

# The Soundscape of Istanbul: Exploring the Public Awareness of Urban Sounds

Pinar Yelmi

**Abstract**—The Soundscape of Istanbul project aims to explore urban sounds of Istanbul since they form a significant part of intangible cultural heritage (ICH) and to protect them by creating an archive for sounds of Istanbul's urban culture. We conducted primary source research followed by an online survey and interviews in order to specify culturally significant urban sounds and to define the archive content. Besides gathering data for archive content, we obtained a pattern demonstrating the level of awareness of urban and cultural sounds of Istanbul from the viewpoint of residents and foreigners. This paper discusses the pattern drawn from the results of the online survey that shows which sounds are primarily recognized and which ones less so, and put forward possible reasons for this outcome. This paper is intended to lay the groundwork for further research on which culturally significant urban sounds need more attention and how to increase awareness of the most important sounds for a sustainable urban culture.

**Index Terms**—Awareness, daily traditions, intangible cultural heritage, sound archive, soundscape, urban sounds.

## I. INTRODUCTION

Culture is reflected in daily life of a society in both its tangible and intangible aspects. Tangible culture includes buildings, monuments, objects, and costumes, while intangible culture includes festivals, music, culinary traditions, oral expressions, and so on [1]. Whereas tangible culture is relatively stable, intangible culture is constantly evolving and being enriched with the contributions of each generation [2]. Both tangible and intangible traditions represent cultural identity and give us a feeling of belonging and identity both to urban space and to society. Intangible culture maintains this connectivity very well as it changes and adapts to society's needs over time. In the Convention for the Safeguarding of Intangible Cultural Heritage in 2003, UNESCO has defined the categories for intangible culture in Article 2 [3] as follows:

- (a) oral traditions and expressions, including language as a vehicle of intangible cultural heritage;
- (b) performing arts;
- (c) social practices, rituals and festive events;
- (d) knowledge and practices concerning nature and the universe;
- (e) traditional craftsmanship.

In line with these categories, sound-generating practices and sonic events—occurring in an environmental context during a specific moment of time [4] form a very strong

human-culture connectivity and hold a very important place in society in general and in urban space in particular. As one of the most significant symbols of cultural identity, human-generated sounds are considered unique ICH elements. In the field of heritage studies, culture has been examined in its various dimensions of sound, such as the acoustic aspects of the Romanesque cathedral of Santiago de Compostela [5] or ethnic music, chants, ceremonial, and so on [6]. This research project highlights the sounds of everyday life in the city of Istanbul, but excludes music because it already represents a heavily researched field.

The soundscape, a term first coined by the Canadian composer R. Murray Schafer, is a sonic landscape, in other words, the total acoustic values related to a certain place. Having conducted detailed research in Canada and across Europe, Schafer published the compiled results in *Our Sonic Environment and the Tuning of the World - The Soundscape*. Among his classification of sounds, exists the category "Sounds and Society," with sub-categories such as "Domestic soundscapes/Kitchen" or "Parks and Gardens/Fountains." There exist also sub-categories such as rural [7]. These categories are very broad; yet, they include extremely rich and varied sonic values. Furthermore, both rural and urban soundscapes deserve to be studied. In this paper, I discuss urban soundscape from the vantage point of intangible cultural heritage, by exploring the cultural sounds of the city of Istanbul.

Departing from Schafer's statement that "every natural soundscape has its own unique tones and often these are so original as to constitute soundmarks" [7], cities can also be considered to have their own unique soundscapes due to their distinct urban culture. Kumi Kato, a Japanese scholar of environmental studies, posits that the soundscape forms an interactive human-urban relationship which produces cultural connectivity [8]. Because cities may host societies inclusive of various ethnicities, religions, political views, languages and so on, urban traditions are formed based on the city residents' lives, and not only the cities' geographical parameters. Thus, we can speak of a cultural soundscape as a very crucial part of urban culture, which can also be referred to as sound heritage. The notion of cultural soundscape has been used while defining the content of a planned Sound Museum of Istanbul [9], whose collection will consist of the sounds and melodies of everyday routines that constitute intangible culture. It is indeed difficult to draw any strict boundaries around what constitutes a cultural soundscape since it may consist of any sound related to urban culture. In the case of Istanbul, these sounds and melodies include the ferries on the Bosphorus, seagulls near the sea shores, the call to prayer, the signature cries of street vendors, pigeons on almost every public square and traffic noises on most of the main streets which can be reached at The Soundscape of Istanbul project website

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P. Yelmi is with Koç University, Istanbul, Turkey (e-mail: pcevikayak@ku.edu.tr).

<https://soundscapeofistanbul.ku.edu.tr/archive>. These daily sounds of Istanbul deserve to be protected as intangible heritage, as they contribute to the city’s unique character.

II. METHODOLOGY: EXPLORING CULTURALLY SIGNIFICANT URBAN SOUNDS OF ISTANBUL BY MEANS OF AN ONLINE SURVEY

Urban sounds form a significant part of intangible cultural heritage; thus they deserve to be protected for a sustainable urban culture. In this context, we initiated The Soundscape of Istanbul project which aims to explore, collect and archive urban and cultural sounds as ICH elements [10].

