation the way in which I am affected and the experiencing of a state of myself. The greyness which, when I close my eyes, surrounds me, leaving no distance between me and it, the sounds that encroach on my drowsiness and hum ‘in my head’ perhaps give some indication of what pure sensation might be.<sup>1</sup>

The body is surrounded by external factors and the imagery of the physical environment is constituted through sensory experience. As Merleau-Ponty mentions in his seminal book ‘*Phenomenology of Perception*’, the very first reaction to outside stimulus is provided by sensation. Senses are the mediators to have access to outside world and spatial experience is formulated by the combination of all senses. Establishing a subjective urban imagery, spatial experience is a multisensory process that allows different senses to jointly trigger each other. Although a single sensory approach in favor of vision has been widely embraced in literature, the dominance of vision over the other senses and vision-centered interpretation of knowledge have been controversial issues.

The significance of the different senses is betrayed by the emphasis given to each of them at any one time. Sight tends to be a fixed point in

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<sup>1</sup> Merleau-Ponty , Maurice , 1962. “The ‘Sensation’ as a Unit of Experience”. *Phenomenology of Perception*. Routledge& Kegan Paul, London. p. 3.

the world of senses. It is difficult to imagine a city whose visual form is unimportant.<sup>2</sup>

Yrjö Sepänmaa outlines the hegemony of vision especially in the field of architecture in his examination of the sense-identity of a city. According to him, sense-identity of a city is characterized by the balance of different senses: “For example, Venice is a city of water. [...] One essential element in the sense-identity of Venice is the sound of water.”<sup>3</sup> As it could be observed in Venice example, a total sensory experience could not be limited to sight only. Hence, the dominance of visual realm causes a rather restrictive spatial experience. Sense of sight is an interwoven input within the system of perceptual experience in which all sense modalities are inseparable correlatives of each other. All in all, single sensory approach is insufficient for a comprehensive appreciation of external space where the domains of sight, smell, taste, hearing and touch play together.<sup>4</sup> In other words, the plurality of senses is critical to achieve a rather rich spatial experience. Therefore, the primacy of visual experience should be criticized by demonstrating the power arising from the collaboration of all sense modalities. At this point, the thesis problematizes the restrictive role of the supremacy of vision.

The significance of sensory interplay, exchange and integration has attained attention in the literature. John Dewey, in his seminal book ‘*Art as Experience*’, highlights that all sense modalities have aesthetic quality in their connections as interacting but not as separate entities. Any sensuous quality tends, because of its organic connections, to

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<sup>2</sup> Sepänmaa, Y. (2007). Multi-sensoriness and the City. Carlson, A. & Berleant, A. (Eds.), *The Aesthetics of Human Environments*. Broadview Press. p. 92

<sup>3</sup> Ibid. p.93.

<sup>4</sup> Ibid. p.93.

spread and fuse.<sup>5</sup> Total reciprocal dependence of all perceptual items leads them to interpenetrate and mutually define each other. As another example, Juhani Pallasmaa states that separation and reduction fragment the innate complexity and plasticity of the perceptual system, reinforcing a sense of detachment.<sup>6</sup> Simultaneity and interaction of all sense modalities, on the other hand, enable the experiencer to comprehend the integrated features of external space. In daily life, multiple sense modalities jointly trigger perceptual experiences that one sensory channel could penetrate into the other. To illustrate, looking at a horrified facial expression and hearing the scream jointly result in the sense of fear. That is, auditory spatial processing constitutes an integral part of the total experience.

The sound always leads us towards its content, its significance for us; in visual presentation, on the other hand, we can much more easily “disregard” the content and we are drawn much more definitely towards the part of the space where the object is to be found.<sup>7</sup>

As it is pointed out earlier, the thesis regards dominance of vision as a problem. However, the primary problematique of the thesis is the fact that the sense of hearing, which is overshadowed by the hegemony of vision, has been underestimated especially in the urban context despite its potentials. Why sound perception is specifically put under the scope could be supported by the statement of Kurt Goldstein which basically asserts that sound has a notably strong impact on people’s perception of urban trajectories. Auditory dimensions of everyday life make instrumental contribution to build an enmeshed and embodied spatial perception. To illustrate, in

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<sup>5</sup> Dewey, John. 1934. ‘Substance and Form’. *Art as Experience*. Penguin Books Ltd., England. p. 122-129.

<sup>6</sup> Pallasmaa, Juhani, 1996. ‘Touching the World’. *The Eyes of the Skin, Architecture and the Senses*. John Wiley & Sons Ltd, England. p. 39.

<sup>7</sup> Goldstein, K. (as cited in Merleau-Ponty, 1962)

Ahmet Hamdi Tanpınar's depictions of cities in *Beş Şehir* or Italo Calvino's imaginary cities in *Invisible Cities*, sound is an essential parameter to complete the whole image.<sup>8</sup>

Sound is a powerful medium to grasp the spatiality of the city by listening to its echos. However, the importance of sound as a perpetual constituent within urban context is mostly disregarded. Put it differently, the acoustical aspects of everyday life have been overlooked generally. Nevertheless, the audible existence foregrounds itself. That is, "the sounds are always there, "unheard," as a part of our habitually lived experience, and then, abruptly, they audibly impinge."<sup>9</sup> The crash of spilt drinks, the sudden cry, the rhythm of the traffic, dogs barking, birds flapping , all these sounds are inscribed in the code of everyday life. Because sounds are substructures nested in the urban context, which are to be found everywhere, even in apparent silence, disregarding the auditory phenomena would produce a sort of sensory disorientation. In this regard, in attempting to recuperate the apparently neglected sense of listening from the ocular-centrism of critical theory, aurality of urban life will appear.<sup>10</sup> The sonic environment would have an impact on the perceived attributes of urban context because every single context has its own sonic identity, besides its visual identity. The thesis reveals the potentials of sound as an integrated component within urban environment.

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<sup>8</sup> In *Invisible Cities*, in one of the dialogues between Marco Polo and The Great Khan, Polo tries to express himself, while he is struggling to depict the cities he visited, "only with gestures, leaps, cries of wonder and horror, animal barkings and hootings or with objects."

Ahmet Hamdi Tanpınar, in *Beş Şehir* (Five Cities), strips and uncovers the multilayered city of Bursa by giving reference to the sound of water: "Sounds of water fill the environment like an innate dream." (Tanpınar, A.Hamdi. 1946. "Bursa'da Zaman". *Beş Şehir*. Dergah Yayınları, İstanbul. p. 100)

<sup>9</sup> Hall, Tom, Lashua, Brett and Coffey, Amanda . " Sound and the Everyday in Qualitative Research". Sage Publications. *Qualitative Inquiry*, Vol 14 (6). 2008: p. 1020-1021.

<sup>10</sup> Yablon, Nick . " Echoes of the City: Spacing Sound, Sounding Space, 1888–1916 " . Oxford University Press. *American Literary History*, Vol 19 (3). 2007: p. 629.

The study of Southworth indicated for the first time how sounds influence the perception of the visible city <sup>11</sup> By means of acoustic qualities, it is possible to enlarge a restricted visual space to an extended auditory space in a specific urban context. In other words, the acoustic information encompasses and extends spatial perception beyond many physical and visual restrictions. Determining the characteristics of a certain urban setting, environmental sounds are one important parameter which are inseparable of the overall setting. What is heard walking on the street is one of the main actors which helps the creation of the unique identity of a street. To illustrate, experiencing İstiklal Street without the well-known tram sound would make the perceiver feel unfamiliar with the order although the physical surrounding is all the same. The perceiver feels alienated with the setting because some of the meanings he or she assigns to the environment are encoded with acoustic components and once sound is excluded from a given urban context, a kind of failure emerges in the formation of *mental maps*<sup>12</sup> by individuals. To clarify, environmental sounds are interwoven within the whole context as critical references. Sounds could be clues to the rhythm of everyday life and give the perceiver a chance to set associations of other parameters of daily life. Sound as an informative and orientational element has the power to denote space, time and therewith memory.

Sound environment is an interpretable perceptual construct thanks to the associative links of acoustic components. For instance, although the physical character of the sound of a super tram seems noisy, the sound is also associated with returning home

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<sup>11</sup> Michael Southworth , in his seminal book *The Sonic Environment of Cities* (1969), starts a new discussion on the question of how do sounds influence perception of the visible city. This experimental study is critical since it warns about the insufficiency of design strategies which neglects acoustic dynamics.

<sup>12</sup> Lynch, Kevin. 1960. *The Image of the City*. MIT Press , New York.

Lynch argues that people in urban situations orient themselves by means of *mental maps*. For the scope of the thesis, sounds are critical elements of *mental maps* to make the cityscape legible.

quickly.<sup>13</sup> At this point, the term psychoacoustics could be utilized: “Psychoacoustics determine the relationship between a sound’s characteristics and the auditory sensation that it provokes.”<sup>14</sup> Associated sonic patterns constitute psychoacoustic reference points. Accumulated psychoacoustic references form acoustic perception of the related context. The point that the thesis calls attention to, is the fact that psychoacoustic perception forms an integral part of spatial perception since sounds are components incorporated within the urban environment. Therefore, the thesis aims to raise awareness towards the underestimated potentials of urban whispers for an embodied spatial perception. In pursuit of the call for an urgent sonic awareness, the study aims to explore dynamic urban trajectories from an alternative sonic perspective in a case-study area, which is under transformation process. It is argued that the process of change in the sonic environment reflects upon psychoacoustic perception, which affects the formation of the spatial perception among the inhabitants. The thesis intends to trace the imprints on the psychoacoustic perception of an urban place in Ankara, which has been witnessing a transformation process. In order to illustrate the main point, Ulus as the historical center of Ankara is selected. The case is identified according to the rich and diverse urban acoustic content, which is under the risk of disappearance as a result of the ongoing transformation in the area. In Ulus, the case is specified as a soundwalk along Anafartalar Street, Hal Street, Tenekeçiler Street, Çıkırıkçılar Yokuşu, Koyun Pazarı Street and At Pazarı Street.

In the scope of the thesis, single sensory approach dominating sight is addressed and criticised. Multisensory nature of spatial experience is emphasized. Main focus is placed on the sense of hearing and the fact that sound is an inbuilt component within urban context is proclaimed by introducing the notion of soundscape. Acoustic components are interwoven within whole urban context as critical reference points

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<sup>13</sup> Liu, Fangfang and Kang, Jian . “A Grounded Theory Approach to the Subjective Understanding of Urban Soundscape in Sheffield”. Elsevier. Cities, Vol 50 (6). 2016: p. 32.

<sup>14</sup> Web. 15 September 2019. < <http://www.cochlea.eu/en/sound/psychoacoustics>>

and Schafer has justified this idea by bringing up the notion of soundscape.<sup>15</sup> He asserts that variety of sounds originating from different sources in urban context composes the acoustic environment of each particular area, which is defined as soundscape. The concept of soundscape has gained a rising interest since 1970s and the importance of sonic environment has been widely recognized. How Emily Thompson defines soundscape intensifies the interwoven features of sonic environment within urban context: “Like a landscape, a soundscape is simultaneously a physical environment and a way of perceiving that environment; it’s both a world and a culture constructed to make sense of that world.”<sup>16</sup> Soundscape is a perceptual construct related to the physical environment. Subsequently, the relationship between the sonic environment and the perceiver brings about the discussion of acoustic ecology for the scope of the thesis. The notion of acoustic ecology reinforces the psychoacoustic and aesthetic dimension of the sonic environment. Soundscape is an interpretable entity for different individuals. The thesis aims to map the subjective soundscape interpretation and document the changes in the sonic behavior of individuals within spatiotemporal dynamics of urban acoustic environments. To put it another way, the term soundscape is introduced and will be exploited as an alternative documentation tool in the scope of the thesis by the use of soundscape interpretation mapping.

In terms of the boundary of the study, it is critical to note that the thesis does not concentrate on the science of acoustics, neuroscience and cognitive sciences. Instead acoustic and psychoacoustic features of the urban sonic environment are scrutinized in order to trace changing soundscape interpretation of individuals. The significance

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<sup>15</sup> The notion of soundscape is first introduced by the Canadian composer R. Murray Schafer in late 1960s. His seminal book *The Soundscape : Our Sonic Environment and The Tuning of the World* in 1977 became influential for following studies.

<sup>16</sup> Thompson 2002, as cited in Adams, Cox , Moore, Croxford , Refaee , and Sharples . “Sustainable Soundscapes : Noise Policy and the Urban Experience ”. Sage Publications. Urban Studies., Vol 43 (13). 2006, p. 2386.

of the thesis is mainly based on the call for an awareness towards the inclusion of sounds as part of daily experience. In other words, the study approaches daily urban life from a sonic perspective and urban dynamics are comprehended accordingly. That is, urban transformation process and its effects on individuals are handled by listening to the whispers of the related context. Soundscape of the world is changing and this study tries to make a documentation work to pursue what happens when acoustic content changes. Besides, acoustic heritage, which has been underestimated so far despite its interwoven nature with the spatial heritage is brought forward for consideration.

In the literature, there have been several substantial methodologies to categorize soundscapes with regard to the physical and perceptual aspects of the related sonic environment.<sup>17</sup> Specifying the methodology of the thesis, soundscape mapping as a documentation tool is achieved after data gathering and data analysis processes which include both quantitative and qualitative soundscape analyses. In the scope, data gathering is composed of three sections as field surveys, sound source analysis and soundwalk procedure. Firstly, field surveys are conducted to comprehend the characteristic spatial features which affect soundscape perception. Secondly, sound source analysis is performed to collect unique sonic parameters of the related soundscape. Thirdly, a soundwalk procedure with 24 anonymous participants is conducted on the given line of Anafartalar Street, Hal Street, Tenekeçiler Street, Koyun Pazarı Street and At Pazarı Street. In terms of gathering soundscape data,

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<sup>17</sup> There are many studies which conducted soundscape analysis research by using various methods. Here are two studies from Turkey-Ankara and Japan :

Kaymaz, I. , Cüre, C. , and Baki , E. “. Perceived Soundscape of Urban Historical Places: A Case Study of Hamamönü, Ankara.- World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium 2016, WMCAUS 2016” Elsevier. Procedia Engineering, Vol 161. 2016

Kawai, Kojima , Hirate, and Yasuoka. “Personal evaluation structure of environmental sounds:experiments of subjective evaluation using subjects’ own terms”. Elsevier B V. Journal of Sound and Vibration. , Vol 277. (2004) , p. 523-533.

perception of an acoustic environment might be investigated in situ, simulated or reproduced, or recalled in memory.<sup>18</sup> These different approaches have different advantages or limitations. For instance, the environment experienced in situ would provide the most literal representation of the external acoustic environment. Recalling an environment in memory; however, is a rather indirect way, which would be affected negatively by the individual's irrelevant memory interference. The soundwalk method is employed in situ, which provides the real time rendering of the related context. Soundwalk as a method has been widely adopted to appreciate the soundscape of the urban environment and map the subjective urban trajectory of individuals.

Subsequent to the data collection procedure, data analysis process including three sections as sound level measurements, soundscape terminology and a grouping-labeling experiment is carried out. Firstly, sound level measurements are analysed as an outcome of the data collected by field surveys. Secondly, a soundscape terminology consisting of soundmark, acoustic hot spot, sound shower, memorial sound and suppressed sound is introduced. Soundmark refers to the sounds which are unique and easily noticeable. Acoustic hot spot represents instantaneous, immediate, local and instrumental sounds. Sound shower corresponds to a diversity of sounds overlapped in a single portion. Memorial sound refers to the remarkable sounds of a certain time period and they are vanished in the existing soundscape. Suppressed sound amounts to the instrumental sounds which are wiped off the soundscape by external forces. Main purpose of this generic classification is to organize the legibility of soundscape perception. To put it another way, provided terminology helps increase the intelligibility of complex soundscape data. Thirdly, a grouping-labeling experiment as a follow-up study of the aforementioned soundwalk is conducted. Participants are asked to register sounds that attract their attention during the initial soundwalk, to be

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<sup>18</sup> Aletta, Francesco, Kang, Jian and Axelsson, Osten . “Soundscape Descriptors and a Conceptual Framework for Developing Predictive Soundscape Models”. Elsevier. Landscape and Urban Planning, Vol 149. 2016: p. 68.

used in the following experiment. The experiment aims to map the subjective soundscape interpretation and assessment of individuals. The experiment intends to categorize existing sounds of the related urban context in the form of subjective interpretation of individuals. All in all, it is critical to emphasize that the methodology, which is composed of a qualitative approach and a quantitative approach takes both perceptual and physical aspects of sonic environment. As a result, it will be possible to read, process and map personal soundtracks to constitute a holistic soundscape interpretation. Proposed mapping method could be repeated at certain the time intervals on given soundwalk line in order to document the transformation process that the case has been undergoing from a sonic perspective. Consequently, the effect of changing sonic environments on changing spatial perception could be traced.

In the conceptual framework of the thesis, the exploration of urban trajectories from an alternative sonic perspective is disclosed. In order to get to the bottom of the issue, the second chapter lays emphasis on the multisensory nature of spatial experience. Firstly, a critical commentary about the hegemony of vision is provided then the main focus is placed on the auditory perception to build a richer spatial experience. The fact that sound is an interwoven input within the urban context is enlarged upon in the third chapter. Sounds are inscribed in the code of everyday life as powerful mediums to grasp the spatiality of the city. Firstly, the dual diversity arising from the coexisting physical and cognitive aspects of sound is addressed. The main point is to assert that the sonic environment is not a merely physical construct but rather a combination of perceptual and physical dimensions. Secondly, the power of sound as an informative and orientational element to set associations with space, time and therewith memory is stated. Since sounds are inherent reference points in space-time, comprehending and navigating in space-time through listening is possible. The sonic associations are correlated in listener's mind and the correlations gradually constitute psychoacoustic perception. Thirdly, the notion of soundscape is introduced and exploited in this chapter to demonstrate the integrity of sound to build an urban imagery. Several

imagery. Several leading and substantial soundscape studies, which call for an urgent sonic awareness in urban context are reviewed. It is critical that these studies problematize the complicated question how listeners perceive and evaluate sonic environment, which is influential for the scope of the thesis. In the fourth chapter, a soundscape interpretation mapping is proposed as an alternative documentation tool in the historical center of Ankara, Ulus along Anafartalar Street, Hal Street, Tenekeçiler Street, Koyun Pazarı Street and At Pazarı Street. Firstly, the methodology with its data gathering and data analysis processes is introduced. Secondly, the important features of the site which could have an effect on current soundscape interpretation and acoustic heritage of the context are revealed. Thirdly, how the methodology is applied on the case is represented in detail.

The study scrutinizes the changing soundscape characteristics of the historical center of Ankara through a subjective interpretation analysis. It intends to contribute to the literature by offering an alternative sonic perspective to explore spatiotemporal dynamics of the urban context. Soundscape mapping is proposed as an alternative documentation tool to pursue how spatial perception is affected when urban whispers change.



## CHAPTER 2

### MULTISENSORY INTEGRATION IN THE PERCEPTION OF SPACE

The relation between human beings and environment in perception of space has been a long standing research interest in environment and behaviour studies. The mutual genesis of body and space has been a consistent theme of inquiry <sup>19</sup>. The connection of body and space will lead to the discussion of perceptual process and interaction with the sensory world. The sensory content of perceptual experience, sense experience, is critical to build spatial judgements by apprehending the layout of external world. In order to embed tremendously immense space in existence, body as the locus of perception, performs bodily experience by processing sensory responses. Direct perception of physical environment is mediated by the sense impressions. The sensory representation and identification of objects in the perceptual field starts the process of attributing depth and meaning to sensory data. Perception brings together all accumulated sensory experiences into one single meaningful core in order to achieve a nexus of subjective living meanings.

Perception of space, the projection of external space on bodily space, is a process of tracing the implied meaning to assign to outside stimulus and this procedure is basically a subjective interpretation process. To put it another way, action of stimuli on body triggers sensation and sensation makes the personal evaluation of space perception possible. However, what is critical to accomplish individual spatial imagery is the coexistence of all sense modalities. Therefore, people's sensory engagement with urban environments could only be investigated by taking the

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<sup>19</sup> Body-space conceptions have received widespread attention in the literature. Two examples which indicate the connection between body and space are Henri Bergson in *Creative Evolution* (1913) and Gilles Deleuze in *Bergsonism* (1988).

interconnected nature of this process into consideration. Sensory encounters between individuals and the environment are multisensory. Sight, touch, sound and smell work cooperatively to build an integrated spatial experience.<sup>20</sup>

## **2.1. Sensory Experience Constituting a Subjective Imagery**

The problem is to understand these strange relationships which are woven between the parts of the landscape, [...] and me as incarnate subject. [...] Sense experience is that vital communication with the world which makes it present as a familiar setting of our life.<sup>21</sup>

As Merleau-Ponty points out, there is a strange interwoven relationship between the experiencing subject and the environment. First of all, an entire bodily existence is required to behold, touch, listen, measure and conceive the external world to build an embodied representation. Experiential representation of the perceptual field is structured and articulated around the center of the body.<sup>22</sup> In other words, the body constitutes the locus of perception. At this point, it is significant to mark the fact that the subjective interpretation of the perceptual experience for different bodies is possible. Because, every single body would interpret the very same sensory input in a different way according to its own associative relations within its body-space dynamics. The body's constant dialogue and interaction with the environment constitute the embodied perception. The embodied perception in the spatial experience will be under the scope of the thesis.

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<sup>20</sup> Degen, M. Monica and Rose, Gillian . “The Sensory Experiencing of Urban Design: The Role of Walking and Perceptual Memory.” Elsevier. *Cities*, Vol 49 (15). 2012: p. 3283.

<sup>21</sup> Merleau-Ponty 1962, op.cit. p.61.

<sup>22</sup> Pallasmaa, Juhani, Holl, Steven and Gomez, P. Alberto 1994. “Enmeshed Experience: The Merging of Object and Field”. *Questions of Perception: Phenomenology of Architecture*. a+u Publishing Co., Ltd./William Stout Publishers. p.45

The capacity to form perceptually based judgements is derived from sensations. Merleau-Ponty puts emphasis on the critical role of sensory dimensions in everyday life experiences by stating: " By means of sensation I am able to grasp on the fringe of my own personal life.''<sup>23</sup> Thus, sensuous experience is a vital component of human perception. Sensory experience gives the perceiver a chance to conceive the external world and build a subjective interpretation by domesticating endless space-time. Subjective interpretation of sensory experience could reveal itself as a feeling of familiarity, curiosity or anxiety. For instance, a particular smell may make one secretly re-enter a space that has been completely erased from the retinal memory.<sup>24</sup> That is, sense of smell leaves its roots as reference points in the spatial memory. Juhani Pallasmaa exemplifies this engagement through his own childhood memory:

The strongest memory of space is often its odor. I can not remember the appearance of the door to my grandfather's farm-house from my early childhood, but [...] I recall especially the scent of home that hit my face as an invisible wall behind the door.<sup>25</sup>

As another example, Marcel Proust illustrates subjective interpretation of sensory experience through the sense modality of taste. As soon as he tastes a madeleine dipped in tea, he discovers the transcendental fleeting sensation that takes him back to a childhood memory.<sup>26</sup> Sense of taste provides a spatiotemporal leap by building a subjective retroactive association. Within the formation process of experiential continuum of enmeshed experience, sense modalities and their subtle interaction play

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<sup>23</sup> Merleau-Ponty 1962, op.cit. p.251.

<sup>24</sup> Pallasmaa, Holl and Gomez 1994, op.cit. p.32.

<sup>25</sup> Pallasmaa, Holl and Gomez 1994, op.cit. p.32.

<sup>26</sup> Proust, Marcel. 1992. "Swann's Way". In *Search of Lost Time*. Random House Inc., New York. p. 60

a key role to form spatial completeness. Spatial perception develops from a series of overlapping integrated sensory experiences.

Subjective identification with the environment through sense modalities is emphasized and addressed in the field of architecture as well. Architecture provides space for the lived and fully sensorial experience. Sensual and embodied essence of architecture and full sensory potentials of space have been given reference to by many substantial figures in the literature of architecture. For example, Pallasmaa defines architecture as: “Architecture is the art of reconciliation between ourselves and the world, and this mediation takes place through the senses.”<sup>27</sup> He accentuates the timeless task of architecture as to create embodied existential experiences by the help of indivisible complex of sensory modes. Each sense and their intimacy fold the experiencer into space to be a part of enmeshed spatial embodiment. Steven Holl is another architect, who emphasizes raising sensitized consciousness to everyday experience to awaken all the senses stimulated by the spatial quality. Embodying space through senses could be the clue to Peter Zumthor’s architectural apprehension. With his own words: “Architecture [...] is a sensitive container for the rhythm of footsteps on the floor, [...] for the silence of sleep.”<sup>28</sup> Alvar Aalto is another notable figure, who was concerned with all the senses in his architectural understanding. In brief, sense modalities are essential agents for subjective embodied spatial experience in the field of architecture.

Based on sensory experiences, people create an internal model of a city and they use this model as a mental sketch in their new urban space experiences.<sup>29</sup> To put it another

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<sup>27</sup> Pallasmaa 1996, op.cit., p.72.

<sup>28</sup> Zumthor, Peter. 1998. “A Way of Looking at Things”. Thinking Architecture. Birkhauser, Basel, Switzerland. p. 12

<sup>29</sup> Bostancı and Oral 2017, op.cit., p.45

way, subjective mental maps to be used for spatial experiences are constituted through sensory perception. Subjective interpretation of spatial perception based on sensory experience is critical for the scope of the thesis.<sup>30</sup> Moreover, how sensory experience has been approached so far in the literature will be addressed. That is, single sensory approach in favor of vision in the field of architecture will be evaluated in the following section. Subsequently, multisensory integration in perception of space will be elaborated on.

## **2.2. Multisensory Space Experience**

Spatial experience is a process that involves fully sensual encounters. In order to acquire spatial perceptions, optical data must be converted into spatial units.<sup>31</sup> However, adjusting sensible properties along their dimensions, visual information alone would not be adequate enough to construct an embodied and enmeshed spatial experience. On the other hand, there has been an abundance of attention on visual perception during spatial experience, which results in the hegemony of vision in the field of architecture. As a consequence of the supremacy of vision over the other senses, sight tends to be a fixation point in perceptual field. Nevertheless, the plasticity of spatial experience could be lost in consequence of being isolated in the distant realm of vision. To put it another way, visual flattening of a complex, multisensory experience of space would lead to a rather restrictive and de-sensualized spatial experience.

The appreciation of spatial perception from a one-dimensional visual point of view is criticized by reconsideration of the city with regards to a total sensory mode. By the

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<sup>30</sup> The thesis focuses on the subjective interpretation of auditory sense experience within urban context.

<sup>31</sup> Proffitt, R. Dennis. "An Embodied Approach to Perception: By What Units Are Visual Perceptions Scaled?." Sage Publications. *Perspectives on Psychological Science*, Vol 8 (4). 2013: p.475.

help of multisensory integration, incorporating the aforementioned incomplete experience of space into a rather enveloping spatiality could be achieved. Jale Erzen implies that the city is a *Gesamtkunstwerk*, a total work of art, which addresses to visual, auditory, kinetic and haptic sense modalities.<sup>32</sup> Erzen accounts for the critical role multisensory integration for aesthetic perception by claiming “Aesthetics can be comprehended as an intellectual and sensorial outcome of bodily relationship with the external environment by the help of a miscellaneous and ‘synesthetic’ perception.”<sup>33</sup> Therefore, the urban context is an integral aesthetic field, which is experienced through multisensory perception. Essential interaction of all sense modalities reinforcing each other would end up with an enmeshed spatial perception. In addition, the perceived holistic quality of external world would heighten with the collaboration of all sense modalities. In other words, the sense-identity of a city is enriched by multisensory integration. Yrjö Sepanmaa exemplifies this by linking his sensation of sweaty heat to the sense-identity of Atlanta, besides the city’s visual characteristics.<sup>34</sup> Reducing the complexity and plasticity of spatial experience into vision-centered single sensory experience is a way of underestimating for diverse characteristics of cities. Even if a certain individual sense modality comes into prominence for a given city’s identity, cities are always multisensory. All in all, focusing on the multisensory nature of the environment will enhance the imageability of the cognitive and sensory perceptual processes.