Urban and cultural values leave a unique mark in both common social memory and in cultural identity. For this reason, we believe that asking society’s opinion is crucial while determining the most significant urban and cultural sounds that need to be protected. Following primary source research, we conducted an online survey and interviews in order to specify the urban sounds to be collected by public contribution. For the interviews, we chose locals randomly within the city. We observed that perception of sounds have a great tendency to change according to location of the survey. Being subjected directly to the city itself, the answers given to the same questions may differ. For example, we interviewed with a Turkish bagel vendor just next to the ferries in Karaköy which is one of the central and historical districts of Istanbul. His answer to the question asking the daily sounds of the neighborhood that he works was only the sounds of waiters which are calling customers “*buyrun, buyrun*” and he insisted on not hearing any sounds related to ferries, sea or anything else during the day. Considering his location and his position, he faces with the waiters all day long and the ferries and the sea are behind him. Thus, he hears only what he sees. Therefore, here I focus only on the results of online survey, and the evaluation of interviews is beyond the aim of this paper since the conditions of the surveys are different.

We conducted the online survey in December 2014, by posting it on an online platform hosted by Koç University, by sending it to such mailing lists as PhD Design List and ETMK (Industrial Designers’ Society of Turkey), and by distributing it with the snowball method. With this survey, we wanted to learn not only Turkish people’s or Istanbulites’ opinions, but also foreigners’ and tourists’ even if they haven’t visited the city before. Therefore, the online survey was open to both locals and foreigners with access to internet and the survey questions were bilingual (Turkish

and English) [10].

As shown in Fig. 1, we assumed that there are eight categories of participants regarding their familiarity with the culture and with the city: Turkish people who currently live in Istanbul, Turkish people who used to live in Istanbul, Turkish people who have visited Istanbul, Turkish people who have never been to Istanbul, foreigners who currently live in Istanbul, foreigners who used to live in Istanbul, foreigners who have visited Istanbul, and foreigners who have never been to Istanbul.

The criterion for familiarity with the culture is basically set according to cultural background; i.e. whether one is from Turkey or not. Cultural background is a key factor in perceiving other cultures. Coming from outside of any culture may result in realizing different urban or cultural values than those who are already in the culture. The perception may even differ depending on which cultural background one belongs. On the other hand, the criterion for familiarity with the city is set according to location of residency; i.e. whether one currently lives/have lived before in Istanbul or not. When setting this criterion, it is assumed that it is quite difficult to know a city deeply without actually living there. Even if you live there, it may be hard to know well but at least more information can be gained while living. There might have been some exceptions among the survey respondents; however we believe that these criteria are fair enough for our research purposes.

The categories of participants are very important as the perception of culture may alter accordingly. In the online survey, we asked questions about the familiarity with the culture, further information on cultural origin, demographic information, questions about familiarity with the city, thought-provoking questions about urban and cultural sounds, symbolic sounds of Istanbul, and a question for further exploration on identifying symbolic sounds. The flow of survey questions was structured according to respondents’ knowledge of Istanbul and its culture (see App.1).

“Where are you from?”, which is a bilingual question, is the first main question of the survey for determining the familiarity with culture. There are two options; respondents can select either “Turkey” or “Other”. The respondents who select “Turkey” come across only Turkish questions and those who select “Other” come across only English questions from this point on. With this question, we can determine the main two groups: familiar with the culture and unfamiliar with the culture.

	Familiar with the culture	Unfamiliar with the culture
Familiar with the city	1. Turkish people who currently live in Istanbul	5- Foreigners who currently live in Istanbul
	2. Turkish people who used to live in Istanbul	6- Foreigners who used to live in Istanbul
Unfamiliar with the city	3. Turkish people who have visited Istanbul	7- Foreigners who have visited Istanbul
	4. Turkish people who have never been to Istanbul	8- Foreigners who have never been to Istanbul

Fig. 1. Categories of participants.

		TOTAL: 421 participants																																													
Familiarity with culture	Turkey: 370				Country of origin				Other: 51																																						
	Those who currently live in Istanbul: 285				Other: 85				Those who currently live in Istanbul: 11				Other: 40																																		
Familiarity with city	How long have you been living in this neighborhood?				Have you ever lived in Istanbul before?				How long have you been living in this neighborhood?				Have you ever lived in Istanbul before?																																		
					Yes: 52				No: 33																																						
	How long have you been living in this neighborhood?				Have you ever been to Istanbul before for such purposes as business, tourism, etc.?				How long have you been living in this neighborhood?				Have you ever been to Istanbul before for such purposes as business, tourism, etc.?																																		
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Fig. 2. Survey results.

If “Other” is selected, country of origin is asked for further exploration of cultural background as there may be a relation with cultural background and identified sounds.

Then, gender and age are asked to both main groups in order to gather demographic information about the survey participants. Both of the questions have options, for gender there are three options namely, “female”, “male”, “other” and for age there are six options namely, “under 17”, “18-25”, “26-34”, “35-54”, “55-64”, “65 or over”. Thus, we have an idea about participants’ genders and age periods.

Demographic exploration is followed by a set of questions for understanding the familiarity with the city. First question of the set is “In which city do you live in right now?”. There are two options: “Istanbul” and “Other”. If “Istanbul” is selected, the neighborhood that they currently live in and how long they have been living there are asked. If “Other” is selected, they are asked if they have lived in Istanbul before. There are again two options: “Yes” and “No”. If “Yes” is selected, the neighborhood that they have lived in before and how long they have lived there are asked. If “No” is selected, they are asked if they have ever been to Istanbul before for any reason. This set of questions is asked to both main groups with the intention of determining sub-groups according to familiarity with the city. Therefore, both Turkish people and foreigners who currently live or have lived before in Istanbul are considered familiar with the city, and those who have visited Istanbul or have never been there before are considered unfamiliar with the city.

To those who are familiar with the city, i.e. those who currently live or have lived in Istanbul before, two thought-provoking questions are asked: “Could you please write down the sounds that you hear in open spaces when you consider your daily life in your neighborhood?” and “Could you please write down the sounds that you hear in open spaces according to categories below, when you consider your daily life?” Furthermore, we provide extra sections for both questions in order to make survey participants think about sounds that they hear every day from different aspects. For the first question, we provide seven sections exploring sounds that are heard frequently, rarely, sounds that are liked, sounds that are found annoying, relaxing, unique sounds of neighborhoods and other. On the other hand, for the second question, we provide six sections exploring sounds related to food and drink, transportation, entertainment and activities, religion, special days (festival, etc.) and other. With the help of these extra sections, we may have the chance to gather a great variety of responses for urban

and cultural sounds. The reason of asking these questions to both groups that currently live and have lived before is to have an idea about the changes in urban spaces and urban culture over time.

Final question is the common question that is asked to all categories of participants with the purpose of exploring symbolic sounds of Istanbul: “Which sounds, do you think, define the city of Istanbul best? Could you please give at least 3 examples?” With this question, we can determine the most symbolic sounds of Istanbul to be collected and archived. Moreover, we can compare the responses given by each category of participants which may result in exploring how perception and awareness of urban and cultural sounds differ according to familiarity with the culture and with the city as predicted at the beginning of the survey.

Finally, there is a very last question which is asked to only those who have never been to Istanbul before and give an answer for the symbolic sounds of the city: “What is the reason of writing these sounds despite not being in Istanbul before?” This question investigates how the city of Istanbul is recognized with its sounds by the people who have not been before. Thus, answers given to this question may provide clues about catchy and prominent urban values.

### III. RESULTS

This research aims to determine the city’s soundmarks, defined as “by analogy to landmarks, are highly unique sounds specific to a certain locale and often affectionately regarded by the public” by Barry Truax [11], which deserve to be protected as ICH elements for a sustainable cultural development. We conducted an online survey and distributed it to a great variety of people to gather opinions of different profiles such as locals, foreigners, those who currently live in Istanbul, who used to live in Istanbul, who have visited the city, or who may not yet have been to Istanbul as different backgrounds may result in diverse responses. Exploring the most characteristic urban sounds with this method, we also came across a pattern which demonstrates how perception and awareness of urban culture changes among different groups.

This research was conducted according to responses of 421 online survey participants, 370 of which are from Turkey and the rest are from Algeria (1), Australia (2), Austria (1), Belgium (2), Bulgaria (1), Canada (2), Colombia (3), Czech Republic (1), Finland (2), Germany (3), Greece (3), India (2), Iran (1), Italy (3), Mexico (1), The Netherlands

(1), New Zealand (1), Norway (2), Portugal (3), Spain (2), Sweden (1), Tunisia (1), United Kingdom (4), and United States of America (8). Among the respondents, there are 244 women, 172 men and the rest select the “Other” option for gender. As for the age, 4 participants select “under 17”, 126 select “18-25”, 198 select “26-34”, 59 select “35-54”, 13 select “55-64” and 21 select “65 and over” age groups [10]. The results of the questions for determining familiarity with the culture and with the city are demonstrated in Fig. 2.

With thought-provoking questions asked to only those who considered as familiar with the city and with the common question asked to all categories on symbolic sounds of Istanbul, we had a very detailed data on sounds that are heard in neighborhoods and a list of characteristic sounds of the city. The answers given to these questions were very beneficial for us to determine urban and cultural sounds that need to be recorded and archived. We also obtained information on the locations of the sounds which was very useful in planning field recordings. According to the sound list that we gathered from survey results, we conducted field recordings throughout the year 2015 and recorded more than 200 sounds. All recorded sounds are now protected in a publicly accessible archive in Koç University Suna Kıraç Library Digital Collections (<http://digitalcollections.library.ku.edu.tr/cdm/landingpage/collection/SOI>).

There is only one Turkish respondent who has never been to Istanbul before and his answer is invalid for the question exploring the symbolic sounds. So we also do not evaluate his answer to the very last question asking the reasons of writing symbolic sounds of Istanbul despite not having been there. Whereas, there are 18 foreigner participants who have never been to Istanbul before and wrote several symbolic sounds. The reasons why they wrote those sounds include hearing from friends, relatives, family members who have been to Istanbul before, from commercials and tourism agencies, from movies, internet, books, and without any concrete basis.