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<sup>32</sup> Erzen, N. Jale. 2005. “Kamusal Estetik Alan Olarak Kent”. *Üç Habitus, Yeryüzü, Kent, Yapı*. YKY, İstanbul. p. 139

Environmental aesthetics will not be scrutinized within the scope of the paper; however, as Erzen points out sensory integrity is crucial for aesthetic perception as well.

<sup>33</sup> *Ibid.* p.83.

<sup>34</sup> Sepanmaa 2007, *op.cit.*, p.94

### 2.2.1. Hegemony of Vision in the Field of Architecture

I had become increasingly concerned about the bias towards vision, and the suppression of other senses, in the way architecture was conceived [...] and about the consequent disappearance of sensory and sensual qualities from the arts and architecture.<sup>35</sup>

Pallasmaa addresses the need for a reconsideration of the essence of sight in the field of architecture alongside the critic of the hegemony of vision. Because, sight has settled on top of the hierarchy of the senses for a long time. In Western culture, sight has historically been regarded as the noblest of the senses.<sup>36</sup> The hegemony of vision in Western culture has been held in esteem since the ancient Greeks that Plato regarded, honoured actually, vision as humanity's greatest gift. In Greek thought, sight had not simply been the preeminent sense, but it had also provided the dominant model of apprehension.<sup>37</sup> As a consequence, the visual bias towards vision was inevitable. During the Renaissance, the dominance of vision proceeded and the hierarchical system of the five senses from the highest to the lowest, from sight to touch came into existence. Especially after the invention of perspectival representation, the eye located itself at the center point of the perceptual world. The ocularcentrism continues in the modern period under the effects of technological improvements. Vision which is abstract, emotionally detached, disembodied, monadic, and linear has yielded its hegemony to the very different vision of media image technologies.<sup>38</sup> To illustrate,

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<sup>35</sup> Pallasmaa 1996, op.cit., p.10.

The well-known book 'The Eyes of the Skin' by Pallasmaa has been an inspirational and initial source for the subject of the hegemony of vision in the field of architecture. Afterwards, the discussion on how vision-centered approach negatively affects the dynamic and rich spatial experience has been broadly embraced in the literature.

<sup>36</sup> Pallasmaa 1996, op.cit., p.15.

<sup>37</sup> Partner, Jane. 2018. "Introduction". Poetry and Vision in Early Modern England. Palgrave Macmillan, Basingstoke. p. 19

<sup>38</sup> Levin, D. Michael. 1993. "Light as a Metaphor for Truth: At the Preliminary Stage of Philosophical Concept Formation Hans Blumenberg". Modernity and the Hegemony of Vision. University of California Press, Berkeley. p. 24

subsequent to the use of computer imaging technologies, multisensory, simultaneous and synchronic capacities of imagination tends to be flattened and turned into be a sole retinal journey.<sup>39</sup> The technologically expanded and supported eye declares and extends its area of domination. The hegemony of visual territory in current technological world has attempted to invade the complex nature of architectural field as well. The prominent architect Le Corbusier supports the hegemonic role of the eye with his well known statement: “Architecture is the masterly, correct and magnificent play of masses brought together in light.”<sup>40</sup> As this statement explicitly manifests, the sight is taken as the only means of self-expression, which is detached from an enmeshed experience. The hegemonic eye intentionally promotes sensory detachment and alienation. The hegemony of vision has been reinforced as a result of the rapid technological flow and unending production of images. Italo Calvino delineates this situation instrumentally: “We live in an unending rainfall of images. [...] Much of this cloud of images fades at once, like the dreams that leave no trace in the memory, but what does not fade is a feeling of alienation and discomfort.”<sup>41</sup>

The dominance of the eye and the suppression of the other senses push the experiencer into the case of an isolation and exteriority. As a result, a feeling of detachment and estrangement arise. Merleau-Ponty launches a similar critique of the disinterested, disembodied and exclusive position of the sense modal of sight and instead he proposes a rather embodied vision. As another similar critique, Michel de Certeau draws attention to the unwholesome spread of the hegemony of vision by saying: “Our

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<sup>39</sup> Pallasmaa 1996, op.cit., p.12.

<sup>40</sup> Le Corbusier. 1931. “Three Reminders to Architects: I.Mass”. Towards a New Architecture. John Rodker Publisher, London. p. 29  
Pallasmaa, in Questions of Perception, gives reference to this quotation and continues: “The architecture of our time is turning into the retinal art of the eye. [...] Instead of experiencing our being in the world, we behold it from outside as spectators of images.” (1994, p.29)

<sup>41</sup> Calvino, Italo. 1988. “Exactitude”. Six Memos for the Next Millennium. Harvard University Press, Cambridge, Massachusetts. p. 57

society is characterized by a cancerous growth of vision, measuring everything by its ability to show or be shown and transmuting communication into a visual journey.’<sup>42</sup> Kenneth Frampton gives emphasis on the experiential distancing affected by the restrictiveness of image-dependent approaches. He asserts that the supremacy of vision strips off everyday tactile and phenomenological experience of the built form.<sup>43</sup> In other words, *images without roots*<sup>44</sup> could not lead to an embodied existential everyday experience. In his seminal book ‘*Experiencing Architecture*’, Steen Eiler Rasmussen makes a critical commentary about why architecture should not be judged only by its appearance by stating: ‘It’s not enough to see architecture, you must experience it.[...] You must observe how it was attuned to the entire concept and rhythm of a specific era. You must dwell in the rooms, feel how they close about you.’<sup>45</sup> He points out the inadequacy of architectural experience interpreted merely upon vision by remarking on the spatiotemporal dynamics of the experience. Peter Eisenman has expressed his annoyance related to the prominence of the visual aspect of architecture in an interview by asserting: ‘Yes, sound, material, not just vision. What I’m trying to do is to question the dominance of vision. There is too much visual noise in our environment for me.’<sup>46</sup> Mirko Zardini draws attention to the privilege and aspiration of a picturesque vision of the urban environment by indicating: ‘The same consideration has not been given to the ear and nose ( nor the sense of touch). Above all, [...] architecture and city planning have exclusively been concerned with

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<sup>42</sup> De Certeau 1984, as cited in Jutte, Robert. 2005. ‘Ways of Seeing- or the Human Rights of the Eye’. *A History of the Senses: From Antiquity to Cyberspace*. Polity. p. 295

<sup>43</sup> Frampton, Kenneth. 2002. ‘Introduction: On the Predicament of Architecture at the Turn of the Century’. *Labour, Work and Architecture*. Phaidon, London. p. 10

<sup>44</sup> Pallasmaa, Juhani. 2011. *The Embodied Image: Imagination and Imagery in Architecture*. John Wiley & Sons Inc, Chichester, United Kingdom. p. 119

<sup>45</sup> Rasmussen, S. Eiler. 1962. ‘Basic Observations’. *Experiencing Architecture*. The MIT Press, Cambridge. p. 33

<sup>46</sup> as cited in Zardini, M. ‘Toward a Sensorial Urbanism’. *Sensing the City: A Companion to Urban Anthropology*. Ed. Anja Scwanhauser. Birkhauser, Basel, Switzerland, 2016. p. 147

marginalizing them, covering them up, or eliminating them altogether.”<sup>47</sup> This critique is notable especially in terms of stressing the importance of multisensorial urbanism in planning practices to better comprehend the subtle and sensorial qualities of the built environment.

All in all, vision has been regarded as the noblest of all sense modalities since Antiquity. However, critiques against the supremacy of vision have been raised. The common ground of the critiques from different important figures provided in this chapter expresses the several incompetences and drawbacks caused by the apparent predominance of the sense of vision.

Experiencing space is a subtle act of human body and mind, which requires a complex set of judgements. The experiencer needs to use several instruments, besides his/her eyes to probe a space with all its dimensions. Perception of space could not be treated like an isolated visual field stucked in a bell jar. In other words, only visual clues would not be enough to complement the complicated nature of spatial experience. Therefore, retinal architecture, which is devoid of the authenticity of total architectural perception, will cause a loss of spatial plasticity and complexity. Spatial experience is a multisensory process in which all sense modalities work as inseparable correlatives of each other. Different senses jointly trigger each other to construct an enmeshed and embodied spatial imagery. In the following part of this chapter, an in depth analysis of the interconnected nature of sense modalities will be made.

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<sup>47</sup> Zardini, M. (2005). Toward a Sensorial Urbanism. Retrieved March 03, 2019, from <https://www.cca.qc.ca/en/issues/16/the-rest-of-your-senses/34281/toward-a-sensorial-urbanism>  
Mirko Zardini is an architect, author and curator. He has been the director of the Canadian Center for Architecture (CCA) since 2005. This text was published after the exhibition *Sense of the City* curated by Zardini in CCA in 2005. This exhibition’s content will be utilized in detail in following chapter.

### 2.2.2. Sense Modalities as Inseparable Correlatives

Eschewing the traditional architectural emphasis upon the facade and the urban planner's dependence upon the bird's-eye view, *Sense of the City* looks instead to the sky, puts its ear to the ground and sniffs out the tracks of our often-unwanted colocataires: garbage trucks, cockroaches, dark alleys and municipal bylaws. Fundamentally, the question driving the exhibition is: How do we, as humans, engage with, understand and know the city? The answers depend heavily, in a curatorial sense, upon the interface between sight and site, touch and surface, and the specificities of smell and noise within a shared habitus.<sup>48</sup>

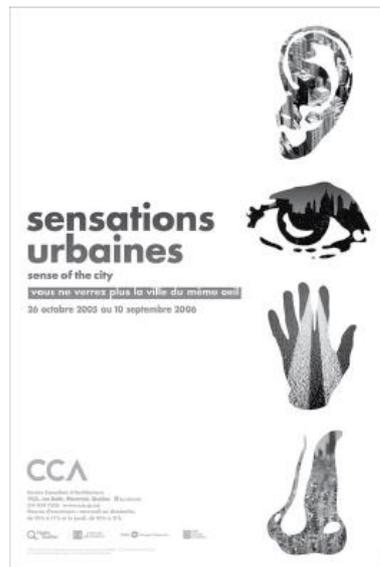


Figure 2.1. Poster for the Exhibition *Sense of the City*

Source: “Sense of the City- Journal of Architectural Education” Web. 5 March 2019.

<http://Oeds.b.ebscohost.com.library.metu.edu.tr/eds/pdfviewer/pdfviewer?vid=3&sid=a605c9e1-c686-4e47-8e66-0d1662a4468b%40pdc-v-sessmgr03>

<sup>48</sup> Hammond, Cynthia. “Exhibition Review\_ *Sense of the City*.” EBSCO Open Access Journals. *Material Culture Review*, Vol 64 . 2006: p.59-60.

“Sense of the City” is an exhibition, which was curated by Mirko Zardini and held at Canadian Center for Architecture in 2005. It explored urban phenomena and perceptions of the city, which have traditionally been ignored, repressed, or maligned. The exhibition propounds a re-thinking of latent qualities of the city and thus encouraging a new spectrum of experience and engagement.<sup>49</sup> The key theme of the exhibition is to address the multiplicity and heterogeneity of human sensoria. A broader view of the environment which pays regard to the full spectrum of the perceptual phenomena could be taken as the main point of the exhibition and this point is parallel with the scope of the thesis as well. In other words, what is essential for both the aforementioned exhibition and this thesis is that every touching experience of architecture is multisensory; qualities of matter, space, and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscle. Architecture involves seven realms of sensory experience, which interact and infuse each other as Pallasmaa puts.<sup>50</sup> Hence, sense modalities should not be approached as separate entities, but rather as inseparable correlatives. Sources of one sensory field feed further the ones in another realm. The interconnected nature of the sense modalities is exemplified in this chapter and the main focus is placed on how acoustic sources feed the multisensory integration.

It is possible to mention the geography of odours or smells. Andre Siegfried refers to this case as follows: ‘There is a smell of London.[...] There is a smell of Central Europe.[...] There are scents of the Mediterranean and Orient.[...] There are the odours of China. There is the smell of America’<sup>51</sup> Therefore, apart from their landscape characteristics, the identity of cities could be recognized by their unique

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<sup>49</sup> Web. 5 March 2019. < <https://www.cca.qc.ca/en/events/2807/sense-of-the-city> >

<sup>50</sup> Pallasmaa, Holl, Gomez 1994, op.cit., p.30.

<sup>51</sup> Ed. Anja Scwanhauser 2016, op.cit., p. 146

smellscape. In support of the fact that smells and odours are equivalent companions of other spatial entities, how spatial experience is influenced under the effects of smellscape could be illustrated. For instance, certain odours of today's world were not available until a certain time period and so spatial perception used to be different. The process of globalization has brought in that mixture of gasoline, detergents and plumbing and the sense-identity of cities has started to change utterly thenceforth. On the one hand some new prepotent smells, which may have a determining role in spatial imagery, emerge; on the other hand, certain others disappear. If visiting today's modern cities before they became sanitized were possible, the smells and sights would be outrageous. To illustrate, the 19<sup>th</sup> century London was typically awash with open sewers and waste disposal of this overcrowded city caused a strong odor, which is not available today.<sup>52</sup> Therefore, the use of sanitation systems could be taken as a turning point for the smellscape, thereby the sense identity of cities. Smell is one essential element that could not be detached from other sense modalities. Yrjö Sepänmaa accentuates the role of smell for Venice: “ In the early summer it has a fresh, salty scent, but in late summer the odor of decomposition and death emerges.”<sup>53</sup> Multisensory totality arises from the joint effect of all sense modalities and smell is one of the substantial joints as sense identity of Venice clearly exhibits. Moreover, the outstanding shortcut between the sense of smell and memory is noteworthy. The nose initiates the process of recollection all of a sudden and then sources of information become ready for other sense modalities to utilize.

Haptic perception is a holistic way of understanding three dimensional space. Comprehending space is largely based on the relationship with scale and sense of scale is complemented by the bodily senses, primarily through haptic feedback. Sense of touch provides information of temperature, texture, weight or density for other sense

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<sup>52</sup> Web. 9 March 2019. < <https://www.museumoflondon.org.uk/discover/londons-past-air>>

<sup>53</sup> Sepänmaa 2007, op.cit., p.93.

modalities to use for spatial judgements. Tactile sense reinforces the visual spatial perception and referring to a rather complicated experience integrating senses such as touch, positional awareness or balance. 18<sup>th</sup> century Irish philosopher George Berkeley argued that the visual perception of materiality, distance or spatial depth would not be possible without haptic memory.<sup>54</sup> Thus, a rich array of sensory encounters could be supported by the haptic sense. There is an intricate relationship between the haptic, acoustic and visual senses. For example, the correlation between haptic, visual and acoustic perception could be appreciated through a space's acoustic resonance. Discovering the resonance in space could be enough to arouse the feeling of curiosity, protection or pleasure.<sup>55</sup> Feeling the resonance of rails before seeing the carriages in underground stations mark the end or beginning of commuting time. The envisioned space which is traced by the ear in the first place takes its final form by the collaboration of other senses. How spatial apprehension of a stone cathedral is triggered by its echos and continued with a series of perceptual flow could be illustrated as follows:

The live reflection of echo and re-echo within a stone cathedral increases our awareness of the vastness, geometry and material of its space.[...] We could redefine space by shifting our attention from the visual to how it is shaped by resonant sounds, vibrations of materials and textures.<sup>56</sup>

Acoustics, as the audio-component of the urban realm, is critical to widen the comprehension and interest for sensorial features of urban context, besides smells, visuals, textures and interplay of all. Especially after the 20<sup>th</sup> century, the architectural domain is rendered audible and should be regarded from a new angle.

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<sup>54</sup> Gains, Neil. 2013. "The Senses Close Up". Brand esSense: Using Sense, Symbol and Story to Design Brand Identity. Kogan Page Limited, London. p. 43

<sup>55</sup> Pallasmaa lays stress on the effect of resonance in space by stating: " We feel pleasure and protection when the body discovers it's resonance in space." in *The Eyes of the Skin*.

<sup>56</sup> Pallasmaa, Holl and Gomez 1994, op.cit. p.87.

Now that it is attainable to record, measure and document the acoustic pulse of the city, sounds, along with other sense modalities, could diversify the meaning of urban space. The modern city's complexity and heterogeneity are fed by its echos as well. Being aware of the whispers of the environment would make the experiencer build a total spatial impression. How hearing becomes an undetachable part of the spatial experience is represented in the movie "The Third Man" and Rasmussen interprets the movie as follows: "The characteristic sounds which tunnels produce are clearly heard in the splashing of the water and echos of the men hunting the third man.[...] Here, architecture is certainly heard. Your ear receives the impact of both the length and the cylindrical form of the tunnel."<sup>57</sup> [Figure 2.2.] The underground tunnels of Vienna's sewer system have a dramatic effect on the experiencer not just because of its unique geometry but also thanks to its imposing acoustics. At this point, vision and audition<sup>58</sup> becomes inseparable. The two sense modalities are intertwined to each other tightly to generate the spatial experience.

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<sup>57</sup> Rasmussen 1962, op.cit., p.225.

<sup>58</sup> The thesis will not encompass the studies of neuroscience and cognitive psychology within the scope. However, I want to share a brief note from the master course 'Visual Cognition' that I took from Informatics Institute in METU in 2017 because it reinforces the perceptual interaction between image and sound from the perspective of cognitive science:

Auditory and visual sensory stimuli converge in multisensorial neurones which govern functions like spatial ability and orientation. Visual cortex is not purely visual and it could be active during auditory stimulation. Thus, visual information via auditory stimulation and vice versa is possible.( Proulx, J.M., Brown, J.D., Pasqualotto, A, Meijer, P. "Multisensory Perceptual Learning and Sensory Substitution." Elsevier. Neuroscience and Biobehavioral Reviews, Vol 41 . 2014: p.20.)

Emre Erkal's Phd thesis entitled '*Ecological Event Perception in the City: A Proposal for an Urban Design Tool Basen on Sonification*' shares an experiment revealing the power of the collaboration of visual and auditory perception. In the experiment, subjects are expected to play a video game in three different environments as; visual, auditory and audio-visual electronic environments. Subjects score the highest mark in audio-visual electronic environment. (2006, p.131)



Figure 2.2. Poster for the Movie The Third Man

Source: “The Third Man-Underground Tunnels of Vienna’s Sewer System” Web. 10 March 2019.

< <https://www.imdb.com/title/tt0041959/mediaviewer/rm3503845632> >

A conference is held after the exhibition “Sense of the City”, which is referred in the beginning of this chapter. R. Murray Schafer becomes one of the guest lecturers in the aforementioned conference as one of the five main sections of the exhibition is *sound of the city* and Schafer is an influential figure in this field. In the conference, he touches upon the critical role of the sound in terms of mutual interaction of different sense modalities for spatial experience by stating:

Trips to unknown places are multisensory experiences. I remember the constant ringing of the church bells in Germany and Austria but I also remember equally well the smell of goulash or sauerbraten exhaled from the restaurants. And in Italy it was the sound of people singing in the streets, the scraping of the chairs on tile floors and, of course, the aroma of cappuccino.<sup>59</sup>

Sound becomes an active cooperative offering a complex analysis of urban phenomena. While exploring the overlooked modes of perception, hearing assumes a

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<sup>59</sup> Web. 12 March 2019

< <https://www.david-howes.com/senses/sensing-the-city-lecture-RMurraySchafer.htm> >

critical role to propose a new sensorial approach to urbanism. Aural phenomena make the experiencer realize the affinity with the space by joining a subtle transference between other sense modalities. Now that the fact that the sound is one of the essential sense modalities is addressed in this chapter, how it becomes an interwoven input within the urban context will be elaborated on throughout the next chapter.



## CHAPTER 3

### AN INTERWOVEN INPUT WITHIN THE URBAN CONTEXT: SOUND

In the cognitive construction of the urban fabric, urban whispers constitute an invisible yet highly instrumental basis. Therefore, the auditory dimension of the everyday experience is an indispensable parameter in urban studies. The auditory dimension of urban experience provides intriguing additional layers of knowledge and reveals hidden aspects of daily trajectories.<sup>60</sup> To illustrate, similar to the fact that Ahmet Hamdi Tanpınar, in *Beş Şehir*, depicts Bursa by giving reference to the sound of water, Charles Dickens portrays London as an earwitness: “A monster, roaring in the distance.”<sup>61</sup> While urban context develops its distinctive characters, the acoustic identity of the related context forms itself simultaneously. The complexity and interpenetrating layering of sound within urban context is studied in this chapter. Sound subtly influence patterns of sociability and interactions in urban space.<sup>62</sup> Thus, the power of the sound to denote space-time, place and memory is touched upon to demonstrate that sound is an interwoven input within spatiotemporal experiences.

#### 3.1. Diverse Characteristics of the Sound

Sonic components have a dual diversity, which is required to be addressed to reveal the underestimated sonic potentials within the urban context. Thus, investigating the

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<sup>60</sup> Gallagher, Michael. “Sounding Ruins: Reflections on the Production of an ‘Audio Drift’.” Sage Publications. *Cultural Geographies*, Vol 22(3). 2015: p.481

<sup>61</sup> Dickens 1848, as cited in, Müller, J. “The Sound of History and Acoustic Memory: Where Psychology and History Converge.” Sage Publications. *Culture & Psychology*, Vol 18 (4) . 2012: p.453

<sup>62</sup> Atkinson, Rowland. “Ecology of Sound: The Sonic Order of Urban Space.” Taylor&Francis. *Urban Studies*, Vol 44(10). 2007: p.1907

sonic experience of the city, sounds could be comprehended in miscellaneous ways. On the one hand, it is possible to listen to the sonic environment with respect to its physical properties, which is connected with acoustics. It is also possible to perceive the sonic environment with respect to its cognitive properties, which is related with psychoacoustics. Hence, the fact that the sound nests both tangible and intangible qualities leads to instrumental acoustic and psychoacoustic experiences. The integrity of sound within everyday life should be treated both physically and perceptively.<sup>63</sup> The environment is an audible artifact and this audibility transcends the boundaries of the ability of hearing. For instance, the siren sound is composed of physical soundwaves with certain wavelength and sound pressure level. However, the nexus of living meanings ascribed to the siren sound on every 10<sup>th</sup> of November in Turkey marks the time of commemoration and gratitude to Atatürk, which extends this phenomena beyond a mere bell tone.

### **3.1.1. Sound as a Matter with Tangible Qualities**

“Sounds are spatial, and they thus are part of the physical environment.”<sup>64</sup> Moreover, the sound plays an active role in the urban context frequently as a physical matter.<sup>65</sup> First and foremost, noise management strategies in environmental studies reside in the physical properties of the sound. Noise has taken part in the literature and been treated as a design parameter in planning studies especially since 1970s when the volume of cities started to rise irreversibly. Physical measurement of urban noise and developing

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<sup>63</sup> The thesis pays regard to the dual-diversified nature of sound environment. As a result, the methodology of the thesis is composed of both qualitative and quantitative data gathering and data analysis processes.

<sup>64</sup> Zittoun, T. “The Art of Noise: Comment on the Sound of Silence”. Sage Publications. Culture and Psychology Vol 18(4). 2012: p.474

<sup>65</sup> The science of acoustics was developed in the 18th and 19th centuries, especially in connection with musical instruments. In architectural domain, 20th century marks the emerging interest in acoustics. Acoustics is concerned with the tangible qualities of sound. Nevertheless, it is worthy to note that the thesis does not aim to discourse upon ‘the science of acoustics’ while investigating the cooccurrence of tangible and intangible qualities of sound within the urban context.

strategies accordingly have been within the scope of planning methodologies. Nevertheless, sound in urban context is usually approached as an adverse parameter that is supposed to be kept under control. Sound in urban realm is an unmasked actor which is treated restrictively. In some cases, increasing volume of cities is tried to be handled by sound barriers. [Figure 3.1.] However, sound as a matter has underestimated potentials to get involved in design processes beyond sound barriers.<sup>66</sup> Figuring out sound as a material substance whose flow could be measured, channeled, and stemmed within urban space as the vessel containing it emphasizes the permeable and miscellaneous nature of sound.<sup>67</sup>



Figure 3.1. Sound Barrier for Amsterdam Airport Schiphol Design Contest

Source: “ Sound Barriers in Urban Context” Web. 8 July 2019.

< <https://variousarchitects.no/project/schiphol-sound-barrier/> >

Construction of comprehensive and representative sound approaches in urban life is needed. That is, sound as a matter could not be dissociated from sound as cognitive phenomena. The informational content of sound is rooted in both physical and cognitive dimensions of sound. Since, two sound sources having similar physical properties could be perceived differently by listeners. Thus, labelling a sound source

<sup>66</sup> The material features of sound are embraced within the scope of the thesis, like mapping sound level pressures and establishing a connection with listeners’ reaction to them. That is, if listeners wish to maintain or eliminate certain sound sources regarding from physical properties of sound.

<sup>67</sup> Yablon 2007, op.cit. , p. 633.

which has a relatively high sound pressure level as noise and setting restrictions to avoid it is not a comprehensive and holistic approach. For instance, modern men is mostly not even aware of the permanent and continuous background noise any more since they get accustomed to it. Furthermore, the exclusion of background noise could result in discomfort. Thus, labelling a sound source as noisy or annoying requires additional parameters, besides its sound pressure level. Evaluation of sound phenomena in everyday life situations should be revisited in the light of this information. To conclude, physical dimensions of sound have to be integrated into the physiological, psychological and sociological associations so as to inquire into the impacts of sound on the comprehensive apprehension of urban life.<sup>68</sup>

### **3.1.2. Sound as a Cognitive Phenomena with Intangible Qualities**

The question “What is hearing?” does not refer to the physical and physiological aspects of hearing, that is, the human capacity to perceive acoustic signs transmitted via sound waves and absorbed by special sense organs. “Hearing” shall rather be regarded as a social and cultural capacity that shapes men’s and women’s concepts of their world and influences their actions in given historical contexts.<sup>69</sup>

Investigating the question ‘What is hearing?’ leads to the fact that “A sound is a vibration interpreted by an ear.”<sup>70</sup> Thus, the sonic environment is an interpretable construct thanks to the spiritual and associational aspects of sound. The spiritual and associational aspects of the sound are derived from semantic values attributed to sounds. Tagging sound waves as calm, pleasant, exciting, chaotic, or annoying is

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<sup>68</sup> Raimbault, Manon and Dubois, Daniele. “Urban Soundscapes: Experiences and Knowledge.” Elsevier. *Cities*, Vol 22 (5). 2005: p.341

<sup>69</sup> Müller, Jürgen. “The Sound of History and Acoustic Memory: Where Psychology and History Converge.” Sage Publications. *Culture & Psychology*, Vol 18 (4) . 2012: p.445-446

<sup>70</sup> Zittoun 2012, op.cit., p.475

related with the psychoacoustic reflection on listener's cognitive and perceptual world. Individuals could interpret sounds as mode of understanding the world. For instance, in the post-war years, war weary kids still interpret sounds of regular planes as the threat risk. They retrace the terrifying listening experiences on the battlefields. Wartime sound experiences are encoded with the feeling of fear in their acoustic memory. Sonic environments are perceived by listeners and formed by psychological attributes rather than by physical parameters.<sup>71</sup>

The meanings ascribed to sounds, the intangible dimensions of sounds, are powerful enough to construct an interpreted sonic environment. It is quite possible to recognize a context only by tracing the associated meanings to environmental sounds. Therefore, holistic listening provides an access to subjective spatial configuration. To illustrate, the cheers from a local football stadium amount to win for one and defeat for another.