Here, I focus on the common question on defining the symbolic sounds, “Which sounds, do you think, define the city of Istanbul best? Could you please give at least 3 examples?”, and leave further data to future studies. Among the answers to this question, 16 specific sounds and sonic events constituted the most common, as shown in Fig. 3. The percentages, on the other hand, reveal the fact that which of these soundmarks are more commonly known and which of them are less recognized.

%18 Traffic and car horns
%13 Ferries
%12 Crowds
%11 Seagulls
%9 Street vendors (turkish bagel vendors, vendors of roasted chestnuts, boza sellers and other sellers)
%8 Call to prayer
%5 Sea and waves
%5 Animals (cats, dogs, birds)
%3 Music from shops
%3 Sirens and announcements
%3 Nostalgic tram
%2 Markets and Bazaars
%2 Cultural activities (tea, narghile, backgammon, kokoreç and others)
%2 Street musicians
%2 Construction
%1 Church bells
%1 Others (horse-drawn carriages and others)

Fig. 3. Symbolic sounds of Istanbul according to the common question.

Therefore, besides playing an important role in determining the archive content, the online survey also helped us in exploring answers to following questions: “In how far are people aware of culturally significant urban sounds?”, “What are the sounds of which they are aware the most?” and “What are the possible reasons of perceiving different sounds among different groups?”.

#### IV. DISCUSSION: AWARENESS OF URBAN SOUNDS

As mentioned above, we have also the chance to observe and compare how familiarity with the culture and with the city may alter the awareness and perception of urban sounds by means of the common question as it is asked to all categories of participants. The answers of all categories of participants are indicated as tables (see App.2). However, the fourth group (Turkish citizens who have never been to Istanbul) contained only one respondent, and his answer was invalid; thus we do not have data for this group.

As it can be seen from the tables above, traffic noise, car horns and the hubbub of crowds are the most determinative sounds, in almost every group, even among foreigners who had never been to Istanbul. Some respondents complain about the noise of traffic, of the crowds and of the construction sites by using such phrases as “disturbing traffic noises” and “unfortunately lots of construction noise”. Therefore, it can be inferred that these sounds are the loudest, most frequent and least liked sounds.



Fig. 4. Simit ç (Turkish bagel vendor).

Turkish citizens who currently live in Istanbul and those who have lived in Istanbul before mostly identify sounds such as ferries and seagulls in the second place. However, foreigners who currently live or have previously lived in Istanbul mostly mention the sounds of street vendors and the call to prayer in the second place. Although there is a slight difference, this result demonstrates that foreigners’ attention is mostly attracted by unfamiliar sound events that are not necessarily part of their original cultural frame of reference. Volume/loudness and frequency are other main factors. For example, street vendors and the call to prayer are the loudest among the sound events generated in everyday practice. Being one of the most significant symbols of Islam, the call



to prayer is broadcast five times a day from hundreds of Istanbul's mosques. Street vendors hawk their goods with distinctive cries and melodies to attract potential buyers' attention. In less developed and developing countries, street peddling is a common occupation for those who cannot find employment in the formal sector [12]; in Turkey, it is very common to see street peddlers everywhere [13], selling food such as: *boza* (a traditional Turkish winter drink, made from yeast and lactic acid bacteria fermentation of millet, cooked maize, wheat, or rice semolina/flour [14]), *simit* (a bagel-shaped bread with sesame [15]) (Fig. 4)<sup>1</sup>, roasted chestnuts, corn, and so on. What the call to prayer and street vendors have in common is that they both become foreground sounds at the time of action. We include Turkish bagel vendors, vendors of roasted chestnuts, *boza* sellers, and all the other vendors in a one category, which is street vendors. Although this category is mentioned rather commonly as a whole (by %9 of all participants), it is seen that the percentages are very low when the items are analyzed one by one (Turkish bagel vendors %2, vendors of roasted chestnuts %0.3, *boza* sellers %0.7, and all the other sellers %6). Particularly these three vendors are considered significant cultural heritage according to our primary source research conducted before the online survey. According to results, awareness of these sounds is very low despite being culturally significant.



Fig. 5. Kokore ç

In the category of cultural activities, neither Turkish nor foreign participants mention many relevant sounds, such as those related to *kokore ç*, tea, *narghile* (hubly bubbly), backgammon and so on. *Kokore ç* (Fig. 5) is a street food of grilled intestine and served chopped and with red pepper, salt and oregano. It goes well with beer and is usually eaten at night [16]. The sonic value of *kokore ç* comes from its preparation process -- a musical symphony for the stomach, played by the street peddler while chopping it with a semi-circular knife on a thick wooden cutting board [17]. Tea has been a very important element in Turkish cuisine since the 19th century; almost everyone starts the day with a glass of tea and drinks it throughout the day, and it is also commonly offered to guests [18]. Tea is drunk with sugar cubes added. Particularly in tea houses, the stirring of sugar in the thin-walled glasses results in a musical harmony of clinking spoons. *Narghile*, *tavla* (backgammon), and playing cards are traditional elements of *kahvehane* (coffee house) visits.

With the introduction of coffee to the Ottoman Empire in the 16th century, the first coffee houses were opened in the Tahtakale district of Istanbul [19]. Coffee houses have never functioned for coffee consumption alone, but always as a meeting point where people share knowledge and find inspiration for art and literature production. Since the 19th century, however, coffee house clients have more commonly turned to entertainment and games such as okey (tile-based game similar to mah jong), backgammon, brigde, *bezik* (card game) and so on, while drinking *çay* (tea) (Fig. 6) or *türk kahvesi* (Turkish Coffee) and smoking cigarettes or *narghile* (water pipe). Therefore, the soundscapes of coffee houses include the sounds of playing tiles, dice and cards, accompanied by the musical harmony of tea spoons hitting tea glasses and bubbling water in *narghile* bottles. These sounds are relatively quieter than those of street vendors and the call to prayer, but the frequency with which they occur in the respective locations is much higher. Being audible almost any time, they are considered keynote sounds [7] that form a sonic background. For example, clinking spoons are heard very intensely in tea gardens, and because it is a relatively quiet sound, it is perceived as background, even though it is one the most significant cultural values of Turkish culture [20]. Therefore, sounds related to tea, backgammon, *narghile* and *kokore ç* are mentioned by %2 of the participants in total, which is again very low despite being culturally significant.



Fig. 6. Çay (Turkish tea).

The bells of the so-called "nostalgic tramway" can be considered as a significant sonic dimension of Istanbul's cultural heritage. There are only two nostalgic tramways left in Istanbul: the Taksim-Tünel line and the Kadıköy-Moda line. The Kadıköy-Moda line is immersed in dense traffic, so this may be a reason why the respondents mentioned only the Taksim-Tünel line. Another reason may be its history. The Taksim-Tünel line has been working since 1914 and is one of the oldest tramways in Turkey [21]. Therefore, the acoustic dimension of this nostalgic tramway (Fig. 7) is a very significant cultural heritage. However, very few respondents mention (%3 of all participants) the nostalgic tramway bells, which means that there is little concrete awareness of it, although it is one of the soundmarks of the central entertainment district of Taksim.

<sup>1</sup> Fig. 4, 5, 6, and 7 are photographs from the archive of The Soundscape of Istanbul project.



Fig. 7. Nostalgic tramway.

The categories of sea and waves, church bells, markets and bazaars, sirens and announcements, animals (cats, dogs, birds), construction, street musicians, and music from shops are distributed in various orders in each group's answers. This order is likely to change according to the respondent's personal interests and the locations to which they have been exposed. Sounds to which we listen carefully depend both on our state at that moment and our own cognitions, such as memories, ideas, feelings, attitudes, values, preferences, and the like [22]. Or we pay attention to sounds that give us important information at the moment, such as the sound of cars when crossing the street, but we do not pay attention to the same sounds when chatting with a friend on a street corner [23]. Among these categories, market and bazaars carry great importance in terms of cultural heritage which still continue in contemporary urban life. However, %2 of the participants mention the sonic values of markets and bazaar, which are indeed very rich in variety and unique.

In the last category, others, there are several sonic values mentioned by a very few people so that we did not include them in the tables prepared separately for each group. For example, horse-drawn carriages, which are soundmarks of Prince's Islands in Istanbul [10], are mentioned by only two participants. Despite being a very rooted tradition and having such a determinative sonic value, it is not realized by so many people.

Overall, it is also possible to put forward some differences between the groups who are familiar with the culture and who are not, and who are familiar with the city and who are not. Considering familiarity with the culture, it can be said that coming from a different cultural background may result in observing and in perceiving the urban fabric with diverse aspects. On the other hand, those who are unfamiliar with the city (both Turkish and foreign participants who have only visited Istanbul or have never been before) mention cultural sounds more than those who are familiar with the city (both Turkish and foreign participants who currently live or have lived in Istanbul before). This result indicates that city residents are so much immersed in the lifestyle that they are no longer aware of its sonic dimensions. This situation can be explained by the Habituation Theory: "*Habitua-*

*tion involves our becoming accustomed to a stimulus so we gradually pay less and less attention to it*" [24]. Therefore, it can be inferred that compared to locals, tourists are somewhat more aware of sounds as they observe the unfamiliar city with open senses.

To sum up, although sounds are ubiquitous that are encountered every day, several sounds are generally perceived unconsciously and do not attract much attention, even though they constitute very significant values in terms of intangible cultural heritage, such as Turkish bagel vendors, vendors of roasted chestnuts, *boza* sellers, tea, *kokoreç*, *narghile*, backgammon, the nostalgic tramway, markets and bazaars and horse-drawn carriages. Indeed, they are valuable components of intangible culture which deserve to be protected. The preservation of these cultural values is only possible by increasing public awareness as intangible culture lives within the society. Therefore, these ten culturally significant sounds need to receive more public awareness for a sustainable cultural memory and cultural identity.

## V. CONCLUSION

Sounds are integral parts of urban spaces, cultures, traditions, history, and memories. Sounds promote connectivity not only with culture, but also with location. Once sounds disappear, the connectivity may be lost. This emotional and conceptual link only continues to exist as long as the cultural sounds are maintained. The sustainability of these sounds can be achieved by increasing public awareness and consciousness.