### **3.2. Association between Space-Time, Memory and Sound**

Urban whispers have associational power to designate space-time and memory. Since sound is an inherent component within urban context as an essential reference point in *mental maps*, comprehending space through listening is possible. Listening is a rather sophisticated instrument of orientation which is utilised to navigate in both physical space and political, social and cultural space. Exploring everyday life of the city from a sonic perspective reveals the potentials of whispers to be oriented in space, time and memory. For example, the sound of street musicians specifies a specific section of the path that everyday actor is walking on, leaving a sonic trace in his/her acoustic memory. If everyday actor uses this path constantly, music becomes an integral part of this ritual. Extracting street music from soundwalk line by external forces leads to a disorientation for walker. As an example, the accordion musician on Tunalı Hilmi

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<sup>71</sup> Liu, Jiang et.al. "Spatial Variability of Soundscapes in a Multiple Functional Urban Area". Elsevier. Landscape and Urban Planning, Vol 115. 2013: p. 2.

Street in Ankara constitutes an inseparable part of the psychoacoustic journey of individuals.



*Figure 3.2. Street Musician on Tunalı Hilmi Street*

Source: “ Accordion Musician on Tunalı Hilmi Street” Web. 11 July 2019.

< <https://www.aa.com.tr/tr/yasam/baskentliler-yillardir-onun-muziklerini-dinliyor/1352099#> >

### **3.2.1. Dependence of Sound and Physical Space, Contextualized Place**

Sound environment embraces both physical space and contextualized place thanks to the dual diversity of sound both as a matter and a cognitive phenomena. That is, sound of church bell symbolizes both church itself as a building typology and religious rituel which takes place in it. Listening is one of the psychological functions in perceiving the environment and listeners attribute associations to what they hear. Hence, “Everyday sounds could give texture to settings, making places the places that they are”<sup>72</sup> To illustrate, The Soundscape of Istanbul Project which is conducted by Pınar Çevikayak Yelmi during her doctoral research at Koç University approaches daily urban life from a sonic perspective. [Figure 3.3.] The project provides the characteristic urban sounds in an interactive platform in which listener-actor of the city could make an acoustic contribution. Tracing the trajectories of each location by

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<sup>72</sup> Hall et al. 2008, op.cit. , p. 1033.

just listening to its echos is put forward, such as tram sound on İstiklal Street or hoot sounds of ferries in Ortaköy.



Figure 3.3. The Soundscape of İstanbul

Source: “Sounds of İstanbul” Web. 10 July 2019.

< <http://www.soundsslike.com/p/credits> >

As another example, a street vendor, tea seller, in Kuğulu Park-Ankara is a psychoacoustic symbol of Kuğulu Park. That is, his cries are associated with the Park in the spatial memory of everyday actors. His unique sound of ‘çayçen, çayçen, çayçen?’<sup>73</sup> could be heard as soon as one gets into the Park. His sound has been a familiar sonic agent in the urban context that a documentary titled ‘Ankara Portreleri’ gives an episode to him: ‘His cries are almost as famous as swans in Kuğulu Park.’<sup>74</sup> In addition to sound, silence could denote to a physical space and contextualized place. Since, “silence is physically, discursively and temporally located next to sound and noise.”<sup>75</sup> In religious settings, silence becomes the main actor to have contact with

<sup>73</sup> Çayçen! is his way of asking ‘Would you like some tea?’

<sup>74</sup> as cited in, Ankara Portreleri #1 Nihat Karakurt [Youtube Video]. (2016, November23). Retrieved July 11, 2019, from <https://youtu.be/DbVic-xwBIM>

<sup>75</sup> Meyer, Morgan. “A Space for Silence: Exhibiting and Materializing Silence through Technology.” Sage Publications. Cultural Geographies, Vol 23(2) . 2016: p.321

the divine. In this case, silence exists with its spatiality and materiality, offering a personal and embodied spiritual experience.

### **3.2.2. Unfolding Time through Sound, Sound-Time Company : Acoustic Memory**

In Germany, [...] the euphoric radio broadcast of the soccer world cup final in 1954, when 9 years after World War II the German team won the title, [t]his sound event became a fundamental element of the national and political identity in post-war Germany, a hearing experience that immediately turned into a universally known and shared emotional point of reference in the German historical consciousness. We have learned in the course of the 20th century that sounds and listening experiences can turn into powerful “lieux de mémoire”, symbolic places that provide orientation in the continuum of history <sup>76</sup>

Sound memory is a long-term memory that stays deeply hidden in listener’s minds since sounds are correlated to profound sentimental feelings.<sup>77</sup> Certain sounds that have vital degree of correlation are preserved in memory and they could evoke the spirit of a particular space-time. For instance, above-cited shared listening experience turns into an emotional psychoacoustic reference in *the site of memory* <sup>78</sup>. Sounds are integral part of urban context and they are of great importance in terms of spatial memory and heritage. In other words, acoustic memory and acoustic heritage make a great contribution to the generation of spatial memory and heritage. That is, the characteristics of sound environment affect spatial experience since there is a correspondence between acoustic memory and spatial memory. However, it is critical

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<sup>76</sup> Müller 2012, op.cit. p.447.

<sup>77</sup> Liu and Kang 2016, op.cit. p.33.

<sup>78</sup> A lieu de mémoire is a concept which means site of memory and it is popularized by the French historian Pierre Nora.

to note that it has been pretty compelling to protect and sustain acoustic heritage due to the unimproved sonic awareness in urban realm. In addition, there is the fact that exploring most of the acoustic heritage is hardly possible since the time interval till 1860s are technically inaudible.<sup>79</sup> That is why; investigation of the auditive codes of past epochs relies on ear witnesses or written documents. For instance, the ‘‘historical research about ancient Rome describes urban noise in Rome or the function of music for Roman population.’’<sup>80</sup> Nevertheless, since mid 19<sup>th</sup> century, authentic acoustic sources have been available so as to formalize acoustic heritage.<sup>81</sup> Consequently, listening becomes a sophisticated tool of orientation in the continuum of history. Time is a succession of presents and sound is a potent reference point in these presents. It is possible to comprehend carried sounds from different time periods; thus, sound actually travels through time and gives the listener a chance to uncover hidden layers of acoustic heritage. Therefore, time could be unfolded through listening to the whispers. To illustrate, listening to the imposing political speeches of Hitler and the noise of the bombings in battlefields reinforce the comprehension of World War II. As another profound example, hearing the call ‘‘*Sesimi duyan var mi?*’’<sup>82</sup> evokes the tragic memories of the massive earthquake on the 17<sup>th</sup> of August 1999 in north-west Turkey. As another illustration, every generation has its own hit songs and whenever that certain song is heard on the radio, time travel to that certain epoch is triggered. The integrity of sound within urban context and its associative power to denote space, time, memory is addressed so far. Now, the notion of soundscape will be elaborated on proceedingly.

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<sup>79</sup> ‘‘The first sound recording was made in the year 1860 by the French scientist Edouard-Leon Scott de Martinville.’’ ( Rose 2008 ,as cited in, Müller 2012, op.cit., p.448)

<sup>80</sup> Müller 2012, op.cit. p.454.

<sup>81</sup> Although sound environment is a traceable artifact now, sonic awareness level in urban context is still not sufficient. This self-imposed deafness towards urban whispers could be dissolved. Otherwise, acoustic heritage could not be protected and some valuable sonic archive could be lost forever.

<sup>82</sup> The sentence is in Turkish which means ‘ Is there anyone who can hear me?’ This sentence has been identified with the earthquake.

### 3.3. The Notion of Soundscape

Soundscape is an environment of sound (or sonic environment) with emphasis on the way it is perceived and understood by the individual or by a society.<sup>83</sup>

The notion of soundscape is the acoustic environment as perceived or experienced and/or understood by a person or people, in context.<sup>84</sup>

The term soundscape is introduced and exploited in this chapter to emphasize the integrity of sound within everyday life. The notion of soundscape gained prominence in the 1970s through the work of the Canadian composer Raymond Murray Schafer at Simon Fraser University in Vancouver.<sup>85</sup> The first definition cited above is how Schafer and his colleagues described soundscape in 1970s. The second definition is ISO-12913-1 definition of soundscape in 2013. Both of the descriptions from different time periods explicitly suggest that the soundscape is a perceptual construct related to physical environment. Nevertheless, the perceptual dimensions of soundscapes have been overlooked in traditional approaches so far. Use of sound in urban environments is reduced and limited to noise management and environmental studies have rarely approached sound as an informative element to assign meaning to the related urban context.<sup>86</sup> When sounds are not appropriate to the context in which they are conceived, they are perceived as noise.<sup>87</sup> Noise, as an unasked and intrusive sonic actor, is a

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<sup>83</sup> Truax 1978, as cited in, Aletta, Kang and Axelsson 2016, op.cit., p.66

<sup>84</sup> ISO-12913-1 2013, as cited in Hong, Y. Joo., Jeon, Y. Jin. “Exploring Spatial Relationships Among Soundscape Variables in Urban Areas: A Spatial Statistical Modelling Approach.” Elsevier. *Landscape and Urban Planning*, Vol 157 . 2017: p.353

<sup>85</sup> Aletta, Kang and Axelsson 2016, op.cit., p.66

<sup>86</sup> Carles, L. Jose., Barrio, L. Isabel., de Lucio, Vicente. “Sound Influence on Landscape Values.” Elsevier. *Landscape and Urban Planning*, Vol 43 . 1999: p.191

<sup>87</sup> Ibid., p.192

manifest aspect of the lived experience. To put it another way, there is a persistent noisescape, which is continuous and ubiquitous arising from today's cities simply increasing in volume. Since the 1970s, noise has been largely considered as a major problem of annoyance in cities and it has been a matter of debate by urban planners.<sup>88</sup> Physical measurement of urban noise to detect and suppress unwanted sonic dimensions is the only method followed. Thus, solely the negative side of acoustic environment, noise, is tried to be handled; however, conceiving the sonic fragments of a city requires a more integrated and multidisciplinary approach. Sound environment has philosophical, ecological, political, aesthetic or scientific aspects, besides its physical dimensions. The power of this apparently intangible domain has generally been underexamined in urban studies.<sup>89</sup> There is an immediate need for the inclusion of soundscape research into urban design and planning strategies because sound is an unignorable inbuilt component of urban context. In order to reconfigure the volume of urban life, beyond noise management strategies, very spatial meaning of sound should be scrutinized. The shift from the mere concern of noise pollution to the concept of soundscape would enrich the discussion.

The concept of soundscape urges upon the understanding of sound, which goes beyond the auditory ability of the ear by the help of holistic listening.<sup>90</sup> Holistic listening promotes an awareness of the rich array of sounds around to discern the aural terrain within related landscape and then to build an overall embodied urban imagery by the help of acoustic associations, analogies or comparisons. On the way to an embodied and enmeshed spatial experience, soundscapes could not be understood in isolation

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<sup>88</sup> Raimbault and Dubois 2005, op.cit., p.339

<sup>89</sup> Atkinson 2007, op.cit. , p. 1905

<sup>90</sup> Liu and Kang 2016, op.cit., p.32

from their underlying landscapes, soundscapes are always emanated in place.<sup>91</sup> Emily Thompson defines soundscape as an auditory or aural landscape.<sup>92</sup> Spatial landscape configuration affects soundscape patterns; thus, soundscape could be taken as an auditory correspondent of a landscape. Spatial variation of urban soundscape patterns is formed as coupled with underlying landscape characteristics. Soundscape, as pointed out, refers to the full range of perceptible sounds in a given landscape at a given time and the way humans react to these acoustical cues contributes considerably to the characteristics of a landscape.<sup>93</sup> The concept of soundscape urges upon the mutual relationship between sonic environment and the experiencer to engage with the auditory everyday.

The study of relationship between humans and sonic environments is called acoustic ecology.<sup>94</sup> Truax defines acoustic ecology as “the study of the effects of the acoustic environment, or soundscape, on the physical responses or behavioural characteristics of those living within it.”<sup>95</sup> Acoustic ecology has been an emerging interdisciplinary field since 1970s and it is concerned with a comprehensive approach towards sonic environments. Acoustic ecology combines the traits of psychology, sociology, and anthropology of sound.<sup>96</sup> The international organization

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<sup>91</sup> Schafer 1977, as cited in, Liu et al. “Spatiotemporal Variability of Soundscapes in a Multiple Functional Urban Area.” Elsevier. *Landscape and Urban Planning*, Vol 115. 2013: p.8

<sup>92</sup> Thompson 2002, as cited in, Adams et al. 2006, op.cit., p.2386

<sup>93</sup> Ibid., p.2392

<sup>94</sup> It is worthy to note that ecology studies on the relationship between individuals and their environment. Acoustic Ecology Studies demonstrate the fact that soundscape is a perceptual construct related to physical environment by examining the interface between man and the sounds of his environment.

<sup>95</sup> Truax 1978, as cited in, Adams et al. 2006, op.cit., p.2386-2387

<sup>96</sup> Laske, O. “Review of the Tuning of the World.” Oxford University Press. *The Musical Quarterly*, Vol 64 (3). 1978: p.396

of acoustic ecology was recognized by the establishment of the World Forum for the Acoustic Ecology (WFAE) in 1993.<sup>97</sup> The organization continues today to promote research, education, events and conferences around the interdisciplinary field of acoustic ecology. For instance, two recent conferences [Figure 3.4.] conducted by the organization aims to bring together diverse actors on soundscape art and ecology to explore the ways how sound could deepen the perception of environment.<sup>98</sup>



Figure 3.4. WFAE Conducted Conferences

Source: “ World Forum for the Acoustic Ecology Conducted Conferences” Web. 31 March 2019.

< <https://www.wfae.net/> >

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<sup>97</sup> Waterman, Ellen. “Sound Escape: Sonic Geography Remembered and Imagined.” Sage Publications. *Ecumene*, Vol 7 (1). 2000: p.113

The current website of the organization is ‘<https://www.wfae.net/>’ and in the website WFAE represents itself as an international association of affiliated organizations and individuals who share a common concern for the state of the world’s soundscapes.

<sup>98</sup> It should be noted that the very first international conference on acoustic ecology “ The Tuning of the World” was held in Banff Center, Canada in 1993 and the conference provided a dynamic, interdisciplinary forum on soundscape awareness. One of the arguments from conference offerings was as follows:

“ the more aware we are of the increasing array of sounds in our environment, the better we can discern, analyze and shape their roles for us.” ( Sykes, Debra. “The Tuning of the World: The First International Conference on Acoustic Ecology.” *The MIT Press. Leonardo Music Journal*, Vol 3. 1993: p.82)

Acoustic ecology is worth-mentioning for the scope of the thesis because it accentuates that sonic environment is not only about prohibition of undesirable noises but also about the social, spiritual and associational aspects of sound, besides its aesthetics. So, acoustic ecology indicates that only a total appreciation of the acoustic environment could give the perceiver an integrated way to build perception of space. Acoustic ecology has always been conceived of in spatial terms to raise awareness for the *thereness of the sound* <sup>99</sup> within the urban context. Because environment is an audible artefact, becoming aware of urban sound repertoire by listening echos of the city will richen the perception of urban trajectory. At this point, how to assess a sound environment becomes critical and Southwork identifies the information content of the sound and the context in which it is perceived as two essential variables to assess related acoustic territory.<sup>100</sup>

The notion of soundscape emerged in 1970s and several substantial soundscape studies have been conducted since then. Raymond Murray Schafer is an initial and influential figure to identify the qualities of sound to attribute meaning on a given landscape by conducting soundscape studies. He introduces the awareness of a new social responsibility toward sound and calls for soundscape studies. An international study entitled The World Soundscape Project in early 1970s is an influential soundscape study that Schafer conducted. The project consists of two comprehensive field studies entitled The Vancouver Soundscape and Five Villages Soundscapes. The former tries to undertake ethnographic projects to map the soundscape of various communities from a historical and contemporary survey of the Vancouver Soundscape.<sup>101</sup> The latter tries to conduct a soundscape documentation of five

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<sup>99</sup> Hall, Lashua and Coffey 2008, op.cit., p.1034

<sup>100</sup> Raimbault and Dubois 2005, op.cit., p.340

<sup>101</sup> Waterman 2000, op.cit., p.112

European villages in Germany, France, Italy, Sweden and Scotland. Järviluoma made a revisit to the same five villages, with an additional Finnish village, 25 years later, in 2000.<sup>102</sup> Her initial aim was to map the changes in the five village soundscapes and develop a method for the analysis of acoustic environment. For example, how population growth and modernization changed the acoustic character of these communities was one of the measures she tried to illustrate. Järviluoma's study which is entitled "Acoustic Environments in Change (AEC)" was planned as a follow-up study of Schafer's The World Soundscape Project and conducted between the years 2000 and 2006. The World Soundscape Project is mainly concerned with the comparative study of the sonic environment of different cultures, past and present.<sup>103</sup> World Soundscape Project's aim consists of documenting important sound features, collecting sounds threatened with extinction, studying the effects of new sounds before they are indiscriminate released into the environment, studying the rich symbolism that sounds have for people and studying human behavior patterns in different sonic environments.<sup>104</sup> The soundscape of the world is changing and this study tries to make a documentation work to pursue what happens when sounds change.<sup>105</sup> Schafer tries to set forth a methodology to study the changes in acoustic perception and sonic behavior of individuals. Meanwhile, it will be possible to make a total appreciation of the acoustic environment and comment on which sounds to preserve, encourage or multiply.

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<sup>102</sup> Järviluoma, Helmi. "Acoustic Environments in Change: Five Village Soundscapes Revisited." WFAE. *Soundscape: The Journal of Acoustic Ecology*, Vol 1 (1). 2000: p.25  
Helmi Järviluoma is a Professor of Cultural Studies at the University of Eastern Finland at the Academy of Musicology.

<sup>103</sup> Laske 1978, op.cit., p.395

<sup>104</sup> Schafer, R. Murray. 1977. "Introduction". *The Soundscape: Our Sonic Environment and the Tuning of the World*. Destiny Books, Vermont. p. 5

<sup>105</sup> It is worthy to note that The World Soundscape Project is an influential example for the thesis in terms of its purpose of documentation. The thesis takes soundscape mapping as an alternative documentation tool and it will be elaborated on Methodology section in Chapter 4.

As another soundscape study, a field study conducted in Hamamönü which has recently faced an urban renewal process in an urban historic district of Ankara, Turkey could be illustrated. This study examines how people perceive and evaluate the overall soundscape of a historical urban area that is restored recently.<sup>106</sup> One of the most critical findings of the study shows that the visitors can not perceive any integrity between the historical character and the acoustic character of the environment. Because, the visitors' first intention for the site is not based on the architectural history, but rather based on the eating opportunities, which could be found anywhere else, in the area. It is an important outcome that a new fabric has been formed under the effects of functional change and this triggered a transformation process for the soundscape of the area.<sup>107</sup> The urban form has changed over time and consequently sound ambient environment adapts itself to the process. To put it another way, Hamamönü used to be a small residential district then it has undergone a period of transformation and turned into an ordinary small-scale recreational area, all this process impinges on the acoustic character, by erasing relative 'soundprints'.

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<sup>106</sup> Kaymaz, I. , Cüre, C. , and Baki , E. “. Perceived Soundscape of Urban Historical Places: A Case Study of Hamamönü, Ankara.- World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium 2016, WMCAUS 2016” Elsevier. Procedia Engineering, Vol 161. 2016: p.1920

<sup>107</sup> The case study of the thesis is also located in urban historic district of Ankara, Turkey which is Ulus. The area has been under the process of transformation which affects the acoustic patterns. That is, Hamamönü study shares some common points with the case of the thesis.



Figure 3.5. Hamamönü

Source: “ Hamamönü in 1950s and 2010s ” Web. 17 April 2019.

< <http://www.eskiturkiye.net/570/hamamonu-ankara> >

In an influential recent study entitled ‘Unknown Ulus (*Bilinmeyen Ulus*)’ which was held by Tmmob Ankara in February 2019, a series of workshops focusing on the rich psychoacoustic features of Ulus, which is also the case site of the thesis, was conducted. One of the workshops carried out by Can Gölgelioğlu<sup>108</sup> investigated the musicscape of Uus. *Musicscape Ulus* prepared a mapping of the taste of music of the area and revealed that three well-known singers as Neşet Ertaş, Müslüm Gürses and Ahmet Kaya dominated the musicscape of Ulus. While visualizing the musicscape mapping, song lyrics constitute the building lots. [ Figure 3.6.] As an intriguing outcome of the workshop, it is discovered that Neşet Ertas who is an influential figure for Turkish Folk Music and Luciano Pavarotti were in Ulus in 1963 simultaneously. [Figure 3.7.] This study is instrumental in terms of propounding the presence of musicscape within everyday life of Ulus. Musicscape could be taken as an invisible yet highly illustrative capillary of soundscape characteristics, so *Musicscape Ulus* documentation work is a substantial preliminary examination for the scope of the thesis due to its contribution to soundscape of Ulus.

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<sup>108</sup> Can Gölgelioğlu is an academician in the Department of City and Regional Planning in Çankaya University.

# music scape ulus

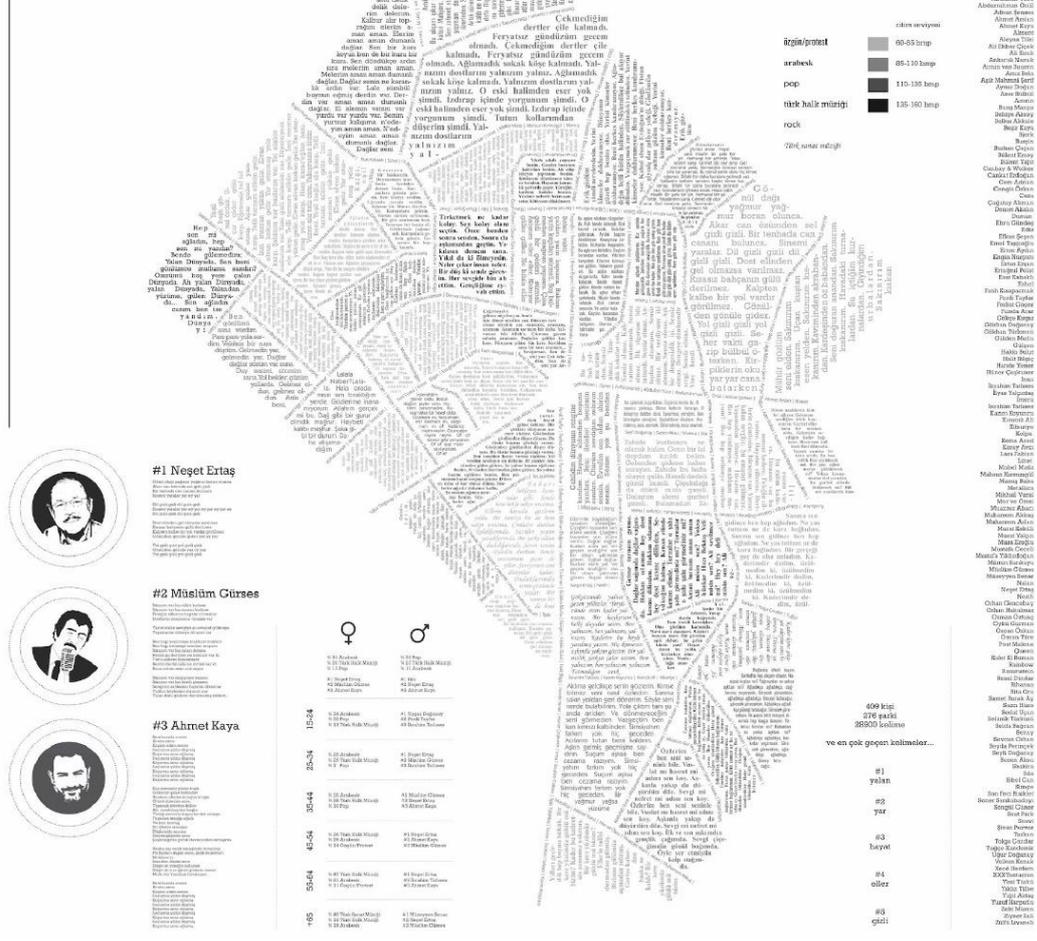


Figure 3.6. Musicscape Ulus

Source: “ Musicscape Ulus Workshop in Unknown Ulus ” Image is provided by Can Gölgeioğlu who is the coordinator of the workshop.



*Figure 3.7. Luciano & Neşet*

Source: “ Luciano and Neset in 1963 Ulus ” Image is provided by Can Gölgeioğlu who is the coordinator of the workshop.

An inspiring study titled “The Soundsslike Project” which is conducted by Pınar Çevikayak Yelmi during her doctoral research has been pointed out in the previous chapter. [Figure 3.8.] What is inspiring about this study is that it aims to keep a sonic archive to contribute to the acoustic heritage and this collection is publicly accessible<sup>109</sup>, besides being open to public contribution via an interactive online platform. The sonic archive spreads around the world, starting with Le Havre, London, Paris and Medina so far. Therefore, the data of the counterpart soundscape studies, including the case of the thesis, could be articulated to this sonic archive.<sup>110</sup>

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<sup>109</sup> The current website provides the interactive accessibility and contribution: <http://www.soundsslike.com/>

<sup>110</sup> The Soundsslike Project has not studied on the sonic archive of Ankara yet. The case of the thesis could contribute partially when sonic archive research for Ankara is started.



Figure 3.8. The Soundsslike Project

Source: “ The Soundsslike Sonic Archive ” Web. 14 July 2019.

< <http://www.soundsslike.com/> >

Studies aiming at raising awareness towards the potentials of sound in terms of spatial experience have been carried out in different scales. Former examples could be examined under urban scale studies. As a notable study having a different scale which takes sound at the center, an exhibition at London’s Victoria & Albert Museum titled “Shhh...Sounds in Spaces” could be given.<sup>111</sup> The curators invited 10 prominent musicians to sonically reinterpret spaces of the museum. One of the curators, David Byrne, arranges a sonic collage made up of mundane sounds of everyday life in a museum, like phones ringing in the lobby or faucets running in the washrooms. The composition is made available to visitors unexpectedly as they walk through the museum. Byrne accomplishes to foreground background sounds by bringing ordinary audible world into attention and shows the existence of sound-shaped space. Another iconic example illustrating how sound shapes space is John Cage’s 4’33” of orchestral silence which calls attention to performances of everyday, through which the coughs, sniffles, and sounds of the audience at a concert, and the concert hall itself (the hum

<sup>111</sup> Hall, Lashua and Coffey 2008, op.cit., p.1022

of the air conditioning, the buzz of the electrical system) as the orchestra plays nothing.<sup>112</sup>

As another study, how the sound becomes an interwoven actor within spatial experience is demonstrated by the installation entitled ‘Intersection (*Arakesit*): An Interactive Sound Installation’ by Emre Erkal in Topkapı Palace, İstanbul within the context of the 1<sup>st</sup> İstanbul Architecture Festival in 2004. In the setting, visitor gets aluminum tubes out of his/her way to walk in the place. [ Figure 3.9.] Then, these moving tubes produce a series of metallic resonance. This acoustic texture resonates with the brass plates placed on top of the triangular wooden surfaces and produces vibrations on them, which helps build a haptic-acoustic perception within the place.<sup>113</sup> When visitor completes the tour within the room, he/she realizes his/her movements contribute to the immediate soundscape of the room. Visitor enhances the spatial experience of the very same physical space by adding a layer on the soundscape of the room. What is critical is that visitor builds an acoustic trace out of his/her movement passing through the space instead of being a passive listener who comprehends the space out of abstract parameters.

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<sup>112</sup> Ibid. p.1037

The Youtube Video Link of John Cage 4’33” is provided:

< <https://www.youtube.com/watch?v=JTEFKFiXSx4&t=282s> >

<sup>113</sup> Erkal, F. Emre. “ Ecological Event Perception in the City: A Proposal for an Urban Design Tool Basen on Sonification.” Phd Thesis ITU, İstanbul, 2006. P 182- 186. Retrieved from: <https://polen.itu.edu.tr/handle/11527/8504>

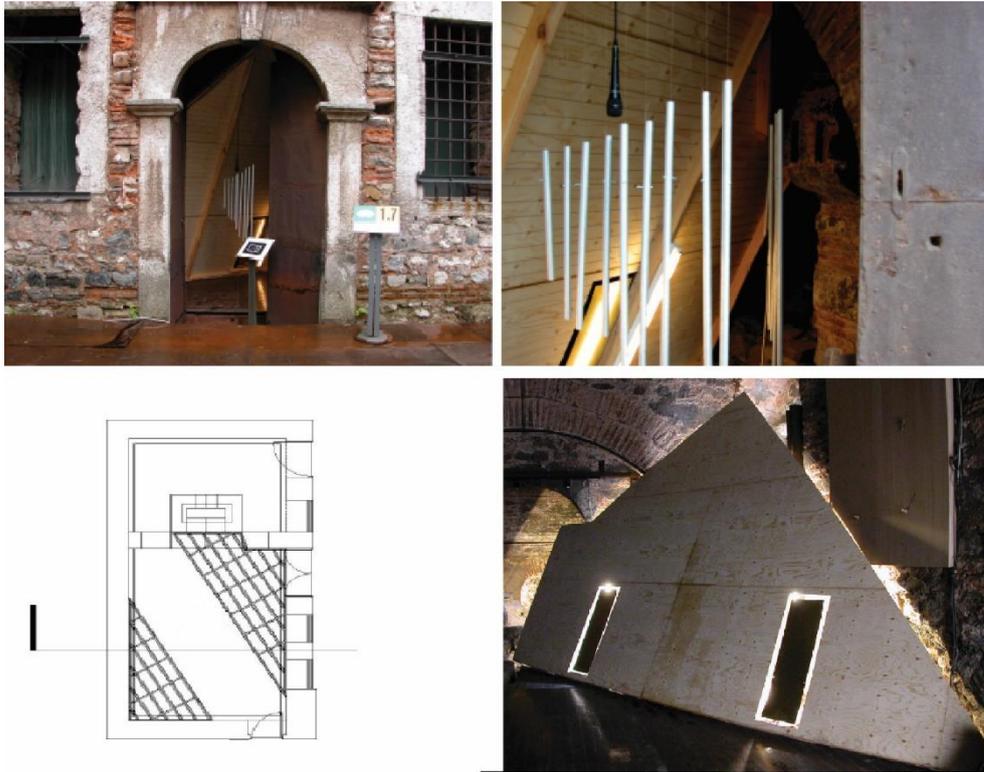


Figure 3.9. Intersection (Arakesit)

Source: “ Intersection (Arakesit) : An Interactive Sound Installation ” Web. 16 April 2019.

< <https://polen.itu.edu.tr/handle/11527/8504>>

Sound is an existential necessity and soundscapes are integral part of living environments.<sup>114</sup> The notion of soundscape is introduced and some leading soundscape study examples are provided in this chapter to concretize the interwoven texture of soundscape within everyday life. The awareness towards the inclusion of sounds as part of daily experience is evoked. The next step will be based on the active role of the listener in the construction of a soundscape. That is, soundscapes exist through human perception of acoustic environment, so they are perceptual constructs. The next chapter investigates perceived sound of sonic environments, soundscape interpretation of individuals.

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<sup>114</sup> Raimbault and Dubois 2005, op.cit., p.342

## CHAPTER 4

### SOUNDSCAPE INTERPRETATION MAPPING AS A DOCUMENTATION TOOL

Now I will do nothing but listen...

I hear all sounds running together, combined, fused or following,

Sounds of the city and sounds out of the city, sounds of the day and night.<sup>115</sup>

*Song of Myself, Walt Whitman*

Whitman listens the sounds of the city and becomes an active participant. In other words, sonic sensibilities of individuals act a constitutive role and soundscapes are shaped under the interpretations of listeners. Individual's preferences and understanding of urban soundscapes show an alteration according to the value the listeners place on sounds. The subjective understanding of soundscape develops to be consistent with what sounds associated with in listener's mind. For example, on the one hand, the sounds of rubbish collection could be distracting and uncomfortable, but on the other hand some could find the sound acceptable because the activity can make the environment clean.<sup>116</sup> Thus, subjective assessment of perceptual dimensions of soundscapes makes soundscape studies interpretable constructs.

The interpenetrating relationship between soundscape parameters and characteristics of related landscape has been addressed in previous chapters. As landscape is perceived as a subjective construct, personal interpretation however shared by

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<sup>115</sup> Whitman 1892, as cited in, Schafer, R. Murray. 1977. "Introduction". The Soundscape: Our Sonic Environment and the Tuning of the World. Destiny Books, Vermont. p. 3

<sup>116</sup> Liu and Kang 2016, op.cit., p.32

communication, the sonic environment comes into existence through the discernment of individuals, groups and societies alike.<sup>117</sup> These dual entities experience spatiotemporal alternation processes along with each other. Change in physical setting triggers change in acoustic environment. As a result, the thesis intends to explore dynamic urban context from an alternative sonic perspective. This chapter inquires into how soundscape interpretation transpires in time and impinges on spatial perception. In order to study the changes in perception and sonic behaviour of individuals, to visualize and assess the spatiotemporal dynamics of urban acoustic environments, soundscape maps are utilized.<sup>118</sup> The thesis aims to explore and demonstrate the spatiotemporal dynamics of urban context by proposing soundscape mapping as an alternative documentation tool. Methodology will be explained in detail by the help of the case study in this chapter.

#### **4.1. Soundscape as an Interpretable Construct and Soundscape Mapping**

Soundscape by Schafer promotes the idea of each physical environment generates its own unique sonic environment, which allows diversity of interpretations. The experience of hearing events is the outcome of the interaction between the listener and the sound environment and the diversity taken place in the course of interaction calls forth subjective interpretation. In other words, individual experience and subjectivity with a physical and socio-cultural context provides a basis for soundscape interpretation. In subjective interpretation of soundscape, every individual generates his or her own personal soundtracks in space-time. The layers of personal soundtracks gradually pile up and constitute subjective soundscape interpretation. The interpretation of sonic environment gives the opportunity of stripping and examining the multi-layered surface of the notion of soundscape. Multidimensional exploration

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<sup>117</sup> Truax 1978, as cited in, Raimbault and Dubois 2005, op.cit., p.340

<sup>118</sup> Joo, W., Gage, H.S., Kasten, E.P. “Analysis and Interpretation of Variability in Soundscapes Along an Urban–Rural Gradient”. Elsevier. Landscape and Urban Planning, Vol 103. 2011: p.269

of soundscape is conducted by the sonic sensibilities of individuals in terms of diversifying ascribed meaning to acoustic components. To put it another way, assessment of sound phenomena in everyday life is rather nominative thanks to the associative power of the sound. Because, semantic values attributed to the sound could easily show an alteration subjectively. Certain sounds' meaning and relevance to listeners could differ; for instance, "the sound of footsteps could be perceived as an annoyance or just the cue to a pleasant pedestrian area".<sup>119</sup>

The meaning ascribed to acoustic phenomena does not only vary subjectively but also varies timewise. As any other other sociocultural phenomena, sounds also have to be understood in time.<sup>120</sup> That is, certain semantic properties attributed to certain acoustic sources could disappear depending on socio-cultural background of specific time period. To illustrate, the acoustic signals used by street vendors and tradesman advertising their goods and services have lost their meaning gradually. As a symbolical example, since the eighteenth century, the shouts of the *Bandelkramer* offering haberdashery or the *Lavendelweiber* [Figure 4.1.] selling lavender characterized the acoustic features of Vienna; however, more and more people have begun to disapprove of these shouts in today's Vienna.<sup>121</sup> The case of the thesis, the soundwalk line along Anafartalar Street, Hal Street, Tenekeçiler Street, Çıkırıkçılar Yokuşu , At Pazarı Street and Koyun Pazarı Street in Ulus, bears a similar condition to Vienna case in terms of unique acoustic characteristics fading away. Shouts of street vendors,[Figure 4.2.] the genuine sounds coming from coppersmiths and stove sellers [Figure 4.3.] on this line create a unique acoustic walk line. However, the unique

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<sup>119</sup> Raimbault and Dubois 2005, op.cit., p.340

<sup>120</sup> Zittoun 2012, op.cit., p.478

<sup>121</sup> Payer, P. "The Age of Noise- Early Reactions in Vienna, 1870–1914". Sage Publications. Journal of Urban History Vol 33(5). 2007: p.785

acoustic line has started to be interrupted because distinctive sounds have started to be suppressed and replaced by occupant sounds.<sup>122</sup>



*Figure 4.1. Lavenderweiber*

Source: “ Lavendelweiber in Vienna” Web. 07 April 2019.

< <http://www.wienervolksliedwerk.at/VMAW/VMAW/Singen/kaufufe.htm> >



*Figure 4.2. Simit Sellers*



*Figure 4.3. Stove Sellers*

Source: “ Simit Sellers in Ulus”, “ Stove Sellers in Tenek eciler Street in 1975 ” Web. 03 May 2019.

Figure 4.2. < <https://archives.saltresearch.org/handle/123456789/126244>>

Figure 4.3. < <https://i.pinimg.com/originals/2c/88/42/2c88429ab9013c21cb820b4ea947ae3e.jpg> >

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<sup>122</sup> The process the given soundwalk line has experienced will be expanded on ‘The Case’ section in this chapter.

As another example, steam trains made a rumbling sound that represents the time of the Industrial Revolution and this sound had a positive social sense in terms of socio-economic development during that time.<sup>123</sup> However, because steam trains are superseded by more reasonable counterparts and lost their symbolic importance by the society today, the roaring sound of them is wiped off the current soundscapes. Another approach to how listening is treated within a particular time period is given by Aural Historian Emily Thompson; she thinks that “[w]ithin the period of modernity listening becomes disembodied or reified.”<sup>124</sup>

Subjective understanding of individuals and the course of time are two parameters discussed so far which affect soundscape interpretation. As another aspect, cultural meanings of sounds and their associated social representation and values have an effect of soundscape interpretation. Sounds are attached to other social modes of organization, including specific group values and histories.<sup>125</sup> For example, while sounds of prayer calls represent a reassuring value for a certain group, it may correspond to a hostile feeling for an opposing view or it may not have any substantive meaning for another view. The general acoustic environment of a society could be read as an indicator of social conditions, which produce it.<sup>126</sup> Soundscapes could give clues about the trends and evolution of society. To illustrate, soundscapes tend to be more complicated and diversified as society becomes more multi-ethnic. In the simplest term, multi-ethnic societies give birth to multi-language culture, which enriches soundscapes. Thus, the way sound is embraced appears as an indicator that illumines floating socio-cultural conflicts, questions and understandings within the

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<sup>123</sup> Liu and Kang 2016, op.cit., p.32

<sup>124</sup> Thompson states that modern science of acoustics was elaborated and applied to the design of auditoria, offices, and schools in early twentieth century, subsequently erased the distinctiveness or “acoustic signature” of those spaces. Media theorist Jonathan Sterne supports Thompson’s point by asserting listening is progressively rationalized, isolated, and abstracted, and sound correspondingly objectified and commodified. ( Thompson 2002, as cited in, Yablon 2007, op.cit., p.629 and p.653)

<sup>125</sup> Zittoun 2012, op.cit., p.478

<sup>126</sup> Schafer 1977, op.cit., p.13

process of urban development in different time periods. All in all, socio-spatial flux within the city can be traced through listening rituals.

Soundscapes are shaped under the actions that take place in particular landscape and finally become united with the overall setting. A sound source could fade away in conjunction with the dynamism occurring in the urban context, which subsequently triggers a soundscape update. As in aforementioned Vienna example, particular sounds are tuned off within the echo of cities, but on the other hand, new sonic components, which weave emergent acoustic patterns spring. Rapid social, technological and economic changes that cities have been subjected to especially after 19<sup>th</sup> century have brought a multitude of new sounds to the content of soundscapes. “The modern means of transport such as railways, tramways, automobiles and finally airplanes, brought about a complete change of the public soundscapes.”<sup>127</sup> Human and animal sounds have been blotted out by the mechanic din of motorized traffic and the traffic noise has established itself as the audible sign of the city.<sup>128</sup> Cities have become more polyphonic to the ear and a single envelope of background sound, which is continuous and unnoticeable is developed. The new auditory phenomena generated by urban transformation and industrial production has brought an aural turn. Today’s world where modern man is beginning to inhabit composes an acoustic environment, which is radically different from any he has known before.<sup>129</sup> A multi-layered and puzzling

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<sup>127</sup> Müller 2012, op.cit., p.452

<sup>128</sup> Payer 2007, op.cit., p.777

The term soundscape is classified into three primary components within the acoustic frequency spectrum: biophony, anthrophony, and geophony. The term biophony describes the complex chorus of ambient biological sounds. The term anthrophony refers to any acoustic signal created by human activities such as musical performance or oral conversation. The term geophony refers to the set of sounds generated by physical processes, like wind and rain. ( Gage 2001, as cited in, Joo et.al., p.260) What is critical is biophony and anthrophony has started to lose their dominance in today’s cities’ soundscapes.

<sup>129</sup> Liu and Kang 2016, op.cit., p.28

amalgamation of these new sounds necessitate new forms of awareness within transsuming auditory culture.

When the physical setting is undergone a change, it has consequences on the sonic environment in terms of the spatial and temporal patterns of soundscape characteristics. That is to say, the soundscape of the world is changing both spatially and temporally under the diverse effects of urban dynamics. For instance, with the advent of rapid urbanization and new technologies, new acoustic territories are formed, which amounts to the fact that new soundscape patterns are comprised. In the meantime, the sonic behaviour of individuals; the way they interpret, associate or embrace surrounding sounds show a simultaneous alteration with correlative soundscape transformation. In other words, subjective soundscape interpretation changes in parallel with changing acoustic patterns. At this point, how to monitor the changes in acoustic characteristics and the changes of the sonic behaviour of individuals is problematized. Put differently, figuring and reflecting the dynamics of the urban acoustic environment and the perceived acoustic environment of different individuals become essential.

A variant mapping technique is required to comprehend and represent the perceptual dimension of the acoustic environment. Visual maps help experiencers to know and navigate the city; however, they do not cope with the sound and motion in city.<sup>130</sup> Doreen Massey asserts that maps flatten and deaden, immobilizing places, peoples, and cultures, leaving them stuck and silent.<sup>131</sup> The thesis proposes soundscape mapping as an alternative documentation tool since it could be instrumental with its emphasis on temporality and embodiment. Soundscape mappings have been used as a tool to ease understanding of the complicated nature of the uniqueness and identity of

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<sup>130</sup> The thesis regards both sound and motion as distinctive parameters within everyday life experience by utilizing soundwalk methodology, it will be explained in detail in following chapter.

<sup>131</sup> Hall, Lashua and Coffey 2008, op.cit., p.1027

local soundscapes. They help formulate an exact impression of soundscapes. As it is addressed in the previous chapters, Schafer conducted leading soundscape mapping studies in order to further shape and reconfigure participant's perceptions and senses of soundscapes, in another saying, the individual's psychoacoustics. The heterogeneous assessments among listeners concerning temporal, spatial and activity features of soundscapes identify a more subject-centered methodology which aimed at evaluating the diversity of meanings in urban environments. Soundscape mappings could be comprehended by the continuity of audiospatial configuration, just like the case in visual mapping and visuospatial configuration.<sup>132</sup>

The thesis proposes a soundscape interpretation mapping as the outcome of the soundwalk study on the line of Anafartalar Street, Hal Street, Tenekeciler Street, Çıkrıkçılar Yokuşu, At Pazarı Street and Koyun Pazarı Street. The main purpose is to document the transuming unique acoustic character of this line and its effects on psychoacoustics of individuals. Soundscape mapping is used as an alternative documentation tool within the scope of the thesis. The methodology of soundwalk and the procedure of soundscape mapping are expanded on in the following chapter.

#### **4.2. Introduction of the Methodological Framework**

Soundscape studies have been conducted since 1970s after Schafer introduced the term 'soundscape'. Schafer tried to set forth a methodology for soundscape studies to document important features in acoustic environment, to study the effects of new sounds, to study the sonic behaviour of individuals in different acoustic environments. Therefore, he applied soundscape mapping as a method to assess the spatiotemporal dynamics of acoustic environments. What is critical within the soundscape mapping method he followed is a system of generic classification. Within the scope of this

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<sup>132</sup> Erkal 2006, op.cit., p.134.

system, a soundscape terminology is provided to be utilised to enhance the legibility of acoustic information during sonic classification. Schafer introduced the terminology which was consisting of *keynote sounds*, *signals*, *soundmarks* and *archetypal sounds* so as to articulate soundscape studies.<sup>133</sup> This terminology eases the monitoring process of soundscape characteristics of a given context. For example, *keynote sounds* of a given place are important because they may even affect the behaviour or life style of a society.<sup>134</sup> *Keynote sounds* indicate sounds which are heard by a particular society continuously or frequently enough to form a background against which other sounds are perceived.<sup>135</sup> Therefore, it could be inferred that identifying the keynote sounds of a certain urban context is critical to comprehend the uniqueness and identity of the related local soundscape. In today's modern cities, the traffic noise constitutes the common keynote sounds, which initiates another discussion about disappearing local acoustic features against developing common global acoustic features. All in all, representing a soundscape terminology helps understand, formulate and articulate complex soundscape studies efficiently.

The methodology which Schafer applied is provided in the beginning of the methodology discussion due to the fact that it is an influential and inspiring approach to raise the the legibility of acoustic information and formulate an exact impression of soundscapes. Within the scope of the thesis, soundscape mapping is achieved after a data gathering and data analysis process, which includes both a quantitative and a qualitative soundscape analysis. “Because sound environments consist of physical, acoustic and perceptual data, both the objective and subjective soundscape data should be visualized by means of quantitative and qualitative soundscape analysis.”<sup>136</sup> In

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<sup>133</sup> Schafer 1977, op.cit., p.15.

<sup>134</sup> Ibid. p.15.

<sup>135</sup> Adams et.al. 2006, op.cit., p.2390.

<sup>136</sup> Hong and Jeon 2017, op.cit., p.352-353.

other words, both acoustic measurements and subjective assessments of sound environments should be performed in urban environments to better analyse soundscape characteristics. In the scope, data gathering is composed of three sections as field surveys, sound source analysis and the soundwalk procedure. In pursuit of data gathering, data analysis section similarly consists of three parts. Firstly, sound level measurements are investigated and interpreted as an outcome of the data collected by field surveys. Secondly, a system of generic classification<sup>137</sup> by the help of a soundscape terminology is conducted by the author as an outcome of the data gathered by sound source analysis. Thirdly, an experiment is conducted with anonymous participants by the help of the data gathered by the soundwalk procedure. As a result, combining and analyzing both qualitative and quantitative soundscape data, soundscape mapping is achieved to trace soundscape characteristics.

Field surveys, as a means of data gathering, aim to figure out essential attributes of the context, which are fundamental for soundscape perception. Field surveys investigate the distinctive spatial features of the related context, which affect the psychoacoustic perception. For instance, one part of the case of the thesis, Çıkırıçılar Yokuşu, is a narrow sloped pedestrian street. Its appreciable slope and narrow section as distinctive spatial features have an instrumental effect on psychoacoustic perception. Sound source analysis constitutes the other means of data gathering in the scope of the thesis. Since, sounds are basically main notable parameters to build acoustic perception. Figure 4.4. demonstrates the sound source analysis of a case study which is performed in Hamamönü. In this example, the main purpose is to indicate the interrelation between land use characteristics and sound sources. Namely, any dramatic change in land use characteristics triggers a variation process in sound

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<sup>137</sup> Schafer proposed a system of generic classification by the help of a soundscape terminology within soundscape studies and this approach which has been inspirational for the thesis is touched upon in the beginning of the methodology chapter.

sources, which will reconfigure the soundscape interpretation.<sup>138</sup> As another example, the sound source map of a case study in Seoul in Figure 4.5. draws attention to the intensity distribution of different sound sources, such as human-induced sounds and traffic sounds. This approach is effective in terms of revealing which sound source is dominating the soundscape. In brief, by the help of sound source analysis, known distinctive and unique sound sources of the sonic environment could be accumulated and evaluated. For the case of the thesis, it is critical to trace the featured sound sources, which are under the risk of suppression or disappearance while mapping changing soundscape characteristics.

Site (survey areas in black)	Measurement points	Main functions	Main sound sources	Site view
	1 Karacabey Bath	Cultural (Turkish bath). public transport	Traffic	
	2 Clock tower	Tourism, recreation,	Traffic	
	3 Dutlu Street	Commercial, recreation	Surrounding speech, music	
	4 Sarıkadın Street	Commercial, recreation	Surrounding speech, music	

Figure 4.4. Perceived Soundscape of Hamamönü

Source: “ Sound Source and Land Use Relation”

< Kaymaz et al. 2016, op.cit. , p. 1923.>

<sup>138</sup> Hamamönü Study is influential for the scope of the thesis because both Hamamönü and the case of the thesis locates in the historical center of Ankara, Ulus. What is critical is the fact that Hamamönü has faced a sudden urban transformation process recently which has reshaped its soundscape features. The case of the thesis is indeed under the risk of a similar transformation process.

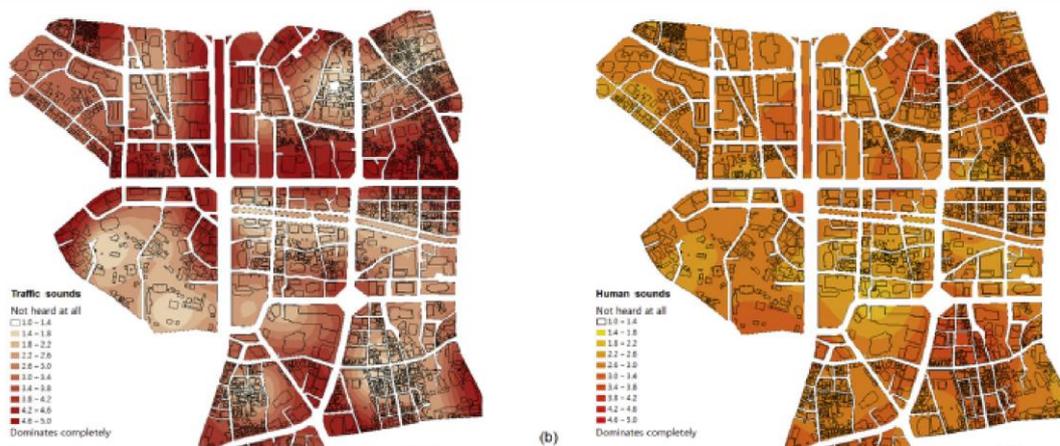


Figure 4.5. The Sound Source Map in Seoul

Source: “ Traffic Sounds and Human Sounds Pattern”

< Hong and Jeon 2017, op.cit. , p. 355.>

The third part of data gathering of the methodology section is the soundwalk procedure. Soundwalks are frequently used in environmental acoustics research studies. It is a method by which soundscape interpretation may be conducted following a predefined walking route with a high level of sonic awareness.<sup>139</sup> Soundwalks are about reactivating one’s sense of hearing by attending to the sounds of the everyday, foregrounding a background context to daily life.<sup>140</sup> The actor, *walker-listener*, composes a manifold story formed by the fragments of the soundwalk trajectory.<sup>141</sup>

<sup>139</sup> Liu, Jiang. et.al. “Effects of Landscape on Soundscape Perception: Soundwalks in City Parks .” Elsevier. Landscape and Urban Planning, Vol 123 . 2014: p. 31

<sup>140</sup> Hall, Lashua and Coffey 2008, op.cit., p.1031.

<sup>141</sup> De Certeau defines walking act as follows: “ The ordinary practitioners of the city, walkers, follow the urban text.[...] The networks of these moving, intersecting writings compose a manifold story shaped out of fragments of trajectories.”

The quotation is influential for *walker-listener* actors of the thesis, the urban text incapsulates the whispers of the city as well.

De Certeau, Michel. 1980. “Walking in the City”. The Practice of Everyday Life. University of California Press, Los Angeles. p. 93

*Walker-listener* acts as a co-creator of soundscape, each soundwalk remakes the path. Soundwalk as a method has been widely adopted to evaluate soundscape in urban environments because it allows for both the quantitative and qualitative evaluation of soundscapes as multimodal experiences.<sup>142</sup> To put it another way, both subjective responses and objective measurements could be obtained during soundwalk. Moreover, the soundwalk method provides the combination of sound and motion, which leads to a reliable judgment of dynamic urban context.<sup>143</sup>

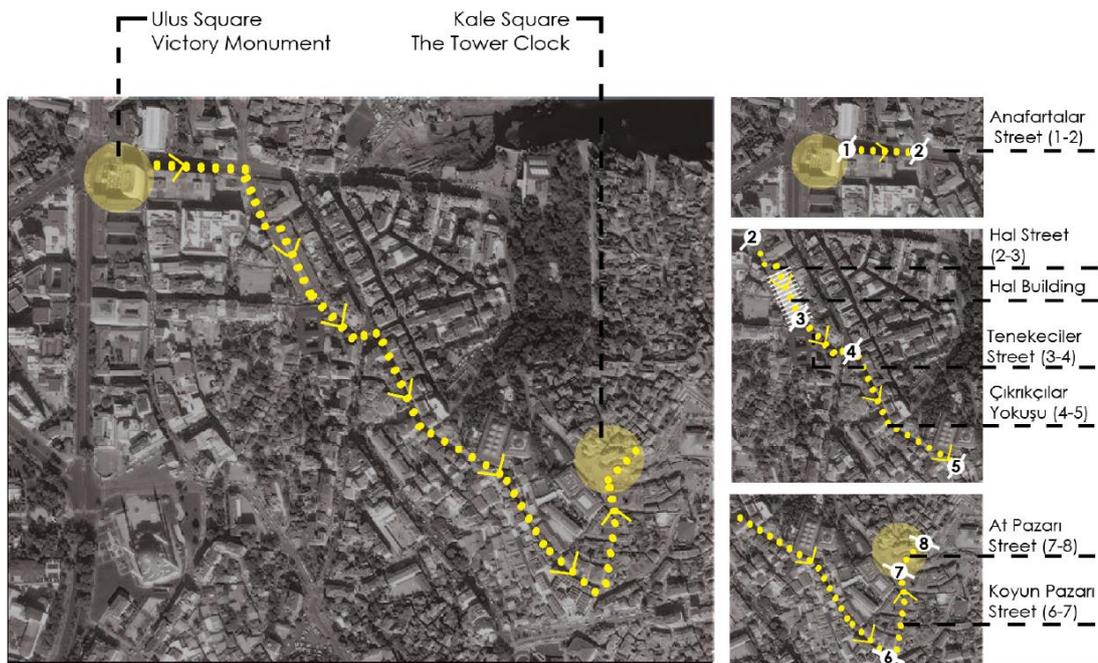


Figure 4.6. The Soundwalk Line of the Case in Ulus

Source: Produced by the author.