This paper discusses the results of an online survey that we conducted concerning the urban and cultural sounds of Istanbul. The online survey aimed to determine the sonic values of the city of Istanbul which needs to be protected. Addressing the responses of online survey participants, public awareness of culturally significant sounds can also be evaluated. According to the results, not many people are conscious of the culturally important sounds, such as several street vendors (Turkish bagel vendors, vendors of roasted chestnuts, *boza* sellers), tea, *narghile*, *kokoreç*, backgammon, the nostalgic tramway, markets and bazaars, and horse-drawn carriages. In order to protect these sonic values for a sustainable cultural memory, the ways of raising awareness for urban and cultural sounds need to be explored. The more people are reached, the more awareness is increased of these sounds. Considering these, I suggest holding an exhibition on sounds. Since one of the most effective ways of creating awareness of something is experiencing it personally, an experiential exhibition can be designed in which visitors will focus on the sounds. Thus, they will have the opportunity to think about cultural sounds and understand their significance. The survey, hopefully, will lay the groundwork for further research on exploring ways of increasing public awareness on cultural sounds.

## APPENDIX

Appendix.1 - Survey structure

Appendix.2 - Tables of results according to all categories of participants

ACKNOWLEDGMENT

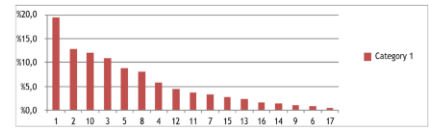
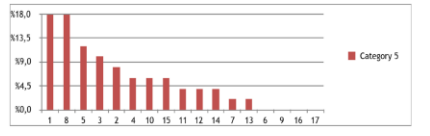
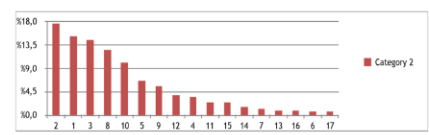
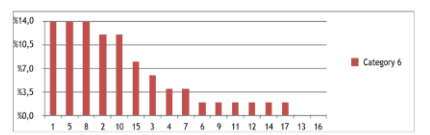
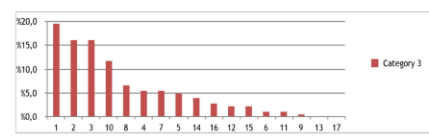
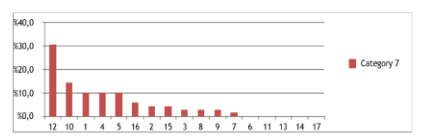
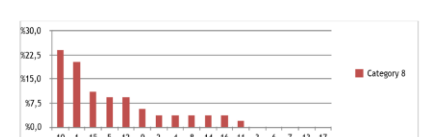
I would like to thank to Assoc. Prof. Nina Ergin, Assoc. Prof. Sertaç Kaki and Assoc. Prof. Asım Evren Yantaç for their valuable contributions and comments.