The practice of soundwalking as the mobile exploration of sound and space focuses on listening towards understanding sounding environment. In addition, the soundwalk

<sup>142</sup> Jeon, Y. Jin. and Hong, Y. Joo. “Classification of Urban Park Soundscapes through Perceptions of the Acoustical Environments .” Elsevier. *Landscape and Urban Planning*, Vol 141 . 2015: p.101

<sup>143</sup> Lindquist, M., Lange, E., and Kang, J. “From 3D Landscape Visualization to Environmental Simulation: The Contribution of Sound to the Perception of Virtual Environments.” Elsevier. *Landscape and Urban Planning*, Vol 148 . 2016: p.217

method is investigated in situ while collecting soundscape data and the environment experienced in situ provides the most literal representation of the related context. For the scope of the thesis, the soundwalk method is selected since it presents the real-time rendering of the relevant acoustic context. The soundwalk line as Anafartalar Street, Hal Street, Tenekeciler Street, Çıkırıkçılar Yokuşu , At Pazarı Street and Koyun Pazarı Street in Ulus is determined.<sup>144</sup> [Figure 4.6.]

Now that the data gathering part of the methodology section is explained, the data analysis part of the methodology section will be addressed. Firstly, sound level measurements are investigated and interpreted as an outcome of the data collected by field surveys. In pursuit of the completed sound level measurements, mapping the range of sound pressures of the certain sonic environment helps increase the legibility of the complex soundscape data.

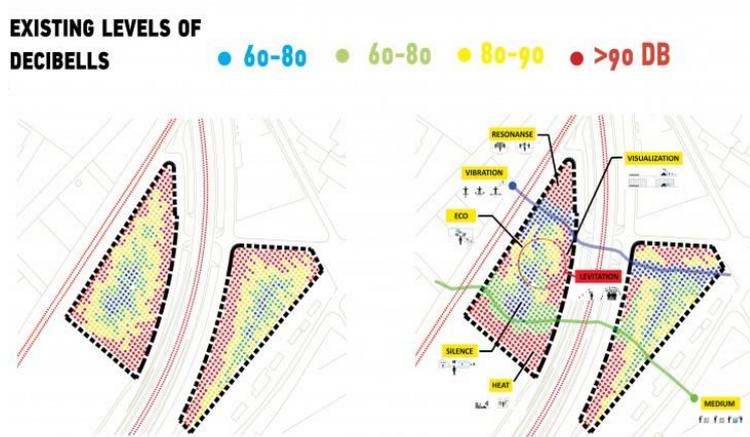


Figure 4.7. Sound Level Measurement Map

Source: “ Sound Level Map as Part of Barcelona KEY Project” Web. 06 June 2019.

< <http://www.iaacblog.com/programs/soundscape/> >

<sup>144</sup> Processing the soundwalk line, on the section of Hal Street, participants pass through Hal Building to arrive Tenekeciler Street from Hal Street.

Figure 4.7. exemplifies a sound level mapping of the project Soundscape under Barcelona KEY Project. Sound levels are classified as categories; low, medium and high, depending on the day, time, traffic, people interaction and activities. As a result, this map is utilized to calculate and theoretically propose the direction of sound and to make the basic decisions of design, location and orientation.<sup>145</sup> As a consequence, sound level measurements at different times of the day, weekend and weekdays bring out the distribution and dissemination of a diverse set of sound level pressures. Mapping sound level measurements becomes critical to investigate the cause and effect relation between sound as a matter and sound as cognitive phenomena. That is, whether there is a connection between sound level pressures and psychoacoustic perception. An example from one part of the case of the thesis, Hal Street, could be presented to demonstrate given connection. The sound level pressure is normally high enough to annoy the human perception system in Hal Street because of the cries of sellers.<sup>146</sup> The cries of the sellers in Hal Street; however, is interpreted in a positive way by the listeners. To conclude, the results of the sound level measurement analysis could make a major contribution to a reasonable and legible soundscape mapping.

Secondly, a soundscape terminology, which is composed of soundmark, acoustic hot spot, sound shower, memorial sound and suppressed sound is introduced as an outcome of the data gathered by sound source analysis. The soundscape characteristics are read by the help of this terminology. Main purpose is to explore a common ground for the problematique of how soundscape is perceived. In other words, legibility of soundscape is problematized. At this point, it is worthy to note that Kevin Lynch's approach in *The Image of the City* has been influential. Lynch proposes mental maps

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<sup>145</sup> Web. 6 June 2019. < <http://www.iaacblog.com/programs/soundscape/> >

<sup>146</sup> The sound level pressure in Hal Street is mostly around 75 decibel which is above the comfort level of hearing system. (Normal speech level is around 60 dB.) However, participants do not show the indication of annoyance, but rather curiosity and interest. The detailed analysis of the sound level measurement map will be provided in The Case chapter.

consist of five elements as paths, edges, districts, nodes and landmarks to organize urban mobility, legibility and imageability.<sup>147</sup> Besides Lynch, Schafer's The World Soundscape Project has been influential since he tackles urban legibility by placing main focus on sound. His soundscape terminology out of soundmarks, keynote sounds, signals and archetypal sounds serves as a model for the scope of the thesis although the terminology of this study differs from Schafer's proposal.

Soundscape terminology will be introduced in this chapter and it will be applied on the case of the study in The Case Chapter. The term soundmark is actually derived from the term *landmark*, as Lynch puts it, and it carries the distinctive characteristics of the term landmark. Hence, it refers to the sounds that are unique and easily noticeable. Soundmarks would give reference to certain space or time period. They possess the quality to be protected since they constitute an essential part of the related soundscape. Soundmarks are substantial parameters in describing soundscapes that any acoustic summary which lacks soundmarks would be considered to be less representative.<sup>148</sup> Sounds of prayer calls could be taken as an example of soundmark, this sound marks both the existence of mosque and a certain time period of the day. The term acoustic hot spot represents represents instantaneous, immediate, local and instrumental sounds. The sound sources which initiate acoustic hot spots are mostly ephemeral and in motion. Acoustic hot spots generate instant, attention-grabbing portions in soundscape interpretation. The cries of street vendors could be given as an acoustic hot spot example. The term sound showers correspond to a diversity of sounds overlapped in a single portion. Different acoustic patterns aggregate and form an emergent acoustic territory which has its own unique acoustic quality. Thus, a sound shower could include acoustic hot spots or soundmarks within itself. Sound showers constitute a powerful and distinguishable ranges in soundscapes. City squares

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<sup>147</sup> Lynch 1960, op.cit.

<sup>148</sup> Oldoni, D. et.al. "The Acoustic Summary as a Tool for Representing Urban Sound Environments". Elsevier. Landscape and Urban Planning, Vol 144. 2015: p.43

arise as convenient examples of sound showers, so Ulus Square appears as a case of sound shower. The term memorial sound illustrates remarkable sounds of a certain time period and they are vanished in the current soundscape. Although they are not physically existent in current soundscape, they are substantially memorable. Memorable sounds have the power to denote a certain event in a certain time period. They have a tendency to preserve their place in acoustic heritage. The unforgettable sounds of terror attacks, natural disasters or national ceremonies could be classified as memorial sounds. The sounds of 9/11 terror attacks mark a specific space-time. Similarly, one part of the case of the thesis, Anafartalar Street, witnessed a bombing attack in 2007, which added a memorial sound layer on the acoustic heritage of Ulus. The term suppressed sound refers to the instrumental sounds which are wiped off the soundscape. Unlike memorial sounds, the acoustic heritage of suppressed sounds could not be preserved, these sounds are literally tuned off by the external forces. Rapid urbanization, industrial development, population growth or technology could be specified as the external forces. To illustrate, the unique sound out of *çıkırık*<sup>149</sup> has been suppressed by developing industry. One part of the case, Çıkırıkçılar Yokuşu had embodied this unique acoustic quality.

The third part of the data analysis section is an experiment, which is conducted with anonymous participants. This experiment is a follow-up study of aforementioned soundwalk procedure; thus, the data used in this experiment is collected by the soundwalk procedure. The soundwalk with 24 anonymous participants on the given line is planned and during the soundwalk participants are asked to register the sounds, which attract their attention. Subsequently after the soundwalk is completed, a grouping and labelling experiment is conducted. The main goal of the study is to map the subjective soundscape interpretation and assessment of individuals. The question how to categorize the existing sounds of the living environment in the form of

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<sup>149</sup> A traditional manual tool to produce thread from wool.

subjective interpretation of the experiencers is planned to be handled by the help of this experiment. This experiment is presented in the literature and a study conducted in The Department of Architecture in the University of Tokyo by a group of Japanese researchers has been inspirational for the methodology of the thesis.<sup>150</sup> Because, Japanese study investigates the evaluation structure that lies at the basis of peoples' psychological evaluation of environmental sounds, like the scope of the thesis. Hence, the experiment is designed to obtain personal evaluation structure of the sound environment.

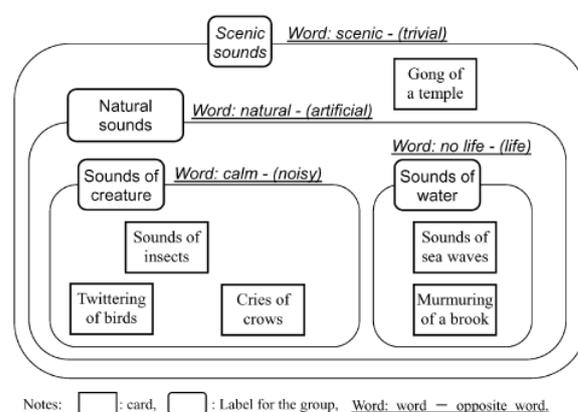


Figure 4.8. Grouping and Labeling Experiment

Source: “ Soundscape Evaluation Experiment”

< Kawai et.al. 2004, op.cit. , p. 525.>

In the procedure of the grouping and labelling the experiment which is conducted after the soundwalk is completed, participants are provided with the cards having the names of the environmental sounds.[Figure 4.8.] These sounds are provided by the researchers in this study however, within the scope of the thesis, the sounds, which are written on cards are the ones which participants registered during the soundwalk.

<sup>150</sup> Kawai , Kojima , Hirate, and Yasuoka. “Personal Evaluation Structure of Environmental Sounds:Experiments of Subjective Evaluation Using Subjects’ Own Terms”. Elsevier B V. Journal of Sound and Vibration. , Vol 277. (2004)

The methodology of this study has been influential; however, it is followed partially. Grouping-labelling experiment and cluster analysis is applied. Soundwalk is incorporated into the system.

Participants are supposed to sort the cards into groups by the similarity of their impression. Then, they are asked to assign to each group of sounds a word that best represented their overall impression.<sup>151</sup> [Figure 4.8.] It is critical to note that this grouping and labelling procedure is repeated until there are three groups in total. A cluster analysis is carried by using data from previous grouping and labelling study to demonstrate the similarity between sounds placed in the same cluster. Figure 4.9. shows the clusters of sounds partially.

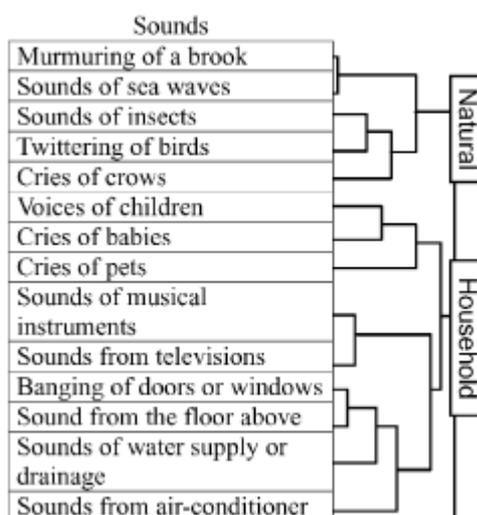


Figure 4.9. Cluster Analysis

Source: “ Cluster Analysis of the Soundscape Evaluation Experiment”

< Kawai et.al. 2004, op.cit. , p. 526.>

The methodological framework, which is composed of three means of data gathering; and as a result, three means of data analysis, is introduced in this chapter. The main purpose is to achieve a soundscape mapping to trace soundscape characteristics. The methodology will be applied on the case and soundscape evaluation results will be acquired by the help of soundscape mapping in the following The Case Chapter.

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<sup>151</sup> Kawai et.al. 2004, op.cit. , p. 525

### **4.3. The Case : Soundwalk on the Line of Anafartalar Street, Hal Street, Tenekeçiler Street, Çıkırıçılar Yokuşu, At Pazarı Street and Koyun Pazarı Street**

The concept of soundscape is discussed throughout the thesis to emphasize the integrity of sound within everyday life. The acoustic environment and physical environment exhibit an interpenetrating characteristics. It is emphasized that there is a holistic relationship between landscape and soundscape. Hence, any transformation taking place in spatial setting in urban realm would trigger a parallel transformation process in acoustic setting and spatial perception will be formed by these dynamics. The thesis asserts that there is a powerful correlation between changing soundscape interpretation and changing spatial perception. That is why, the thesis intends to explore dynamic urban context from an alternative sonic perspective. The aim of the thesis is to study and document the changes in perception and sonic behaviour of individuals in urban context. Soundscape mapping is proposed as an alternative documentation tool in order to visualize and assess the spatiotemporal dynamics of urban environments. So as to demonstrate the main point, a case hosting a rather rich and diverse acoustic content experiencing a period of change is selected in the historical center of the capital of Turkey, Ankara. The effect of changing soundscape interpretation on changing spatial perception will be examined on the soundwalk line of Anafartalar Street, Hal Street, Tenekeçiler Street , Çıkırıçılar Yokuşu, At Pazarı Street and Koyun Pazarı Street in Ulus.

Within this chapter, firstly, the site will be introduced in detail. Introduction of the site is not about a historical analysis although it takes a quick glance at historical background. The main point is to demonstrate the major reasons why this specific site is chosen to discuss soundscape characteristics. The events, historical moments or happenings, which have contributed to form the current soundscape will be discussed briefly. Mainly, the site has a unique acoustic heritage and soundprints, which are

needed to be referred. Besides, it has genuine acoustic qualities, which are under the risk of disappearance, suppression or substitution and regarding the issue, the thesis aims to conduct an alternative documentation study by the help of a soundscape mapping. Secondly, the methodology, which is expanded on previous chapter will be applied on the case. The main objective is to map soundscape interpretation to contribute to the discussion of the fact that spatial perception could be read through soundscape evaluation.

### **4.3.1. Introduction of the Site**

“Historic cities – which are complex entities formed by continuous interaction between the physical and the human environment – are under the threat of rapid transformation.”<sup>152</sup> The historic center of Ankara, Ulus [Figure 4.10.] has also been under a rapid transformation process. There have been several studies in the literature, which analyse the transformation process that Ulus has experienced. However, the thesis analyzes this process from a different perspective by placing the main focus on whispers of Ulus. To put it another way, it checks the everyday pulse of Ulus by listening to its echos. Since, in parallel with the change in physical and functional aspects identifying the area, it is also possible to trace changes in echos of Ulus, and so, changes in listening habits. “Sonic cultural heritage is twice endangered due to physical characteristics of sound itself and dynamic structure of intangible culture.”<sup>153</sup>

The main objective is to document current soundscape of Ulus after investigating unique acoustic heritage. Accordingly, a specific site in Ulus, which is believed to have had a rather authentic urban acoustic characteristics is determined. The site in

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<sup>152</sup> Ayhan Koçyiğit, E. Selena. “A Tale of Ulus Square: A Critical Assessment of Continuity, Transformation and Change in a Historic Public Open Space in Ankara”. Phd Thesis METU, Ankara, 2018. P.v. Retrieved from: <http://etd.lib.metu.edu.tr/upload/12622833/index.pdf>

<sup>153</sup> Web. 10 July 2019. < <https://soundscapeofistanbul.ku.edu.tr/about> >

Ulus is specified as the walking line of Anafartalar Street, Hal Street, Tenekeçiler Street ,Çıkırıkçılar Yokusu, At Pazarı Street and Koyun Pazarı Street. [Figure 4.11.]

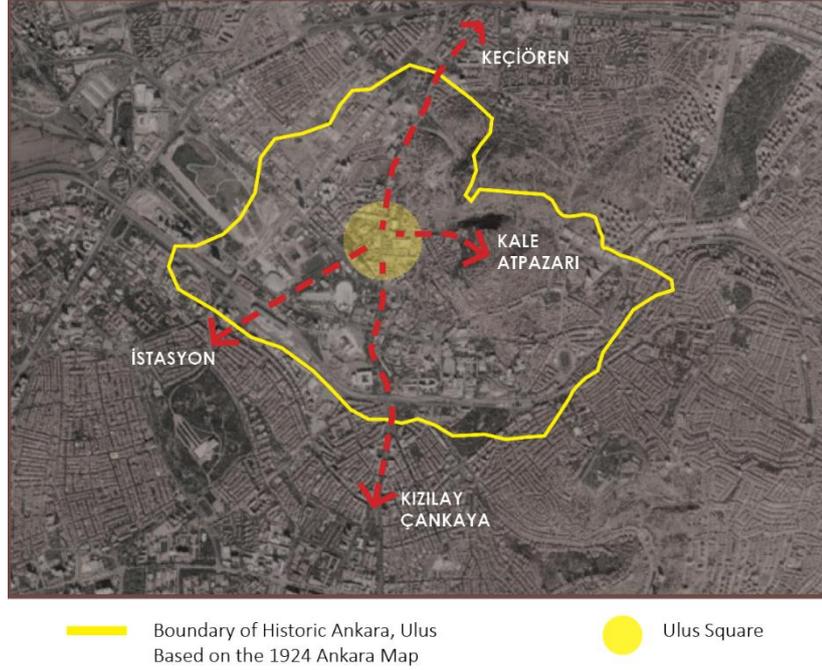


Figure 4.10. The Historical Center of Ankara, Ulus

Source: Produced by the Author

The soundwalk line starts with Anafartalar Street, which opens to the Ulus Square, Victory Monument and the soundwalk line ends with Koyun Pazarı-At Pazarı Street which opens to the Kale Square, The Tower Clock. Namely, the fact that the soundwalk starts and ends with a landmark makes introducing and following the defined path readily. In this chapter, the walking line is analysed as three main parts to better narrate the historically essential happenings, which have contributed to form the current soundscape. Firstly, Anafartalar Street, secondly, Hal Street - Tenekeçiler Street and

Çıkırıkçılar Yokusu and thirdly At Pazarı-Koyun Pazarı Street will be introduced.<sup>154</sup>

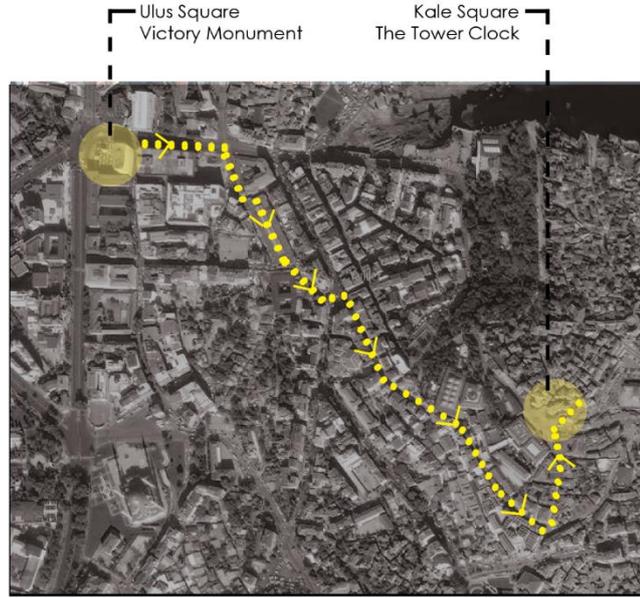


Figure 4.11. The Case, The Soundwalk Line from Anafartalar Street to At Pazarı Street

Source: Produced by the author.

The partial analysis of the case overlaps with the direction of historical and gradual trade development of Ankara.<sup>155</sup> In Figure 4.12., Prof. Dr. Mehmet Tunçer

<sup>154</sup> The partial analysis is decided according to the historical gradual development direction of Ulus: “The main commercial areas were located at two points; first one around ‘Yukarı Yüz’ – the area comprising of Atpazarı, Samanpazarı, Koyunpazarı and environs-, and the other around ‘Aşağı Yüz’ - the area comprising of Tahtakale, Karaoğlan Marketplace and environs.[Today’s Anafartalar Street] These two were connected to each other with ‘Uzun Çarşı’ in 17th and 18th centuries.” [Hal Street-Tenekeciler Street and Çıkırıkçılar Yokuşu are a part of historical *Uzun Çarşı* which used to connect *Yukarı Yüz* and *Aşağı Yüz* of Ulus.]

Mihçioğlu Bilgi, Elif. “The Physical Evolution of the Historic City of Ankara Between 1839 and 1944: A Morphological Analysis”. Phd Thesis METU, Ankara, 2010. P.60. Retrieved from: <http://etd.lib.metu.edu.tr/upload/3/12612024/index.pdf>

<sup>155</sup> It should be reminded that the soundwalk line is not determined based on aforementioned direction of historical development. It is decided according to the diverse and unique acoustic quality it has today which is under the risk of disappearance. However, in the sequel of the historical development, the seeds of the current unique acoustic features have been planted. Consequently, Figure 4.11 which indicates the soundwalk line and Figure 4.12 which indicates the direction of gradual development overlap noteworthy.

demonstrates that the gradual development of trade center in Ankara is directed from the skirts of Ankara Castle down to the Ulus Square in the combined 1839, 1924 and 1929 dated Maps of Ankara. Firstly, Koyun Pazarı and At Pazarı Street near Ankara Castle became critical in 14<sup>th</sup> -15<sup>th</sup> century to reconfigure everyday life out of castle. Meanwhile, acoustic context out of castle started to be formed. Afterwards, trade shifted its direction down to the *Aşağı Yüz*, around today's Ulus Square and Anafartalar Street. Subsequently, the acoustic territory here started to identify its main features under the effects of emerging commercial activities.<sup>156</sup> Finally, *Aşağı Yüz* and *Yukarı Yüz* were connected by *Uzun Çarşı*, which contains a diversity of unique commercial functions which propagate peculiar acoustic patterns within itself. Today's Hal Street, Tenekeciler Street and Çıkırıçılar Yokuşu constitute parts of *Uzun Çarşı*.

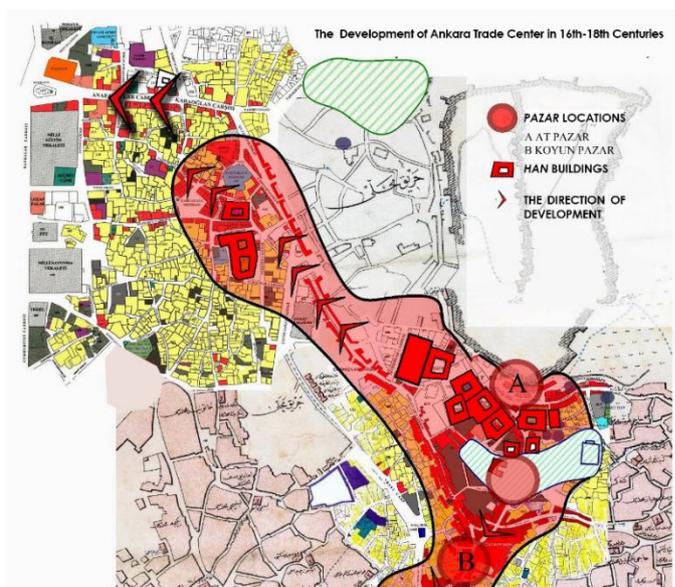


Figure 4.12. The Direction of Ankara Trade Development

Source: Edited by the author, on the plan prepared by Prof.Dr.Mehmet Tunçer who combined and analysed 1839, 1924 and 1929 dated Ankara Maps. Web 15 June 2019.

< <http://ankaratarihi.blogspot.com/2014/09/ankarada-vakf-mulkiyetindeki-bedesten.html> >

<sup>156</sup> It is worthy to note that the very first acoustic features fed by commercial land use around today's Ulus Square and Anafartalar Street has been reinforced and reshaped under the dynamism of urban life. It will be explained in detail by the help of land use analysis within the chapter.

Analyzing the first part of the soundwalk line, which is Anafartalar Street, Ulus Square plays a critical role. Ulus Square connects primary roads of Ankara from north to south (Keçiören-Kızılay/ Çankaya) and east to west (İstasyon/ Tandoğan-Atpazarı/ Kale) direction.<sup>157</sup> [Figure 4.10.] Anafartalar Street has been an important actor in the development of east-west direction in the city center. Subsequent to the development of Anafartalar Street, Ulus Square is transformed into a transition zone predominantly characterised by dense vehicular and pedestrian traffic.<sup>158</sup> Thereby, the acoustic identity of the related territory is also affected. The development and transformation process that Anafartalar Street has experienced could be touched upon very briefly to enlighten the urban sonic transformation process here. First of all, it should be noted that the name of Anafartalar Street belongs to the early republican period. However, so as to be able to envisage prior positioning, the 19th century Karaoğlan Marketplace which was located in the *Aşağı Yüz* of the old city center could be thought as a part of today's Anafartalar Street.

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<sup>157</sup> A. Koçyiğit 2018, op.cit. , p. 15

It should be noted that the thesis does not concentrate on Ulus Square in detail. Only the fact that Anafartalar Street and Ulus Square affect each other's development process mutually is emphasized.

<sup>158</sup> Ibid., p. 16

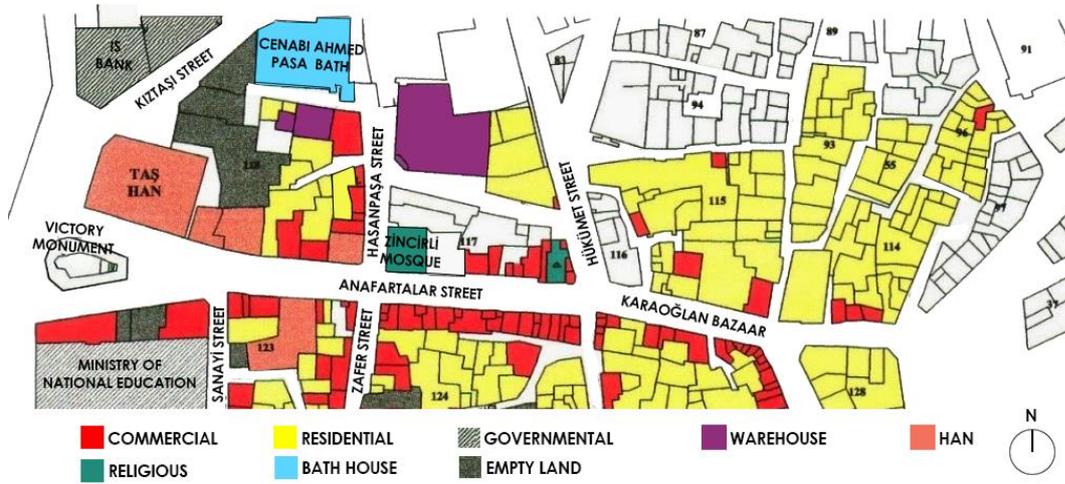


Figure 4.13. 1929 Land Use Map of Anafartalar Street

Source: Edited by the author, on the plan prepared by Prof.Dr.Mehmet Tunçer who analysed 1929 dated Ankara Cadastral Map. Web 19 June 2019  
 < <http://ankaratarihi.blogspot.com/2014/09/ankarada-vakf-mulkiyetindeki-bedesten.html> >

First of all, the aim is to figure out the soundscape structure of Anafartalar Street, like permeable, modulating, fleeting or occasionally persistent.<sup>159</sup> In order to be able to interpret on changing soundscape patterns, land use analysis would be considerably helpful. “Urban soundscapes are significantly influenced by contexts such as land use, function, and socio-cultural factors of space.”<sup>160</sup> Thus, the 1929 dated land use map [Figure 4.13.] and the current land use map [Figure 4.14] of Anafartalar Street are analysed comparatively.

<sup>159</sup> Atkinson 2007, op.cit. , p. 1913

<sup>160</sup> Hong and Jeon 2017, op.cit., p.362.



1-2 : Anafartalar Street

Figure 4.14. Anafartalar Street

Source: Produced by the author

The 1929 land use map of the district in Figure 4.13. demonstrates that although the functions along Anafartalar Street were dominated by commercial use like today's condition, there was a density of residential use right behind the commercial area unlike today's condition. In current soundscape, mainly governmental use and commercial use superseded previous residential use. [Figure 4.14.] It is no doubt that the domestic use generates an individual urban fabric, which does not exist in the related part of current urban context. Thus, as an essential finding, domestic sounds<sup>161</sup> in this section are wiped off the soundscape. In other words, by eliminating residential use, an urban audio distortion happened, domestic sounds became suppressed and

<sup>161</sup> The sounds of kids playing on the street, the shouts of mothers calling their children or the sounds of conversation with neighbours in the middle of the street.

delocalized. As another finding, Zincirli Mosque, which was built in the 17<sup>th</sup> century would be approached as a reference point, The Mosque obtains by leaving long-lasting soundprints- sounds of prayer calls. It is worth noting that spatial experience could be surveilled by soundprints.

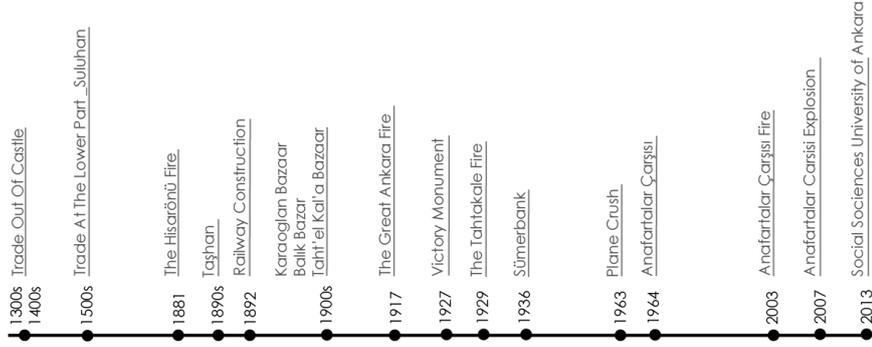


Figure 4.15. Historical Events and Happenings Forming Today's Anafartalar Street

Source: Produced by the Author Based on Historical Research <sup>162</sup>

Now that the findings of land use analysis are discussed, timeline analysis of Anafartalar Street could be provided. Figure 4.15. summarizes essential happenings and events in the timeline of Anafartalar Street. All these particular events either contributed to or left a mark on current soundscape. For example, the constructions of Suluhan and Taşhan are critical since they initiated and reinforced the process of trade activities in *Aşağı Yüz*, which added the roots of commercial sounds in current soundscape. The railway construction increased the significance of east-west development of the center. With the construction of Railway Station on the south-west of the City, Tahtakale and Karaoğlan Marketplaces gained a relative importance and developed with the increasing agricultural commerce and that of daily consumption products for the inhabitants.<sup>163</sup> As a result, the frequency of occurrence on Anafartalar

<sup>162</sup> Cengizkan, Ali. 2004. Ankara'nın İlk Planı: 1924-1925 Lörcher Planı. Arkadaş Yayıncılık, Ankara.  
Tunçer, Mehmet. 2001. Ankara (Angora): Şehri Merkez Gelişimi (14.-20. yy). Kültür Bakanlığı Yayınları, Ankara .

<sup>163</sup> Bilgi 2010, op.cit. , p. 48-49

Street escalates since it is the main artery feeding east direction. The density of access to Anafartalar Street improves dramatically, which increases the volume of aggregated sounds here. The drastic disasters it went through, like major fires in 1881, 1917, 1923 and 2003 caused reconfiguring and recontextualizing the existing land use, and so the acoustic context. The construction of Victory Monument<sup>164</sup> added national ceremonial sounds to the soundscape of this section. [Figure 4.16.]



*Figure 4.16. Victory Monument*

Source: “ Meetings and Celebrations at Victory Square” Web. 22 June 2019.

< <http://cdm21054.contentdm.oclc.org/cdm/singleitem/collection/FKA/id/713/rec/96> >

Anafartalar Çarşısı Building [Figure 4.17.] marks a turning point in the pattern of commercial life in the Anafartalar Avenue. Subsequently after, the acoustic pattern differentiates itself from Hal Street, Tenekeçiler Street and Çıkırıçılar Yokuşu. The building witnessed a terrorist bombing attack in 2007, this incident left a trace in psychoacoustic patterns of the soundscape of this section. [Figure 4.18.]

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<sup>164</sup> On the cadastral map of 1929-1932, Ulus Square was labelled as *Zafer Meydanı/ Victory Square*. It is assumed that, this name was originated from the Victory Monument that was located at the square. (A. Koçyiğit 2018, op.cit. , p. 264)

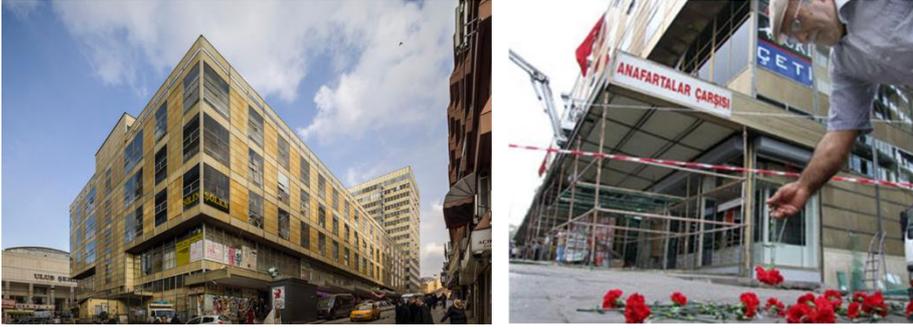


Figure 4.17. Anafartalar Çarşısı

Figure 4.18. Anafartalar Çarşısı Bombing Attack

Source : Figure 4.17. Web. 22 June 2019 < <http://www.arkitera.com/gorus/1156/ulus-anafartalar-carsisi-bize-sesleniyor--bana-belleginize-ve-kente-birlikte-sahip-cikalim> >

Source: Figure 4.18. Web. 22 June 2019 < <https://www.tarihbugun.org/14349-22-mayis-2007-ankara-ulusla-patlama.html> >

Anafartalar Avenue witnessed an airplane crash in 1963, which also left another lasting trace in soundscape pattern. [Figure 4.19]



Figure 4.19. 1963 Ulus Airplane Crash

Source: Web. 22 June 2019

< <https://lavarla.com/ulus-faciiasi-1963-ucak-kazasi/> >

Apart from these specific developments and happenings that Anafartalar Street has experienced, rapid urbanization and technological changes are ever present parameters that have caused to raise the volume of urban sound repertoire here. To illustrate, these parameters lead to an increased paving and high-density building development and as

a result, the acoustic qualities of urban space are transformed both horizontally and vertically.<sup>165</sup>

The second part of the site analysis is the continuation of the soundwalk line as Hal Street, Tenekeçiler Street and Çıkırıçılar Yokuşu. It is critical to note that Hal Street, Tenekeçiler Street and Çıkırıçılar Yokuşu constituted a certain part of *Uzun Çarşı*. *Uzun Çarşı* was composed of various craftsmen and tradesmen, like weavers, blacksmiths, ironsmiths, coppersmiths and stove sellers whose acoustic features are unique.<sup>166</sup> Hal Street was assigned to agricultural commerce and that of daily consumption products for the inhabitants, Tenekeçiler Street was assigned to blacksmiths, ironsmiths, coppersmiths and stove sellers and Çıkırıçılar Yokuşu was assigned to weavers. In present condition, this section mainly holds similar characteristics. Therefore, this section of the soundwalk line constitutes the most preserved genuine acoustic parameters, which are under the risk of suppression, substitution or disappearance for the current soundscape. To put it another way, this specific part of the soundwalk line has the feature of an aural refuge. The development and transformation process that this section has witnessed could be addressed compendiously to elucidate the soundscape transformation process here. Firstly, the 1929 dated land use map [Figure 4.20.] and current land use map [Figure 4.21] of the section are analyzed comparatively. The 1929 land use map indicates that the area around Hal Street and Tenekeçiler Street was dominated by residential and commercial use.<sup>167</sup>

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<sup>165</sup> Payer 2007, op.cit. , p. 775

<sup>166</sup> Tunçer, Mehmet. 2001. Ankara (Angora): Şehri Merkez Gelişimi (14.-20. yy). Kültür Bakanlığı Yayınları, Ankara. p. 25-32

<sup>167</sup> The region containing current Hal Street and Tenekeçiler Street used to be Tahtakale Avenue.

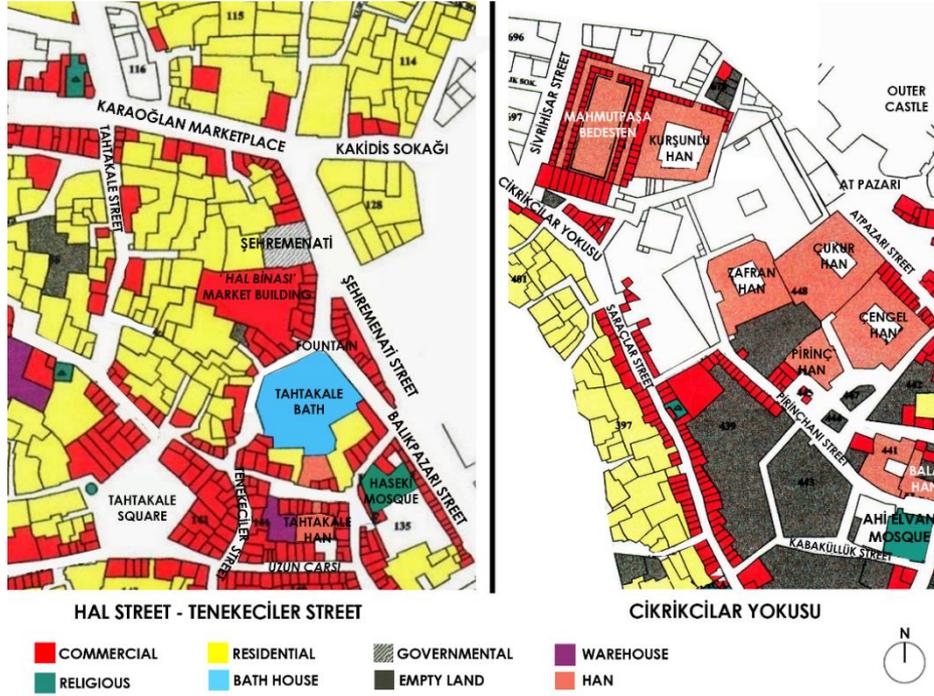


Figure 4.20. 1929 Land Use Map of Han Street, Tenekeçiler Street, Çıkırıkcılar Yokuşu

Source: Edited by the author, on the plan prepared by Prof.Dr.Mehmet Tunçer who analysed

1929 dated Ankara Cadastral Map. Web 23 June 2019

< <http://ankaratarihi.blogspot.com/2014/09/ankarada-vakf-mulkiyetindeki-bedesten.html> >



Figure 4.21. Hal Street, Tenekeçiler Street, Çıkırıkcılar Yokuşu

Source: Produced by the Author

The commercial use which was mainly made up of stove sellers [Figure 4.22.] coppersmiths and ironsmiths creates a unique acoustic context, which has preserved its soundprints in current soundscape. [Figure 4.23.]



Figure 4.22. Stove Sellers in Tenekeçiler Street

Source: “Tenekeçiler Street” Web. 22 June 2019.

< <https://archives.saltresearch.org/handle/123456789/8372>>



Figure 4.23. Current Placement of Coppersmiths and Ironsmiths on the Soundwalk Line

Source: Produced by the author

Figure 4.23. demonstrates the current placement of coppersmiths and ironsmiths on the defined soundwalk line, Tenekeçiler Street and more dominantly around Koyun Pazarı Street shelter main zones where the specific sound could be heard. In current condition of Tenekeçiler Street, stove sellers mainly remain active, ironsmiths and coppersmiths either weaken or are substituted by new needs, such as strained casting or knife sharpeners. [Figure 4.24.] As a result, although the unique sound of coppersmiths and ironsmiths preserved partly, a new metallic and industrial acoustic pattern is inserted to the system.



Figure 4.24. Commercial Activities in Tenekeciler Street

Source: Taken by the author

It is worthy to note that Tahtakale Fire reconfigured Tahtakale Avenue by destroying Tahtakale Marketplace, Tahtakale Bath and Haseki Mosque.<sup>168</sup> This reconfiguration addressed a reformation in local sonic environment. For instance, *Hal Building* which was built in 1937 after Tahtakale Fire is critical thanks to its instrumental sonic shower effect for the current soundscape of the area. For *Çıkırıkçılar Yokuşu*, the commercial use was dominated by weavers who used ‘*Çıkırık*’<sup>169</sup> [Figure 4.25.]- a manual tool to produce thread from ‘*Sof*’-wool. *Çıkırık* produces an authentic rhythmic sound, like ‘chik,chik,rik...’ which used to form the soundscape characteristics of *Çıkırıkçılar Yokuşu*.

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<sup>168</sup> Bilgi 2010, op.cit. , p. 98

<sup>169</sup> The name *Çıkırıkçılar Yokuşu* comes from the word *Çıkırık*. In *Uzun Çarşı*, each section used to be assigned with a specific craftwork and all *Çıkırıkçılar Yokuşu* route used to be enveloped with weavers, *Sof* traders using *Çıkırık*s. Thus, unique rhythmic *Çıkırık* sounds used to surround all along *Çıkırıkçılar Yokuşu*.



Figure 4.25. Çıkırık

Source: Web. 20 July 2019.

< <http://www.kalemisidergisi.com/makale/pdf/1452601600.pdf> >

Busbecq, an itinerant who travelled Ankara in 1555, narrated Angora Goats and unique thread production from *Sof*- wool by the help of Çıkırık.<sup>170</sup> Apart from narrations, *Ankara Manzarası* painting in Rijksmuseum depicts the 18<sup>th</sup> century Ankara and signed section in Figure 4.26 gives clues about the social life of the time. The process of *tiftik* production and *tiftik* trade, which probably shaped the soundscape of the time, is depicted in detail.

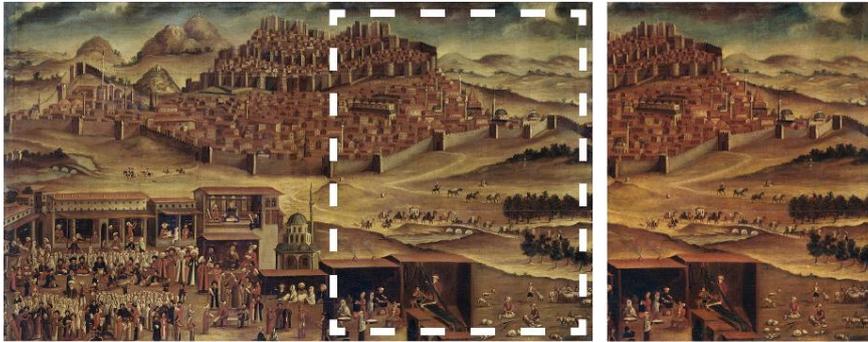


Figure 4.26. “Ankara Manzarası” in Rijksmuseum

Source: “Ankara Manzarası Painting” Web. 19 July 2019.

< <https://vekam.ku.edu.tr/tr/content/ankara-manzarasi-konferansi> >

<sup>170</sup> De Busbeck, O. G. 2011. “Birinci Mektup”. *Türk Mektupları - Kanuni Döneminde Avrupalı Bir Elçinin Gözlemleri* (E. Yalçın, Ed.; D. Türkömer, Trans.). Türkiye İş Bankası Kültür Yayınları, İstanbul. P. 49-71

In current soundscape of this section, the acoustic heritage of *Çıkırık* could not be preserved. The current soundscape of *Çıkırıkçılar Yokuşu* is dominated by the cries of tradesmen. The commercial activities in *Çıkırıkçılar Yokuşu* provide certain needs, which are hard to find in common shopping centers, such as henna, hadj equipments, dowery equipments or wool. [Figure 4.27.] These unique needs are identified with the cries of tradesmen in *Çıkırıkçılar Yokuşu*. However, it is critical to note that there has been an increase in the number of chain stores, which are inharmonious with the existing texture along *Çıkırıkçılar Yokuşu*.



*Figure 4.27.* Commercial Activities in *Çıkırıkçılar Yokuşu*

Source: Taken by the author

In 1929 dated land use map, there was a considerable amount of empty land on the defined soundwalk line, unlike present condition. Urban solid-void proportion is an essential parameter for psychoacoustic perception. As another finding, Ahi Elvan Mosque, which was built in 15<sup>th</sup> century would be approached as a reference point, a soundmark for soundscape investigation.

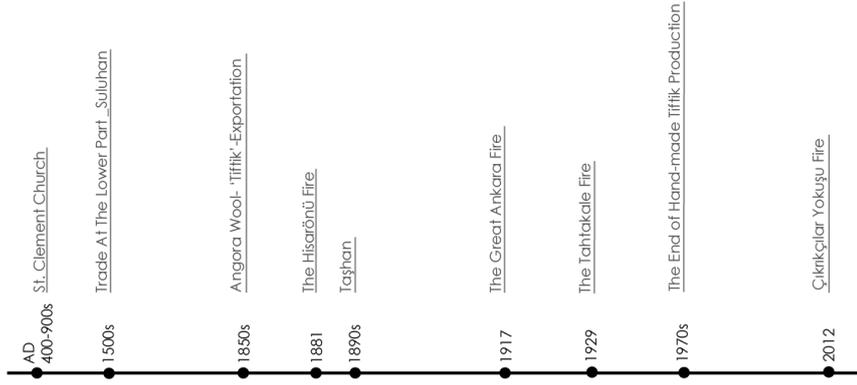


Figure 4.28. Historical Events and Happenings Forming Present Hal Street, Tenekeçiler Street, Çıkrıkçılar Yokuşu

Source: Produced by the Author Based on Historical Research

Subsequent to the land use analysis, timeline analysis of Hal Street, Tenekeçiler Street and Çıkrıkçılar Yokuşu could be addressed. Figure 4.28. outlines essential happenings and events in the timeline of the specific section. All these particular events either contributed to or left a mark on current soundscape To illustrate, as it is delivered in Anafartalar Street part, the construction of Suluhan is critical for trade activities in *Aşağı Yüz*, which triggers initial urban acoustic features in this section. Another substantial event which has initiated soundscape transformation process especially in Çıkrıkçılar Yokuşu is the *Tiftik* – Angora Wool- exportation in 1850s. Because, in pursuit of the exportation, the hand-made *tiftik* trade in Ankara regressed drastically. Consequently, hand-made *tiftik* production came to an end in 1970s, which means that *Çıkrıks* were tuned off.

The third part of the site analysis is the continuation of soundwalk line as Koyun Pazarı Street and At Pazarı Street which constitutes a part of historical *Yukarı Yüz*. The soundscape transformation process in this section could be addressed by the help of the development and transformation process that this region has undergone. As in previous two sections of the soundwalk line, firstly 1929 dated land use map [Figure



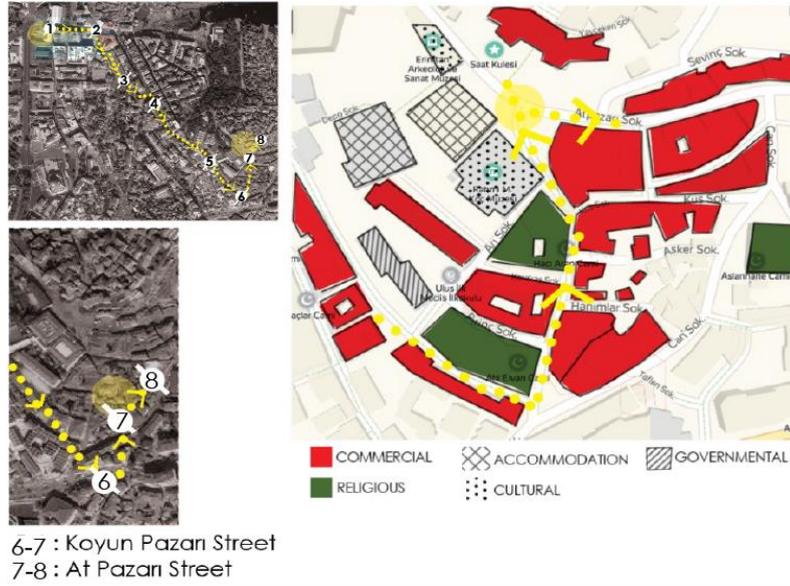


Figure 4.30. Koyun Pazarı Street and At Pazarı Street

Source: Produced by the author

This section of soundwalk line is critical thanks to its strategic location in Outer Castle. Initial commercial activities out of the Castle took place in this area, which gives reference to the initiatory local soundscape. The 1929 dated land use map indicates that At Pazarı Street and Koyun Pazarı Street, which were located in *Yukarı Yüz* were dominated by small and large scale commercial use. The area between Atpazarı and Koyunpazarı where Ahi Elvan Mosque, Hacı Arap Mosque and Ahi Şerafettin Mosque were located, grew as an important religious centre for the city and in this religious centre, commercial activities started to appear around the mosques.<sup>171</sup> Small-scale commercial activities were made up of pedlars, ironsmiths, coppersmiths and shopping related to animals, large scale commercial activities were composed of *han* buildings in which *Sof* trade was conducted. As a consequence, the local soundscape was dominated by the sounds of prayer calls, the cries of tradesmen, the sounds of sheep and horses.

<sup>171</sup> A. Koçyiğit 2018, op.cit. , p. 62

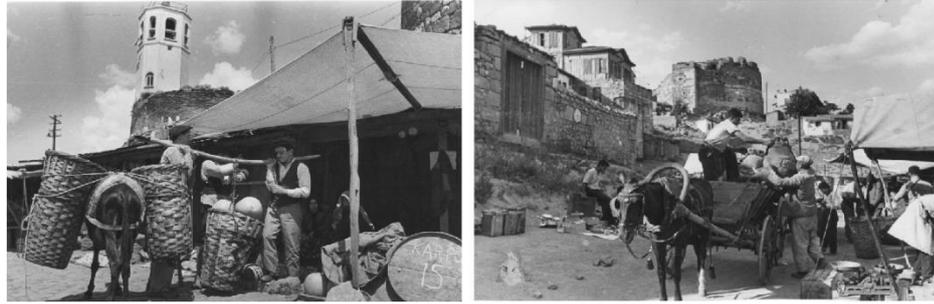


Figure 4.31. At Pazarı Avenue

Source: “ At Pazarı in 1940s’ Web. 24 June 2019.

< <https://archives.saltresearch.org/handle/123456789/116030> >

In current urban context, the region has turned into a touristic zone, which has reorganized the acoustic context. *Han* buildings have turned into museum and hotel functions. In terms of small scale trade activities, they mostly transformed into small touristic gift shops; however, a couple of coppersmiths and ironsmiths have remained standing, which provides unique initial soundprints for the current soundscape. Therefore, the local soundscape has undergone a sonic substitution and sonic disappearance process.

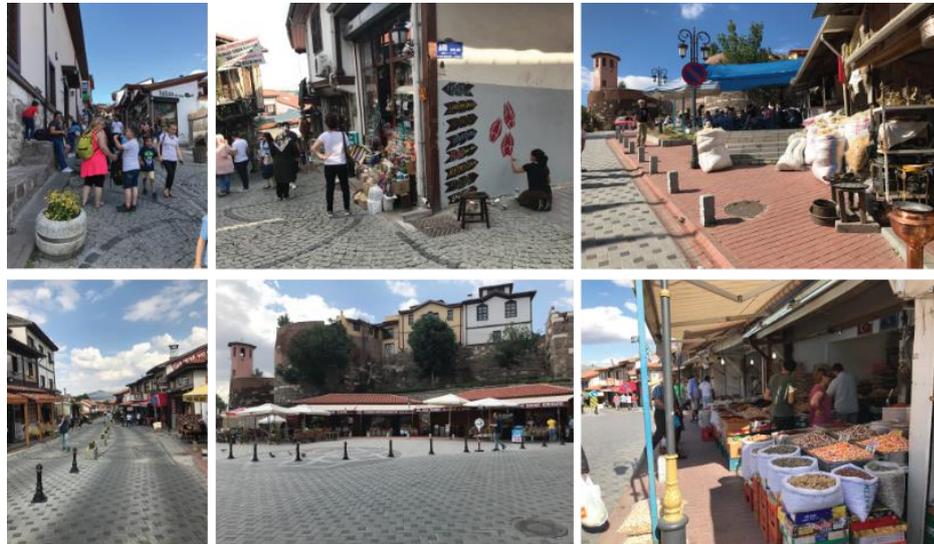


Figure 4.32. Current Condition of Koyun Pazarı Street and At Pazarı Street

Source: Taken by the Author, Upper: Koyun Pazarı Street, Lower: At Pazarı Street

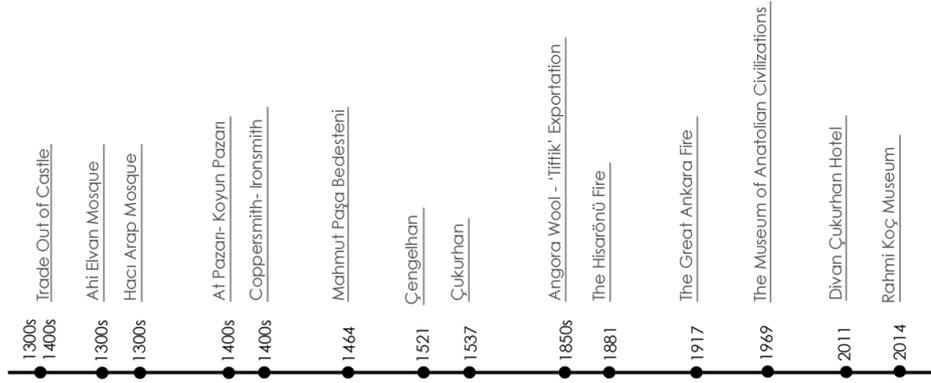


Figure 4.33. Historical Events and Happenings Forming Present At Pazarı Street and Koyun Pazarı Street

Source: Produced by the Author Based on Historical Research

In Figure 4.33., timeline analysis of Koyun Pazarı Street and At Pazarı Street indicates that *Tiftik* exportation in 1850s had become a breaking point for the soundscape of the region. Because, immediate to the exportation, *Han* buildings as key actors organizing local soundscape by assuming *tiftik* trade and storage lost their function. From that time on, they have undergone a transformation process which has reorganized the psychoacoustic perception of the region, so the soundscape interpretation. Firstly, they became derelict especially after the great fires in 1881 and 1917. In the beginning of the 20<sup>th</sup> century, during early Republican period, they were functionalized as military headquarters and prisons.<sup>172</sup> Finally, Mahmut Paşa Bedesteni and Kurşunlu Han are restored as The Museum of Anatolian Civilizations, Çengelhan is restored as Rahmi Koç Museum and Çukurhan is restored as Divan Hotel. The transformation process of this region is essential so as to comprehend the acoustic substitutions in local soundscape characteristics.