APPENDIX 1 - SURVEY STRUCTURE

RESEARCH AIMS	QUESTIONS			
Familiarity with culture	1- Neredensiniz? / Where are you from? Türkiye / Turkey (If "Turkey" is selected, rest of the questions are in Turkish) Diğer / Other (If "Other" is selected, rest of the questions are in English)			
Further exploration on cultural origin			2- Select your country of origin (dropdown menu - all countries)	
Demographic information	2- Cinsiyetiniz (What is your gender?) (Female, Male, Other)		3- What is your gender? (Female, Male, Other)	
	3- Kaç yaşındasınız? (How old are you?) (Under 13, 13-17, 18-25, 26-34, 35-54, 55-64, 65 or over)		4- How old are you? (Under 13, 13-17, 18-25, 26-34, 35-54, 55-64, 65 or over)	
Familiarity with city	4- Şu anda hangi şehirde ikamet ediyorsunuz? (In which city do you live in right now?) İstanbul Other		5- In which city do you live in right now? İstanbul Other	
	5- Şu anda ikamet ettiğiniz semti seçiniz. (Select the neighborhood that you currently live in) (dropdown menu - all neighborhoods in Istanbul)		6- Have you ever lived in Istanbul before? Yes No	
	6- İstanbul'da daha önce ikamet ettiğiniz ilçeyi seçiniz. (Select the neighborhood that you lived in before) (dropdown menu - all neighborhoods in Istanbul)		6- Daha önce hiç iş, gezi vb. amaçlarla İstanbul'da bulundunuz mu? (Have you ever been to Istanbul before for such purposes as business, tourism, etc.?) Yes No	
	6- Kaç yıldır belirttiğiniz ilçede yaşıyorsunuz? (How long have you been living in this neighborhood?) (Less than 1 year, 1-5 years, 5-10 years, More than 10 years)		7- How long have you been living in this neighborhood? (Less than 1 year, 1-5 years, 5-10 years, More than 10 years)	
Thought-provoking questions for urban and cultural sounds to those who are already familiar with the city	7- Yukarıda belirttiğiniz bu ilçedeki günlük yaşantınızı düşündüğünüzde aklınıza gelen, açık alanda duyduğunuz sesleri yazar mısınız? (Could you please write down the sounds that you hear in open spaces when you consider your daily life in this neighborhood?) (Text entry question: Sounds that you hear frequently, Sounds that you hear rarely, Sounds that you like, Sounds that you find annoying, Sounds that you find relaxing, Unique sounds for the neighborhood, Other)		8- Yukarıda belirttiğiniz bu ilçedeki günlük yaşantınızı düşündüğünüzde aklınıza gelen, açık alanda duyduğunuz sesleri yazar mısınız? (Could you please write down the sounds that you hear in open spaces when you consider your daily life in this neighborhood?) (Text entry question: Sounds that you hear frequently, Sounds that you hear rarely, Sounds that you like, Sounds that you find annoying, Sounds that you find relaxing, Unique sounds for the neighborhood, Other)	
	8- İstanbul'daki günlük hayatınızı (iş, alışveriş, haftasonu vb.) düşündüğünüzde aklınıza gelen, açık alanda duyduğunuz sesleri aşağıdaki kategorilere göre ayırır mısınız? Lütfen nerede duyduğunuzu belirtiniz. (Could you please write down the sounds that you hear in open spaces according to categories below, when you consider your daily life (business, shopping, leisure etc.) in Istanbul? Please specify the locations where you hear them.) (Text entry question: Food & drink, Transportation, Entertainment & activities, Religious, Special days (festivals, etc.), Other)		9- İstanbul'daki günlük hayatınızı (iş, alışveriş, haftasonu vb.) düşündüğünüzde aklınıza gelen, açık alanda duyduğunuz sesleri aşağıdaki kategorilere göre ayırır mısınız? Lütfen nerede duyduğunuzu belirtiniz. (Could you please write down the sounds that you hear in open spaces according to categories below, when you consider your daily life (business, shopping, leisure etc.) in Istanbul? Please specify the locations where you hear them.) (Text entry question: Food & drink, Transportation, Entertainment & activities, Religious, Special days (festivals, etc.), Other)	
Exploration of symbolic sounds of Istanbul	9- Sizde İstanbul'u en iyi tarif eden sesler nelerdir? En az 3 tane örnek yazar mısınız? (Which sounds, do you think, defines the city of Istanbul best? Could you please give at least 3 examples?) (Text entry question)		10- Sizde İstanbul'u en iyi tarif eden sesler nelerdir? En az 3 tane örnek yazar mısınız? (Which sounds, do you think, defines the city of Istanbul best? Could you please give at least 3 examples?) (Text entry question)	
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Further exploration on symbolic sounds from those who are not familiar with the city			8- Hiç İstanbul'da bulunmamış olmanıza rağmen bu sesleri yazmanızın nedeni nedir? (What is the reason of writing these sounds despite not being in Istanbul before?) (Text entry question)	
			9- What is the reason of writing these sounds despite not being in Istanbul before? (Text entry question)	



APPENDIX 2 - TABLES OF RESULTS ACCORDING TO ALL CATEGORIES OF PARTICIPANTS

<p>1- Turkish citizens who currently live in Istanbul</p> <table border="1"> <thead> <tr> <th>sounds</th> <th>percentage</th> </tr> </thead> <tbody> <tr><td>1 Traffic and car horns</td><td>§19,4</td></tr> <tr><td>2 Ferries</td><td>§12,8</td></tr> <tr><td>10 Crows</td><td>§12,1</td></tr> <tr><td>3 Seagulls</td><td>§11,0</td></tr> <tr><td>5 Call to prayer</td><td>§8,8</td></tr> <tr><td>8 Street vendors</td><td>§8,0</td></tr> <tr><td>4 Sea and waves</td><td>§5,8</td></tr> <tr><td>12 Animals</td><td>§4,5</td></tr> <tr><td>11 Sirens and announcements</td><td>§3,7</td></tr> <tr><td>7 Nostalgic tram</td><td>§3,3</td></tr> <tr><td>15 Music from shops</td><td>§2,7</td></tr> <tr><td>13 Construction noise</td><td>§2,4</td></tr> <tr><td>16 Cultural activities</td><td>§1,7</td></tr> <tr><td>14 Street musicians</td><td>§1,4</td></tr> <tr><td>9 Markets and bazaars</td><td>§1,0</td></tr> <tr><td>6 Church bells</td><td>§0,8</td></tr> <tr><td>17 Others</td><td>§0,6</td></tr> </tbody> </table> 	sounds	percentage	1 Traffic and car horns	§19,4	2 Ferries	§12,8	10 Crows	§12,1	3 Seagulls	§11,0	5 Call to prayer	§8,8	8 Street vendors	§8,0	4 Sea and waves	§5,8	12 Animals	§4,5	11 Sirens and announcements	§3,7	7 Nostalgic tram	§3,3	15 Music from shops	§2,7	13 Construction noise	§2,4	16 Cultural activities	§1,7	14 Street musicians	§1,4	9 Markets and bazaars	§1,0	6 Church bells	§0,8	17 Others	§0,6	<p>5- Foreigners who currently live in Istanbul</p> <table border="1"> <thead> <tr> <th>sounds</th> <th>percentage</th> </tr> </thead> <tbody> <tr><td>1 Traffic and car horns</td><td>§18,0</td></tr> <tr><td>8 Street vendors</td><td>§18,0</td></tr> <tr><td>5 Call to prayer</td><td>§12,0</td></tr> <tr><td>3 Seagulls</td><td>§10,0</td></tr> <tr><td>2 Ferries</td><td>§8,0</td></tr> <tr><td>4 Sea and waves</td><td>§6,0</td></tr> <tr><td>10 Crows</td><td>§6,0</td></tr> <tr><td>15 Music from shops</td><td>§6,0</td></tr> <tr><td>11 Sirens and announcements</td><td>§4,0</td></tr> <tr><td>12 Animals</td><td>§4,0</td></tr> <tr><td>14 Street musicians</td><td>§4,0</td></tr> <tr><td>7 Nostalgic tram</td><td>§2,0</td></tr> <tr><td>13 Construction noise</td><td>§2,0</td></tr> <tr><td>6 Church bells</td><td>§0,0</td></tr> <tr><td>9 Markets and bazaars</td><td>§0,0</td></tr> <tr><td>16 Cultural activities</td><td>§0,0</td></tr> <tr><td>17 Others</td><td>§0,0</td></tr> </tbody> </table> 	sounds	percentage	1 Traffic and car horns	§18,0	8 Street vendors	§18,0	5 Call to prayer	§12,0	3 Seagulls	§10,0	2 Ferries	§8,0	4 Sea and waves	§6,0	10 Crows	§6,0	15 Music from shops	§6,0	11 Sirens and announcements	§4,0	12 Animals	§4,0	14 Street musicians	§4,0	7 Nostalgic tram	§2,0	13 Construction noise	§2,0	6 Church bells	§0,0	9 Markets and bazaars	§0,0	16 Cultural activities	§0,0	17 Others	§0,0
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<p>4- Turkish citizens who have never been to Istanbul</p> <p>There is only one Turkish participant who hasn't been to Istanbul before, and he hasn't written any sound related answers.</p>	<p>8- Foreigners who have never been to Istanbul</p> <table border="1"> <thead> <tr> <th>sounds</th> <th>percentage</th> </tr> </thead> <tbody> <tr><td>10 Crows</td><td>§24,1</td></tr> <tr><td>1 Traffic and car horns</td><td>§20,4</td></tr> <tr><td>15 Music from shops</td><td>§11,1</td></tr> <tr><td>5 Call to prayer</td><td>§9,3</td></tr> <tr><td>12 Animals</td><td>§9,3</td></tr> <tr><td>9 Markets and bazaars</td><td>§5,6</td></tr> <tr><td>2 Ferries</td><td>§3,7</td></tr> <tr><td>4 Sea and waves</td><td>§3,7</td></tr> <tr><td>8 Street vendors</td><td>§3,7</td></tr> <tr><td>14 Street musicians</td><td>§3,7</td></tr> <tr><td>16 Cultural activities</td><td>§3,7</td></tr> <tr><td>11 Sirens and announcements</td><td>§1,9</td></tr> <tr><td>3 Seagulls</td><td>§0,0</td></tr> <tr><td>6 Church bells</td><td>§0,0</td></tr> <tr><td>7 Nostalgic tram</td><td>§0,0</td></tr> <tr><td>13 Construction noise</td><td>§0,0</td></tr> <tr><td>17 Others</td><td>§0,0</td></tr> </tbody> </table> 	sounds	percentage	10 Crows	§24,1	1 Traffic and car horns	§20,4	15 Music from shops	§11,1	5 Call to prayer	§9,3	12 Animals	§9,3	9 Markets and bazaars	§5,6	2 Ferries	§3,7	4 Sea and waves	§3,7	8 Street vendors	§3,7	14 Street musicians	§3,7	16 Cultural activities	§3,7	11 Sirens and announcements	§1,9	3 Seagulls	§0,0	6 Church bells	§0,0	7 Nostalgic tram	§0,0	13 Construction noise	§0,0	17 Others	§0,0																																				
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**Pinar Yelmi** was born in Istanbul in 1985. Yelmi received her bachelor's degree from industrial design at Middle East Technical University (Ankara, Turkey, 2008) and her master's degree from Visual Communication Design at Politecnico di Milano (Milano, Italy, 2012). Yelmi is currently PhD Candidate at Design, Technology and Society program in Koç University

(Istanbul, Turkey).

She worked as industrial designer and graphical designer before her academic career. Her studies on the sounds of Istanbul have started during her Master's education. Having discovered the richness of cultural sounds in Istanbul, she decided to conduct further research under a PhD program. She conducted "The Soundscape of Istanbul" project (<https://soundscapeofistanbul.ku.edu.tr>) which is located at the intersection of soundscape studies, intangible cultural heritage, museum studies, sensory studies, interaction design, experience design, exhibition design and participatory design. Her project, being first of its kind in Turkey, is also shared with Europeana Sounds which makes efforts towards protecting Europe's sound heritage. Finally, she initiated a crowdsourced project (<http://soundsslike.com>) to turn her research project into a global action. She also designs exhibitions to display her projects in various cities.

PhD Candidate Yelmi has two awards: one from industrial design area and the other from graphical design.