<sup>172</sup> Tunçer, M. (2014). *Ankara'da Vakıf Mülkiyetindeki Bedesten ve Hanların Gelişimi ve Şehir Ekonomisinin Dönüşüm Süreci (15-20.YY)*. Vakıf ve İktisat. Web 26 June 2019 <http://ankaratarihi.blogspot.com/2014/09/ankarada-vakf-mulkiyetindeki-bedesten.html>

### **4.3.2. Application of the Methodological Framework on the Case**

The methodology of the thesis is based on achieving a soundscape mapping in order to comprehend and represent soundscape characteristics. Within the scope of the thesis, soundscape mapping is approached as an alternative method to assess the spatiotemporal dynamics of urban environments. In this chapter, data gathering and data analysis processes to map soundscape characteristics and sonic behaviour of individuals are explained.

#### **4.3.2.1. Data Gathering**

Three main data gathering methods are applied within the scope of the thesis research and each of them were directed to an outcome to be utilized in data analysis section. The aforementioned three means for data collection are field surveys, sound source analysis and soundwalk procedure. Firstly, field surveys aim to reveal essential parameters of the site, which have an impact on soundscape perception. In other words, the field surveys inquire into the distinctive spatial features of the site, which have an effect on soundscape interpretation. To illustrate, the appreciable slope in Anafartalar Street and especially in Çıkırıkçılar Yokuşu is a notable parameter to form psychoacoustic perception. The participants of the thesis registered their own breathing sound during the soundwalk in Çıkırıkçılar Yokuşu due to the slope. Besides, the narrow section of the streets through which the soundwalk is effectuated increases the encounters, which attaches intimate pass-byers' chattings to individual soundscapes. Hal Building and Çıkırıkçılar Yokuşu exemplify the case accurately. [Figure 4.34.] Furthermore, some sections of the soundwalk line, including Hal Building and Çıkırıkçılar Yokuşu, have a strong directionality due to the narrow section of the streets, the canopies or attached buildings along the path. The evident directionality makes the participants concentrate on the related acoustic context relatively easier since the potential distracting factors are restricted by the help of the directionality. Moreover, the sound level pressures along the predefined soundwalk

line is collected in the field surveys. The data gathered by these field surveys leads to sound level measurements in the data analysis section.



*Figure 4.34. Acoustic Intimacy in the Narrow Sections of the Soundwalk Line*

Source: Taken by the author, 2018-2019

As the second part of the data gathering process, the main sound sources of the site are specified. The sound sources are basically one of the main parameters to build acoustic perception. Therefore, gathering and evaluating the main sound sources of the related urban context is critical in terms of building a common ground for the legibility of complicated soundscape data. Sound sources of the site are collected and analysed in order to trace if certain sound sources are emerged, reinforced, substituted, suppressed or disappeared in time. As a result, the development process of key sound sources of the related soundscape could be pursued. The data collected by the sound source analysis brings about the introduction and analysis of soundscape terminology in the data analysis section.

Thirdly, as a site expedition method, the soundwalk procedure is applied along the predefined walking route for data collection. The soundwalk procedure is conducted

with 24 anonymous participants<sup>173</sup> on the line of Anafartalar Street, Hal Street, Tenekeçiler Street, Çıkırıkçılar Yokuşu, Koyun Pazarı Street and At Pazarı Street. As it is elucidated throughout the thesis, this specific soundwalk line in Ulus is determined according to the diverse acoustic characteristics which are under the risks of disappearance, suppression or substitution due to the transformation process the site has been experiencing. Thus, the main purpose is to document the gradually transuming unique acoustic features of this path and its effects on the psychoacoustic perception of individuals.

The participants are asked to walk and listen to the acoustic environment closely during soundwalk.<sup>174</sup> In the course of soundwalk, participants are asked to register the sounds which attract their attention. Since, subsequent to soundwalk, they are asked to supply the sound source data to be used for the following experiment. Soundwalk line is around a 1,5 km long path and each soundwalk procedure lasts 30 minutes approximately.<sup>175</sup> On the soundwalk line, walking and listening experience take place in open, semi-open and closed sections. Anafartalar Street, Hal Street, Tenekeçiler Street, Koyun Pazarı Street and At Pazarı Street constitute open sections; Çıkırıkçılar Yokuşu is the semi-open section and *Hal* Building on Hal Street constitutes closed sections of the soundwalk line. This configuration has contributed to shape the overall soundscape perception. To illustrate, seasonal effects are in flux and this change

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<sup>173</sup> Participants are composed of 12 women and 12 men between the ages of 19 and 55. 6 of the participants are architecture students and newly graduate architects. 6 of the participants are tradesmen and shopkeepers who work in *Anafartalar Çarşısı* Building. The rest of them are chosen from the shoppers and tourists in the site indiscriminately.

<sup>174</sup> Author (as myself) and each participant walked the line together. During each soundwalk with the participants, I record the sonic environment by the help of Sony ICD-PX240 sound recorder simultaneously in order to register acoustic environment's physical features, like sound level pressures. In other words, both subjective responses and objective measurements are obtained during soundwalk at once.

<sup>175</sup> Anafartalar Street is 240 m long, Hal Street is 260 m long, Tenekeçiler Street is 120 m long, Çıkırıkçılar Yokuşu is 400m long, Salman Street ( the shortcut between Çıkırıkçılar to Koyun Pazarı Street) is 220 m long, Koyunpazarı Street is 220 m long and At Pazarı Street is 120 m long.

could be heard by sounds of raindrops and windflows depending on the open or closed section of the soundwalk line. Soundwalk study has been performed on the defined path in between June 2018 and July 2019. Therefore, the possible effects of different seasons on the psychoacoustic perception of the walking line has been taken into consideration. For instance, Çıkırıkçılar Yokuşu is covered by metal and fabric canopies in a patchy way. [Figure 4.35.] The seasonal effect on psychoacoustic perception makes itself evident thanks to this patchy canopy organization. That is, depending on the season, raindrops on metal canopies or windflows across fabric canopies add a notable layer on the soundscape perception.<sup>176</sup>



Figure 4.35. Patchy Canopy Organization in Çıkırıkçılar Yokuşu

Source: Taken by the author, 2018 August

Another parameter, which is paid attention to for soundwalk procedure is the urban sonic diversity stemming from weekends and weekdays. As a significant output, the shops in Tenekeçiler Street where the most unique acoustic quality shelters are almost completely closed on Sundays. Therefore, the soundwalks performed on Sundays lack of a significant acoustic pattern, which leads to a rather separate soundscape

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<sup>176</sup> 4 of the 6 participants who performed soundwalk in fall season registered the sound of windflows on the section of Çıkırıkçılar Yokuşu although a relatively longer section of the soundwalk line in the rear of Çıkırıkçılar Yokuşu constitute an open section where windflows could be experienced directly. This could validate the fact that the distinctive features of Çıkırıkçılar Yokuşu help participants concentrate on acoustic context relatively easier, which is asserted in field surveys part beforehand.

perception. The soundwalk is introduced and applied on the case of the thesis and in pursuit of soundwalk practice, the participants take part in the grouping and labelling experiment. In other words, the data collected by the soundwalk procedure is utilized in the experiment in data analysis section.

#### **4.3.2.2. Data Analysis**

As it is stated in previous section, three main data gathering methods are applied within the scope of the thesis and each of them were directed to collect data to be utilized in data analysis section. Three means of data gathering bring about three means of data analysis as sound level measurements, soundscape terminology analysis and the grouping and labeling experiment. Firstly, sound level measurements are conducted along the soundwalk line. The main purpose is to help increase the legibility of complex soundscape data by mapping the range of sound pressures along the defined path. Figure 4.36 demonstrates the sound level pressures throughout the soundwalk line. Besides, Figure 4.37 indicates the distribution of the sound level pressures along the section of soundwalk line. Sound levels are classified into three categories depending on the weekends-weekdays and time of day. Mapping sound level measurements reveals the distribution and dissemination of a diverse set of sound level pressures. This map could be utilized to interpret on soundscape features. That is to say, mapping the sound level pressures presents the acoustic characteristics of the site physically; however, sound provides the features of both a physical construct and cognitive phenomena. Therefore, the relation between the sound level pressures and the psychoacoustic perception could be investigated by the help of this mapping. For instance, the sound level pressure along Anafartalar Street at noon in the weekend is around 80 decibel, which is above the comfort level of hearing system. Basically, the traffic noise, the cries of sellers, the noise of the crowd and noises of the demolition of buildings jointly cause this sound level pressure.

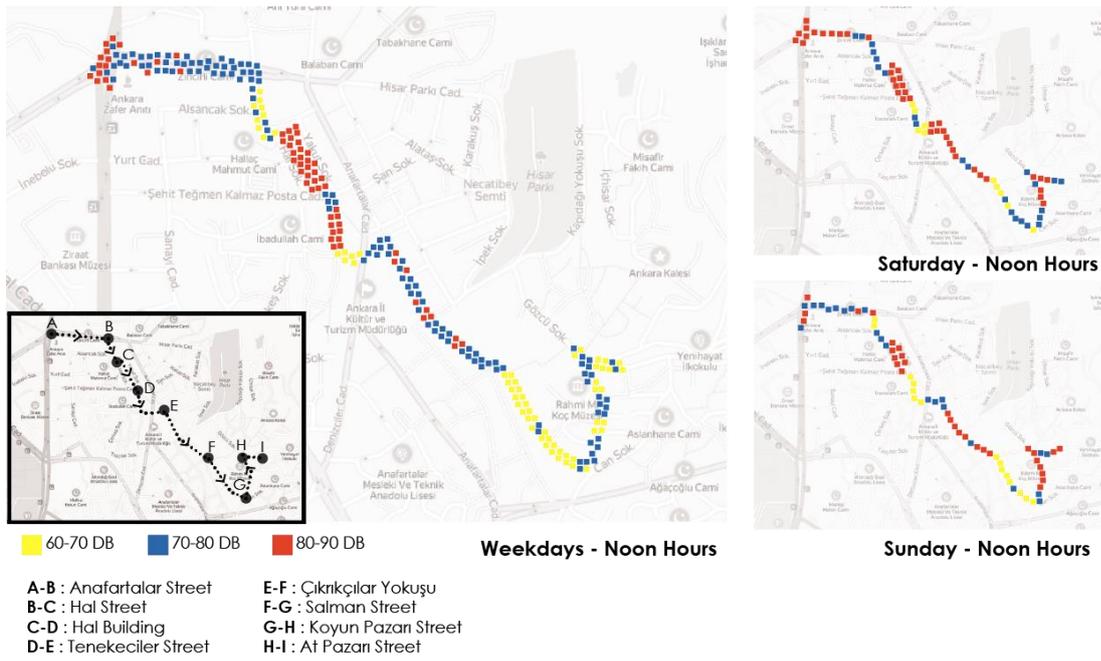


Figure 4.36. Sound Level Measurement Map of the Soundwalk Line

Source: Produced by the author

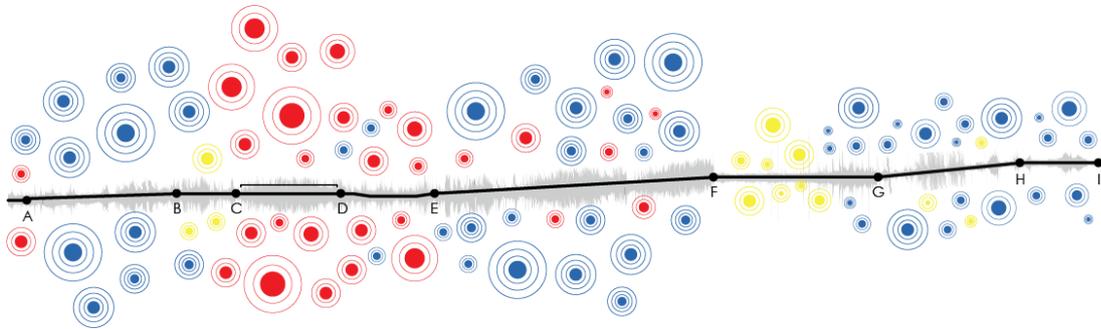


Figure 4.37. Sound Section of the Soundwalk Line

Source: Produced by the author

The participants registered these sounds during the soundwalk and labelled them as distracting.<sup>177</sup> Interestingly, although the sound level pressure in Hal Building is around 80 decibel which is also above the comfort level, like Anafartalar Street, participants registered sound sources such as the cries of the sellers, the sounds of pushcharts' wheels and labelled them as attention-grabbing call. This means that even though acoustic features, like sound level pressures, are similar, soundscape interpretation could vary in an urban context. To put it another way, the soundscape is beyond merely an acoustic environment, it is a perceptual construct. Analyzing the sound level distribution in Çıkırıçılar Yokuşu, despite the balanced distribution along the periphery of shops, there is an inconstant distribution within the pedestrian path in patches.<sup>178</sup> Street vendors, as mobile aural actors, lead to rather dynamic sound level pressure pattern which is in flux. Some brief inferences from this map are as follows: the sound level pressure in Hal Building is mostly high independently of the days of week, Tenekeçiler Street is silenced on Sundays because most of the shops are closed, the volume along Çıkırıçılar Yokuşu, Koyun Pazarı Street and At Pazarı Street is turned up in weekends as expected thanks to the rising density of visitors, Salman Street as the connector of Çıkırıçılar Yokuşu and Koyun Pazarı Street is a silent shortcut independently of the days of week.

Secondly, a system of generic classification by the help of a soundscape terminology is conducted. The soundscape terminology which consists of soundmark, acoustic hot spot, sound shower, memorial sound and suppressed sound is applied on the case so as to simplify the complexity of soundscape perception.

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<sup>177</sup> The grouping and labelling experiment which is conducted by the help of anonymous participants will be explained in Data Analysis section within this chapter.

<sup>178</sup> In sound level map, sound level pressure along Çıkırıçılar Yokuşu is around 70 decibel resulting from the cries of tradesmen. However, sounds of street vendors increase the sound level pressure at irregular intervals unexpectedly. Red squares in patches along dominating blue squares indicate the case in the map.

<b>Soundmark</b>	<b>Acoustic Hot Spot</b>	<b>Sound Shower</b>	<b>Memorial Sound</b>	<b>Suppressed Sound</b>
Sounds of Prayer Calls	The cries of Street Vendors	Acoustic Pattern of Ulus Square	Ceremonial Sounds in The Victory Monument	The Sounds of <i>Çıkrık</i>
Sounds of Pigeon Flappings	The Cries of Tradesmen	Humming Sound in Hal Building	The Sound of Bombing Attack in 2007	The sound of Horse and Carriages
Twittering of Pigeons	Sounds of Construction & Demolishment		The Sound of Plane Crash in 1963	The Sound of Church Bell
Sounds of Ironsmiths	Sounds of Shutters			
Sounds of Coppersmiths	Sounds of Children			
Sounds of Stove Sellers	Ambulance or Police Siren Sounds			

Table 4.1. Soundscape Terminology Categorization

Source: Produced by the author

Table 4.1 indicates the categorization of sound sources of the site according to the soundscape terminology. As it is introduced in detail in the Methodological Framework Chapter, soundmarks refer to the sounds, which are unique and easily noticeable, besides marking the space-time phenomenon. Accordingly, sounds of prayer calls constitute a soundmark of the soundwalk path. This sound is a rather effective actor within the entire soundscape since there are many mosques on the defined route as it is demonstrated in land use analysis beforehand. Owing to the plurality of the mosques in short distances, almost each participant had a chance to register the sounds of prayer calls during his/her soundwalk according to the time of

the day. At this point, sounds of prayer calls, as a soundmark, have the potential to mark the location<sup>179</sup> on the soundwalk line or a certain time interval of the day. Sounds of pigeon flapping and singing of pigeons point to the Ulus Square saliently. These sounds are unique and distinguishable on the soundwalk line, which gives them soundmark characteristics. Sounds of stove sellers, ironsmiths and coppersmiths are prominently local soundmarks as these sound sources remark certain parts of the soundwalk line and mark unique acoustic patterns in soundscape.<sup>180</sup>

Acoustic hot spots are attention-grabbing instrumental sounds which are mostly immediate, local, ephemeral, inconstant and occasionally in motion. They could create an instant soundmark effect. The cries of street vendors dominate the soundscape as main acoustic hot spots. Sounds of shutters are another familiar acoustic hot spot as salient instant soundmarks which represent either the beginning or the end of work. Ambulance or police siren sounds on Anafartalar Street<sup>181</sup> exemplify another acoustic hot spot thanks to the attention-grabbing, ephemeral and inconstant features. Sounds of demolition as local, immediate and ephemeral acoustic hot spots generate a section in soundscapes. Figure 4.38. demonstrates the demolition of The Undersecretariat of Customs Building on Anafartalar Street in July 2018. Thus, the

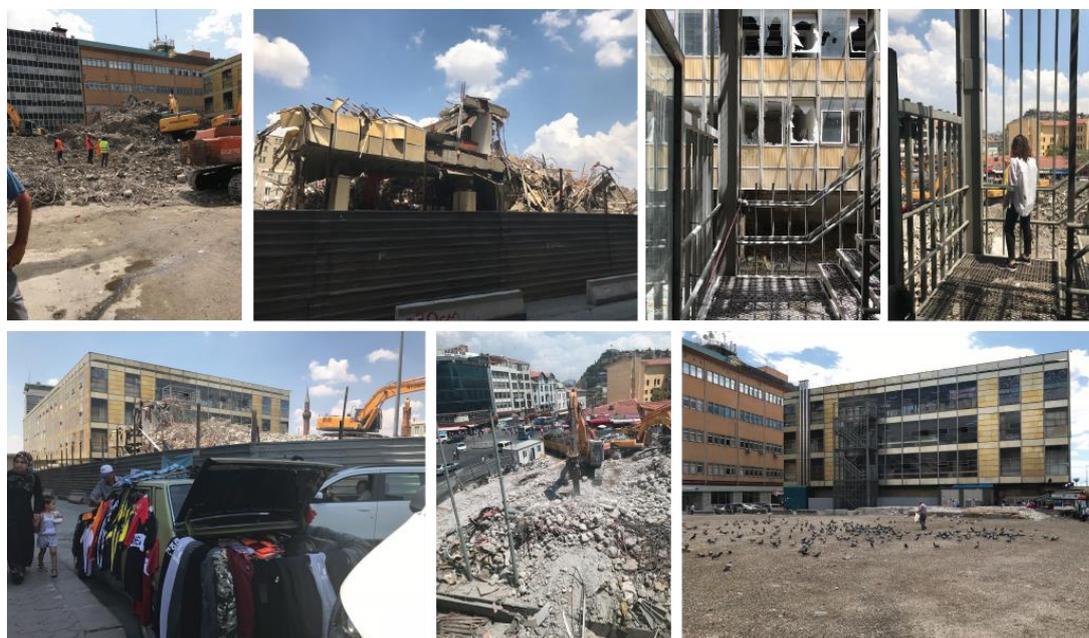
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<sup>179</sup> Sounds of prayer calls coming from Zincirli Mosque refer to Anafartalar Street, from Hallaç Mahmut Mosque refer to Hal Street, from Boyacı Ali Mosque refer to Çıkırıçılar Yokuşu and from Ahi Elvan Mosque- Hacı Arap Mosque refer to Koyunpazarı Street.

<sup>180</sup> These sounds could be heard in Tenekeçiler Street and slightly in Koyun Pazarı Street. Although these sounds constitute an authentic section in soundscape, they are under the risk of suppression. Therefore, the soundmarks of current soundscapes could be the candidate of suppressed sounds of future soundscapes.

<sup>181</sup> It is worthy to note that only Anafartalar Street section of the soundwalk line encounters ambulance or siren sounds since the other sections of the line are pedestrianized.

sounds of demolition were registered by the participants during the soundwalk.<sup>182</sup>



*Figure 4.38. The Demolition of The Undersecretariat of Customs Building*

Source: Taken by the author , July 2018

The term sound shower amounts to different acoustic patterns which are overlapped in a single portion in the soundscape and generate its own acoustic quality. While passing through a sound shower, the subject could experience soundmarks or acoustic hot spots simultaneously. In other words, a sound shower could encapsulate soundmarks or acoustic hot spots within its multilayered texture. Ulus Square, as the entrance to the soundwalk line, is a powerful example of sound shower.<sup>183</sup> Hal Building [Figure 4.39.] itself holds the characteristics of sound shower, its narrow

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<sup>182</sup> Figure 4.36. demonstrates the demolition process of The Undersecretariat of Customs Building. The last photo is taken in 2019 when the demolition is completed. That is, although some participants registered the sounds of demolition, some could not. Soundscape of the world is changing that even in a one year long soundscape study variances could be detected.

<sup>183</sup> Although the entrance of soundwalk line, Ulus Square, has the characteristics of sound shower, the point of destination, Kale Square, does not feature sound shower texture due to its rather isolated and hard to access location along Outer Castle.

Building [Figure 4.39.] itself holds the characteristics of sound shower, its narrow section and directionality help build the sound shower effect more specifically. Passing through Hal Building, participants registered the cries of the vendors, sounds of pass-byers' chattings, sounds of pushcarts' wheels, sounds of footsteps. The psychoacoustic perception of Hal Building is generated by successive acoustic hot spots constantly. Therefore, the building could be comprehended as an urban sonic box within the related context. All in all, Hal Building constitutes an essential nodal point on the soundwalk line that it marks a notable sound shower section on soundscape by itself.



*Figure 4.39. Ulus Marketplace / Hal Building*

Source: “Ulus Hal” Web. 24 June 2019

< <https://lavarla.com/tazelik-kokulu-yolculuklar-ulus-hali/> >

The term memorial sound comprises dramatic or drastic sounds of a certain former soundscape; thus, it does not exist in current soundscape physically. Although it is not available in present soundscape and could not be heard, it maintains its associative power by symbolizing the space-time of respective former soundscape. For instance, *Zafer Anıtı*/ the Victory Monument was erected with an opening ceremony in 1927 and the sculpture turned into the landmark of the square by providing a gathering point for the meetings. The square augmented its political meaning and continued to be used

for any kind of organisation, meeting and celebration related to the state.<sup>184</sup> Thus, the sounds of national ceremonies around the Victory Monument provide a source for memorial sounds. As another example, the sound of the bombing attack in front of *Anafartalar Çarşısı* in 2007 could be given. It should be noted that some of the workers in the building recalled and registered this sound during the questionnaires. A rather old-dated example, the plane crash on Anafartalar Street in 1963, should be referred although its associative effect on present soundscape is hardly perceptible. The reason is that this incident is quite rare and exceptional, which leads it to leave a drastic soundprint that is needed to be retained as much as possible. Memorial sounds pin themselves on acoustic heritage. However, the content of acoustic heritage could be updated and memorial sounds could lose their imprint on acoustic heritage accordingly, as in the case of Anafartalar Street plane crash.

The term suppressed sound refers to the once-instrumental sounds which are literally expelled from the soundscape by the external forces. These sounds are delocalized from their places under the potent effects of industrial development, rapid urbanization, population growth and technology. Thus, suppressed sounds could not pin themselves on the acoustic heritage of the related context. The foremost suppressed sound for the case is undoubtedly *çıkırık* sound which used to form the acoustic characteristics of Çıkırıkçılar Yokuşu once. Sounds of *çıkırık* continued to be heard, gradually weakening, until 1960s along Çıkırıkçılar Yokuşu.<sup>185</sup> Once soundmark of Çıkırıkçılar Yokuşu, *çıkırık sound*, has turned into a suppressed sound in current condition. Since, the hand-made tool, *Çıkırık*, could not resist the widespread impact of industrial development. That is to say, any acoustic parameter characterizing the soundscape could be under the risk of suppression resulting from aforementioned

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<sup>184</sup> A. Koçyiğit 2018, op.cit. , p. 241-242

<sup>185</sup> as cited in, Çıkırıkçılar Yokuşu Belgeseli [Youtube Video]. (2016, April 5). Retrieved July 02, 2019, from <https://www.youtube.com/watch?v=YiTLZ77mdLs>

external factors. Another sonic component which is suppressed by industrial development and technology is the sounds of horse and carriages on the soundwalk line. As it is pointed out in preceding sections, the soundwalk line overlaps with the historical trade route from *Yukarı Yüz* to *Aşağı Yüz*. The trade activities were conducted by the help of horse and carriages. That is why; the acoustic content here used to be formed by these sounds. Besides, in Atpazarı Square, shopping related to animal, sheep and horse purchase and sale used to be conducted.<sup>186</sup> All in all, animal related sounds which were suppressed today used to be heard on the soundwalk line.<sup>187</sup> Another sound which is suppressed on the soundwalk line is the sounds of church bell from St. Clement Church (400-900 AD) which used to locate at the entrance of Çıkrıkçılar Yokuşu and destroyed almost totally today.<sup>188</sup>

The soundscape terminology is introduced and applied on the case in this chapter. The main point is to enhance the legibility of complex acoustic information. It is envisaged that this classification facilitates the monitoring process of changing soundscape features. Soundscape classification could be documented at certain time intervals to trace if any sound source changed its terminology, such as the transition from soundmark to suppressed sound as in the case of *çıkırık* sound. Since soundscapes are always variable in space-time, “[t]emporal variations make it important to distinguish

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<sup>186</sup> Tunçer, Mehmet. 2001. Ankara (Angora): Şehri Merkez Gelişimi (14.-20. yy). Kültür Bakanlığı Yayınları, Ankara .

<sup>187</sup> In current soundscape, animal related sounds exist weakly. Besides pigeons flapping and twittering in Ulus Square, chicken clucking sounds could be heard on the entrance of Tenekeçiler Street where alive chicken selling is made.

<sup>188</sup> Serin, U. “Bizans Ankarası ve Kaybolan Bir Kültür Mirası: ‘St Clement’ Kilisesi.” METU Journal of the Faculty of Architecture, Vol 31(2) . 2014: p.65-68  
It is critical to note the history of bell ringing dates from around 400 AD. (<http://www.bellringing.org/history/> ) Thus, it is an estimation that St. Clement Church used to ring church bells.

between long-term assessment of the soundscape as experienced during an extended period of time.’’<sup>189</sup>

The third and final part of the data analysis is a grouping-labeling experiment which is planned as a follow-up study of soundwalk procedure. 24 anonymous participants who performed soundwalk registered sound sources that attracted their attention during the procedure. These sound sources are used in the scope of the grouping and labelling experiment. The experiment which is referred in the literature aims to categorize acoustic aspects of living environment in the form of psychoacoustic interpretation. The main purpose is to map and document subjective soundscape interpretation. In the experiment, participants are provided cards<sup>190</sup> having the names of sound sources that they registered during the soundwalk; thereafter, they are asked to follow two tasks.[Figure 4.40]

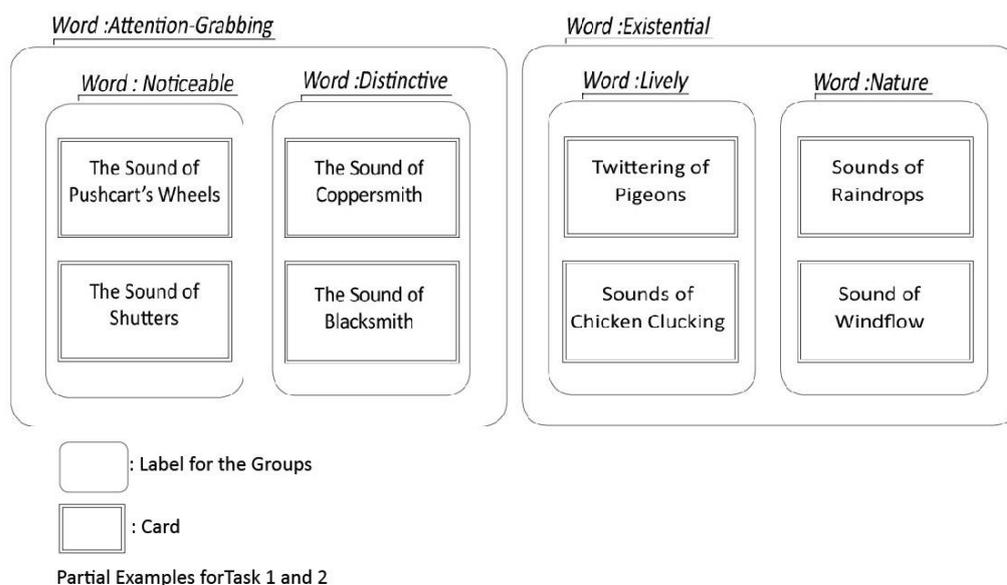


Figure 4.40. Grouping and Labelling Experiment

Source: Produced by the Author

<sup>189</sup> Raimbault and Dubois 2005, op.cit., p.340

<sup>190</sup> The number of cards is 48 and all sound sources could be examined in following cluster analysis.

Firstly, participants are asked to sort the cards having the names of different sounds on into groups by the similarity of their impression. In following steps, the previously formed groups are treated as an independent sound source and this grouping experiment is repeated until there are three groups in total. Secondly, participants are asked to label each group of sounds with a word that best represents their overall impression. These words are considered to be representations of participants' individual evaluation structure. To illustrate, Figure 4.40. demonstrates two partial grouping and labelling samples by two participants. To clarify, in the first sample, participant grouped the sound of coppersmith and the sound of blacksmith together and labelled it with the word distinctive. Similarly, the sound of shutters and the sound of pushcarts' wheels were grouped together and labelled with the word noticeable. Subsequently, the groups of noticeable and distinctive were treated as new sound sources; thereafter, they were grouped together and labelled with the word attention-grabbing. As it is emphasized previously, grouping and labelling procedure is repeated until there are three groups in total. The ultimate three labels are attention-grabbing/inviting, distracting and existential as it is illustrated in the cluster analysis in Figure 4.41.<sup>191</sup>

A cluster analysis indicates each step of grouping and labelling experiment in detail.[Figure 4.41.] Similarity between sounds is designated as the number of participants who put a sound in the same groups in task 1. Cluster analysis by using data from task 1 and task 2 demonstrates entire links forming the categorization

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<sup>191</sup> Until reaching the first ultimate label which is 'attention-grabbing/ inviting', participants use the labels, such as noticeable, distinctive, pronounced, catchy, teller, inviting. ( In Turkish: fark edilebilir, dikkat çeken, farklı, belli, çağıran, haber veren, davetkar)

For the second ultimate label which is 'distracting', former labels are irritating, disturbing, annoying, uncomfortable, noisy, invader. ( In Turkish: rahatsız edici, dikkat dağıtıcı, sinir bozucu, gürültülü, istilacı, işgalci)

For the third ultimate label which is 'existential', prior labels are nature, life, entity, existence, lively, vivacious, intimate. ( In Turkish: doğa, canlı, yaşam, varoluş, hayat dolu, yakınlık)

network. Cluster analysis exposes all obtained *psycho-aural* networks to interpret on. How clusters of sounds pertaining to the labels of attention-grabbing/ inviting, distracting and existential are gathered under the same label could be traced by the help of the cluster analysis. To illustrate, road traffic noise, traffic signals, idling sounds of cars and car horns aggregate as traffic-related sounds; sounds from garbage trucks and sounds from street sweepers form another group. These two clusters are grouped together and form a sub-cluster of ‘distracting’ label. It is apparent that the sounds that belong to the same sub-cluster are perceived, evaluated and interpreted in a similar vein. Therefore, although traffic signals, car horns and sounds from sweepers are positioned under the same ‘distracting’ cluster, traffic signals and car horns are comparatively more related thanks to being under the same sub-cluster. In other words, the criterion of similarity reinforces when sounds aggregate under the same subordinate groups. All in all, these derived clusters are based upon the similarity of participants’ psychoacoustic impressions; thus, the result could be treated as an elementary finding for the qualitative evaluation of the sonic environment.<sup>192</sup>

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<sup>192</sup> Kawai et.al. 2004, op.cit. , p. 532

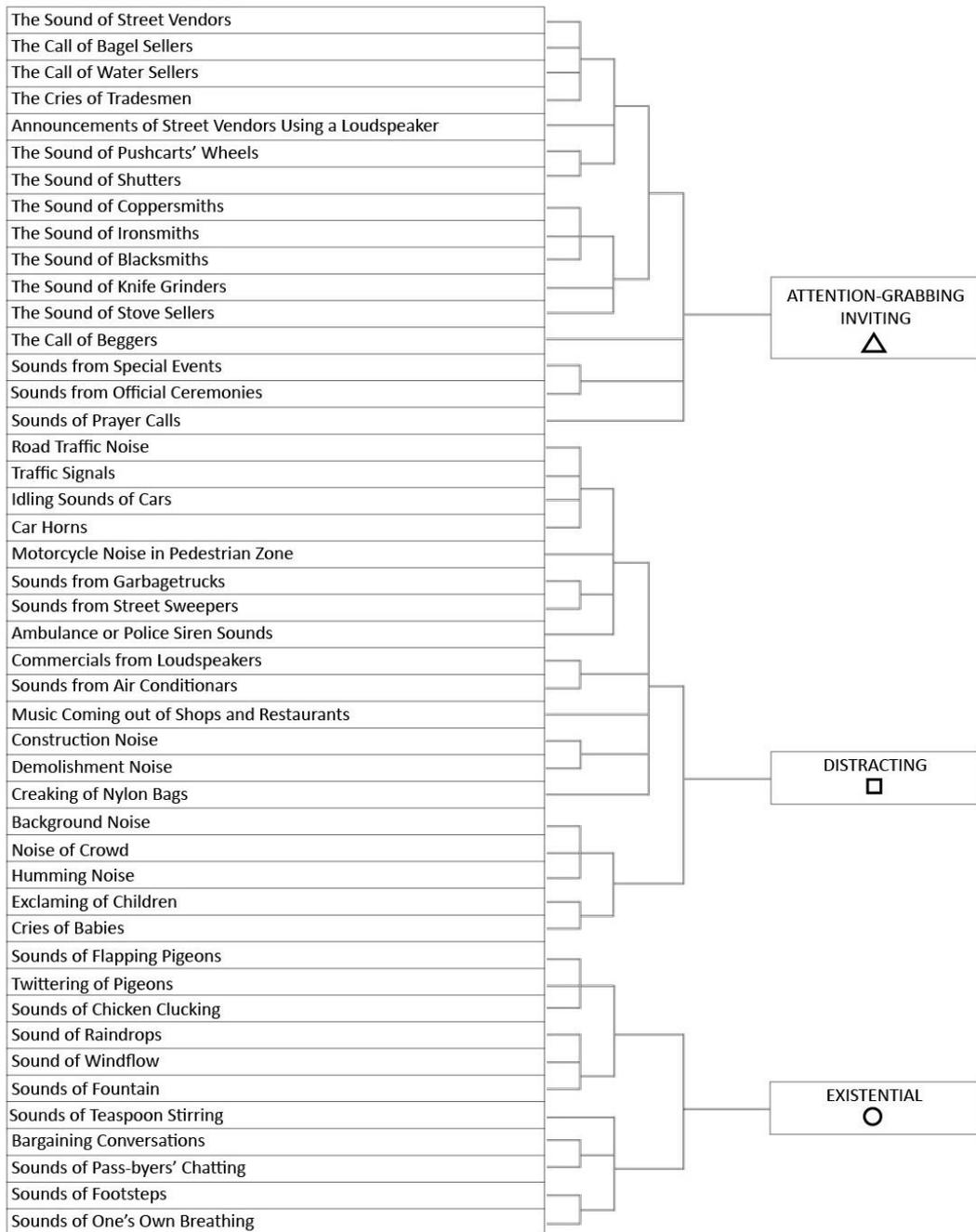


Figure 4.41. Cluster Analysis

Source: Produced by the Author

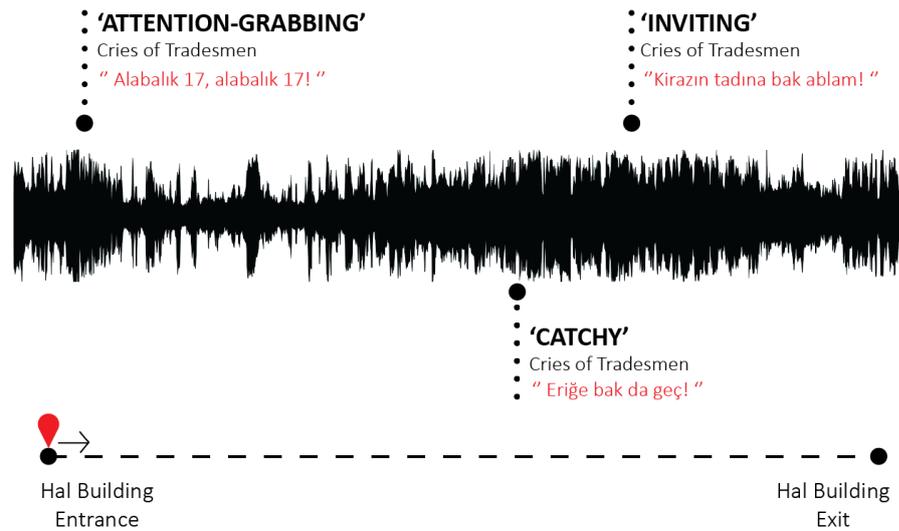
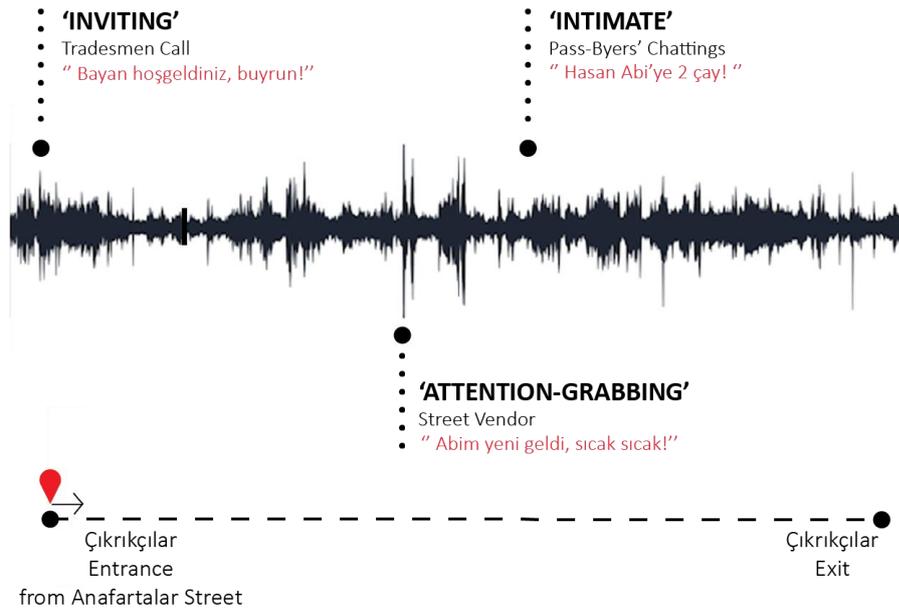
To sum up, the methodological framework is explained by the data gathering and data analysis processes within this chapter. The soundscape data which is gathered by the help of field surveys, sound source analysis and soundwalk procedure is analysed, evaluated and interpreted by three data analysis methods as sound level measurements, soundscape terminology and the grouping and labeling experiment. Within the methodology, a comprehensive approach is adopted to embrace both the physical acoustic aspects and perceptual aspects of sonic environment. That is, soundscape studies should not be restricted to single quantitative evaluation metrics. Perceptual dimensions of sonic environments should not be overlooked. As a result, the diversifying evaluations among listeners regarding the temporal, spatial and activity features of soundscapes lead to a rather subject-centered methodology. Therefore, main purpose of the methodology is to set a qualitative description for psychoacoustic perception of soundscape. The methodology aims to enlarge upon subjective soundscape evaluation of individuals and to provide groundwork for a preliminary estimate of the development process of present soundscape. Consequently, it is possible to interpret on current soundscape qualitatively and speculate about soundscape transformation process. The thesis proposes soundscape mapping as an alternative documentation tool at the end of the methodology it applied. Soundscape mapping provides a basis to configure and monitor listeners' psychoacoustic perceptions and changing individual sonic behaviours. As it is stated previously, the thesis intends to explore dynamic urban trajectories from an alternative sonic perspective and this alternative documentation method forms the basis for the main purpose of the study.

Figure 4.44. represents certain partial samples of soundwalk by means of an actual sound wave section of the specific soundwalk line.<sup>193</sup> To illustrate, for the case of Çıkırıçılar Yokuşu, sound wave section indicates that wavelengths do not show

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<sup>193</sup> It is ironic to represent acoustic data on silent pages.

dramatic ups and downs frequently. Since, the local soundscape of this section is dominated by cries of tradesmen that produce similar wavelengths to the spectrum. Besides, noise of crowd adds similar wavelengths. However, sounds of street vendors insert sudden dramatic increases in wavelengths in soundwave section; thereafter, they are labelled as attention-grabbing by participants.



Hal building as a sound shower has its unique acoustic territory in which cries of tradesmen dominate the spectrum. The difference of soundscape perception regarding from weekdays and weekends could be traced through the sound section of Anafartalar Street.

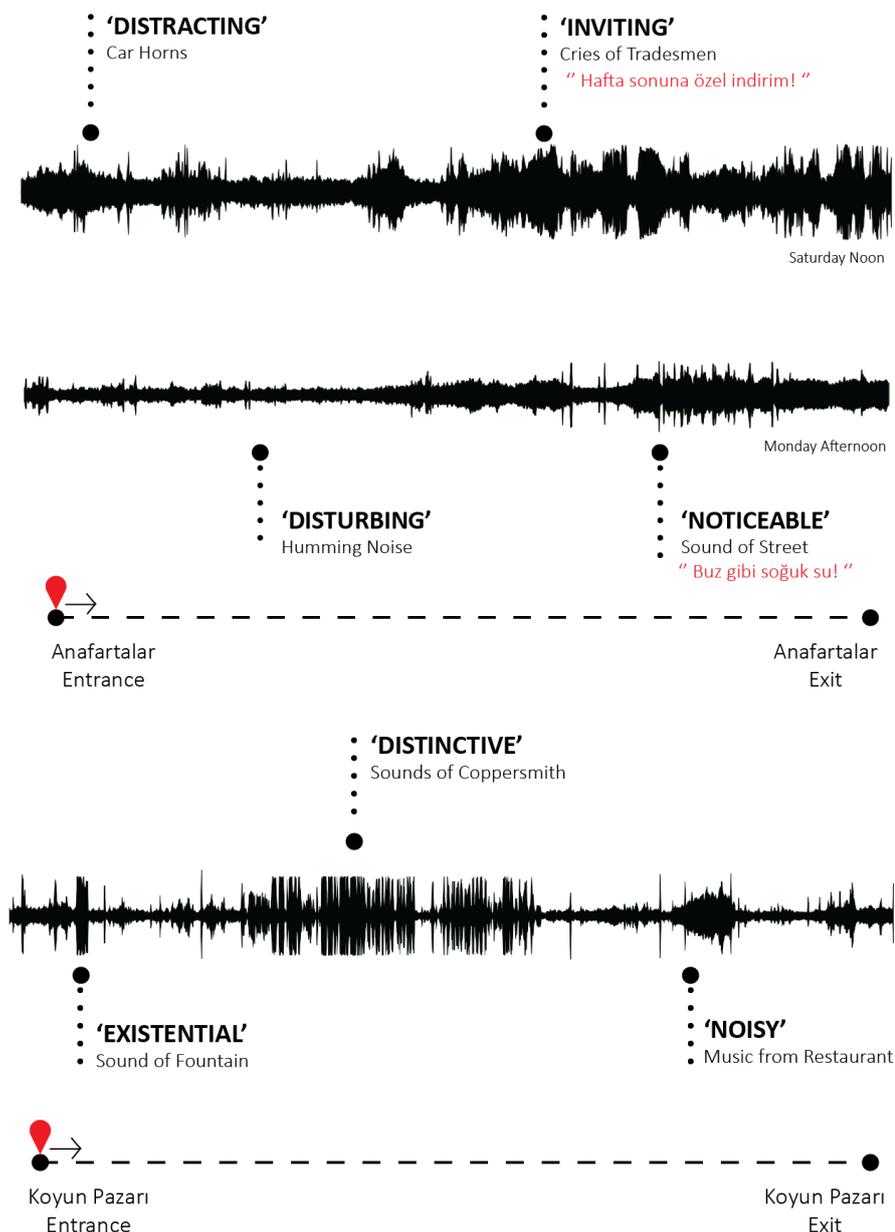


Figure 4.42. Soundwalk Section Sample

Source: Produced by the Author

## CHAPTER 5

### CONCLUSION

Urban sound environments are always perceived within a simultaneous multi-sensorial setting, in which the diverse sense modalities interact with auditory judgments.<sup>194</sup>

Sensory experience triggers the establishment of spatial judgements. Experiencers navigate in space-time by the help of sensory orientation. The thesis, firstly, presents critical commentaries based on the restrictive spatial experience arising from the hegemony of vision within sense modalities. Subsequently, the multisensory nature of spatial experience is underlined throughout the thesis. The study concentrates upon the underestimated role of sound in multi-sensorial urban context and the discourse on sound environments is developed as in above-cited quotation. At this point, it is critical to note that the thesis intends to raise sonic awareness in urban context.

This dissertation elaborates on the fact that sound is an existential necessity within everyday life. That is, with this study, it is understood that sound in urban context should be comprehended beyond noise management strategies. Since, sound environment accommodates philosophical, phenomenological and aesthetic attributes, besides physical aspects. Sounds are attached to semantic systems that they could represent wider values. “A unique acoustical phenomenon could give rise to various cognitive objects.”<sup>195</sup> For instance, sounds of trumpets could refer to dedication to a

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<sup>194</sup> Raimbault and Dubois 2005, op.cit., p.340

<sup>195</sup> Ibid., p.342

country in the related context. Thus, cultural meanings of sounds and their associated social representation transcend the physical boundaries of sonic environment. A comprehensive collection of representative sounds constitutes the acoustic summary of a place.<sup>196</sup> The acoustic summary as specific sound environment at a given location generates the discussion of soundscape.

The notion of soundscape is introduced and exploited within the scope of the study. The thesis emphasizes that soundscapes form an essential interwoven component of the urban environment. “Soundscapes are as much constitutive of our experience as the spatial and material components of our lived spaces.”<sup>197</sup> In other words, landscape and soundscape could not be tackled independently.<sup>198</sup> That is, any process of change which takes part in related landscape triggers a parallel transformation process in acoustic environment. Urban form has been transforming under the effects of rapid urbanization, population growth and technology. As a consequence, their ambient sound environment is rearranged accordingly. The thesis aims to explore this dynamic urban trajectories from an alternative sonic perspective. The thesis discussed on the fact that soundscape of the world is changing and tried to make a documentation work to pursue what happens when sonic environment change. It is intended to map subjective soundscape interpretation and document the changes in sonic behavior of individuals within spatiotemporal dynamics of urban environments. The thesis argues that changing trajectories of spatial perception could be traced by listening to the urban whispers. Ulus as the historical center of Ankara is selected as the case due to its rich urban acoustic content which is vulnerable to current external forces. The effects of transformation process in Ulus have been studied in the literature from different perspectives. However, what has happened to the whispers of Ulus within this process

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<sup>196</sup> Oldoni et.al. 2015, op.cit. , p. 43

<sup>197</sup> Zittoun 2012, op.cit., p.472

<sup>198</sup> Oldoni et.al. 2015, op.cit. , p. 35

has been overlooked. The thesis presented the discussion from the alternative sonic perspective. That is, the traceable soundprints of whispers are chased to investigate the formation process of current soundscape. ‘‘It is possible to literally hear sounds that move through space and have complex layered architectures with a strong materiality.’’<sup>199</sup> That is to say, even precedent soundscapes are accessible <sup>200</sup> to evaluate on and inquire into the sonic remains for current soundscape. Consequently, the related urban context could be explored from an alternative sonic perspective; that is, soundscape features of the urban context by reading soundscape mapping could also help build an embodied spatial perception. Besides, it would be possible to estimate future soundscape scenarios of the present situation by tracking the changes in soundscape mapping. For instance, for ıkrikılar Yokuşu section of the case, spatial memory used to be formed by ıkrik sounds which are suppressed and tuned off in current soundscape. Present spatial memory is dominated by the cries of tradesmen all along ıkrikılar Yokuşu. Nonetheless, urban form of ıkrikılar Yokuşu has started to change. Chain stores have begun to substitute for traditional small shops. As a result, in a near future soundscape scenario, it is expectable to confront a rather silenced ıkrikılar Yokuşu where cries of tradesmen are turned down. Hence, as it is indicated, the changing trajectory of spatial perception could be pursued by listening to the changing soundscape features.

Soundscapes are interpretable perceptual constructs. That is why; the thesis intended to conduct a soundscape study, which locates the listener at the center. Within the scope of the thesis, a soundscape mapping methodology is set forth to study the subjective acoustic perception and sonic behavior of individuals.<sup>201</sup> As a result, a more

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<sup>199</sup> Zittoun 2012, op.cit., p.476

<sup>200</sup> As it is pointed out in preceding chapters, it is technically feasible to record and keep acoustic data since 1860s.

<sup>201</sup> The methodology has been applied in the literature in precedent studies as it is indicated in Methodological Framework Chapter.

subject-centered methodology, which aims at evaluating the diversity of meanings in urban environments is built. During the data gathering and data analysis processes, the sound environment is approached as an inbuilt perceptual construct within the urban context. Therefore, the fact that soundscape studies should transcend the limits of noise management strategies is revealed in the way the methodology is applied. However, as a critical approach to the methodology, the importance of the active role of the listener in the construction of a soundscape, besides evaluation of it, could be approached in a reinforced way. That is, a participatory system could be built in which listeners could contribute to by inserting real-time acoustic data. The prospective researches could benefit from this critical approach. For instance, an online urban acoustic database could be created to map related soundscape characteristics. The database could be accessible anytime from anywhere either to contribute or to analyze. The dilemma of presenting acoustic data on silent pages could be dissolved by this accessible audible media.<sup>202</sup> In addition, a collective sonic movement could be initiated, which accelerates existing sonic awareness stage. Thus, acoustic heritage which has been pretty compelling to sustain and preserve so far could be recorded via the database and a valuable sonic archive could be expanded by the help of the contribution of everyday listeners. To illustrate, for the case of the thesis, it would be worthwhile to keep and spread the unique sounds of coppersmiths and ironsmiths in sonic archive since these sounds constitute substantial soundprints for local acoustic heritage.<sup>203</sup> Nevertheless, it is worthy to note that the thesis provides an initial research on subjective soundscape interpretation in urban environments since the importance of sound environments does not take part in the literature sufficiently yet.

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<sup>202</sup> Square-coding could be utilized to provide audible data for published documents.

<sup>203</sup> Acoustic heritage of *Çıkrık* sounds could not be preserved as it is addressed earlier. In current condition, unique sounds of coppersmith and ironsmith are under a similar risk of disappearance. Aforementioned sonic archive could prevent these sounds from fading away.

To sum up, the thesis provides an alternative approach for the subjective assessment of daily urban life. Urban transformation process and its effects on spatial perception of individuals are treated by listening to the whispers of related urban context. This study argues that an urgent sonic awareness to build an integrated spatial experience is required. The dissertation could contribute to both the literature of architecture and everyday actors of the city by attracting attention to the sounds of everyday life. That is, the study reminds the flaneur of the “thereness” of urban whispers on his/her urban trajectory by the help of soundwalk methodology. In terms of the architectural literature, the fact that soundscape as an inbuilt component of the urban context could not be separated from the design, planning and analysis processes of urban life is emphasized. All in all, the thesis contributes to the area of research by proposing soundscape mapping as an alternative documentation tool to trace the spatial perception in urban context.



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## APPENDICES

### The Process of the Soundwalk Procedure

The soundwalk procedure is conducted along the line as Anafartalar Street, Hal Street, Tenekeçiler Street, Çıkırıçılar Yokuşu, Koyun Pazarı Street and At Pazarı Street. Soundwalk line is around a 1,5 km long path and each soundwalk procedure lasts 30 minutes approximately. The soundwalk study had been performed on the defined path in between June 2018 and July 2019. The one year study made it possible to observe the essential seasonal effects on the soundscape interpretation. Besides seasonal effects, the site had been transforming within this year. For example, the demolition of The Undersecretariat of Customs Building on Anafartalar Street in 2018 was critical for soundscape interpretation of the context. The procedure was conducted by the help of 24 anonymous participants. 17 of the total 24 soundwalk procedure was conducted in 2018 and the rest 7 of it was conducted till July 2019. In terms of the seasonal distribution of the soundwalk procedure; 4 of it was in winter, 6 of it was in fall, 5 of it was in spring and 9 of it was conducted in summer season. Author (as myself) and each participant walked the soundwalk line together. The soundwalk was carried out only once with each participant. During each soundwalk with the participants, I recorded the sonic environment by the help of Sony ICD-PX240 sound recorder simultaneously. In the course of soundwalk, participants were asked to register the sounds which attract their attention to be used for the following experiment.

The demographic characteristics of the 24 anonymous participants are as follows:

<b>Participant Number</b>	<b>Sex</b>	<b>Age</b>	<b>Education</b>	<b>Occupation</b>	<b>Insider Outsider</b>
P1	Woman	27	Master Student	Architect	Outsider
P2	Woman	25	Master Student	Architect	Outsider
P3	Woman	22	Undergraduate	Architecture Student	Outsider

P4	Woman	24	Undergraduate	Architecture Student	Outsider
P5	Woman	40	Primary School	Housewife	Insider
P6	Woman	37	High School	Cashier	Insider
P7	Woman	27	Bachelor	Engineer	Outsider
P8	Woman	45	Secondary School	Shopkeeper	Insider
P9	Woman	55	Primary School	Housewife	Outsider
P10	Woman	52	Primary School	Shopkeeper	Insider
P11	Woman	35	High School	Housewife	Insider
P12	Woman	44	Primary School	Shopkeeper	Outsider
P13	Man	19	High School	Student	Outsider
P14	Man	25	Bachelor	Architect	Outsider
P15	Man	23	Undergraduate	Architecture Student	Outsider
P16	Man	28	High School	Greengrocer	Insider
P17	Man	26	High School	Craftsman	Insider
P18	Man	35	Bachelor	Teacher	Outsider
P19	Man	47	Primary School	Shopkeeper	Insider
P20	Man	54	Primary School	Tradesmen	Outsider
P21	Man	39	High School	Shopkeeper	Insider
P22	Man	31	Bachelor	Civil Servant	Outsider
P23	Man	35	High School	Tradesmen	Insider
P24	Man	52	Primary School	Shopkeeper	Insider