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Sonic Memories: towards a participatory memory archive

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This short paper puts forward the outcomes of the workshop related to information visualization for the archive of memories linked to urban soundscapes. Memories as well as urban soundscapes are integral parts of cultural heritage and deserve to be protected for maintaining cultural identity. It becomes very urgent to start protecting especially those which are at risk of getting lost in current daily life conditions that have been changed due to the pandemic. This study was carried out by employing a collaborative visualization design workshop method which is a user-centred workshop structure for gathering ideas on information visualization. The main contributions of this paper are (1) evaluating the method used in this study and offering further adaptations for general use of design researchers in the field, and (2) discussing the outcomes of the study which may be beneficial for researchers working at the intersection of cultural heritage studies and design.

Keywords: information visualization; human-centred design; archive; cultural heritage

1 Introduction

Culture is sum of daily life behaviors, traditions, sayings, festivals, architecture, etc. of a society. When culture is considered, urban sounds need to be paid attention as they are integral parts of a society's daily life (Kato, 2009) (Yelmi, 2016). Urban sounds represent cultural identity and connect people to their living space through auditory experiences and invoking memories. Sounds also contribute to cultural memory as well as to individual memories (Bijsterveld & van Dijck, 2009) which have a crucial role in shaping cultural identity especially when they are related to certain places, events, and traditions. Therefore, memories related to urban sounds, which I name as sonic memories throughout this paper, deserve to be collected and protected since they are part of cultural heritage.

With the pandemic, there have been changes in societies' daily life practices. Some of them are disappearing while some new practices are appearing. Both disappearing and appearing practices contribute to urban soundscapes. This change in urban soundscapes is happening very fast, therefore; the ones that are disappearing are at risk of getting lost and the memories attached to them may be

forgotten. For this reason, an archive for the memories related to urban soundscapes needs to be formed as expeditiously as possible before they are lost.

Sonic memories are intended to be gathered and protected in an archive as an extension of The Soundsslike Project (soundsslike.com), which initiated with the aim of collecting and archiving representatives of urban sounds of Istanbul in an interactive and sustainable platform (Yelmi, Kuscu & Yantac, 2016). This crowdsourced sound heritage archive is aimed to be enriched with memories related to previously uploaded urban sound recordings. Besides, Sonic Memories project contributes also to other fields within sound heritage such as oral history and accents & dialects (British Library, 2021) (Yelmi, 2017). This project offers collecting memories related to urban sounds and presenting these memories in an archive with a user-friendly and functional interface. Samples of urban sounds have been collected and archived previously. With this project, memories attached to these specific sounds will be collected and a new interface will be developed to present these memories. Therefore, a single interface will serve both for collecting and presenting memories. For this, I conducted a collaborative workshop which contributes with ideas on information visualization and enables taking design decisions together with the participants. Current approaches in data visualization field mainly focus on the data itself rather than user needs (Huron, et al., 2017) (Huron, et al., 2016). For a sustainable system, however, it is needed to identify users, their motivations when sharing the memories and expectations from the archive. Therefore, a method which places user and user needs in the focus would be more appropriate for the study.

I conducted this pilot study by employing ColVis method, which is a collaborative visualization design workshop, to gather ideas about how to collect memories and how to visualize an archive of sonic memories. This workshop structure provides a background for taking design decisions together with experts of information visualization and sound engineers on different levels such as identifying users of future archive, determining their goals, understanding possible patterns among memories, and brainstorming on visualization ideas.

2 Method

As pilot study, I employed ColVis method which is a workshop structure formulated to create a guideline for collaborative data visualization workshops with diverse groups to collect problems, needs, perspectives and suggestions for the related data-driven context (Çay, Nagel & Yantaç, 2020). Researchers who were working on this method, adapted this workshop structure for Sonic Memories project considering the needs of the research and prepared a detailed moderator guide including phases and steps with recommendations based on their previous experience. In addition to exploring ways of visualizing the archive, this workshop also aimed to brainstorm on different types of data that the archive might potentially have and how to collect the dataset of such an archive.

There were 7 workshop participants: 4 designers, 1 engineer and 2 sound professionals (4 female and 3 male). The workshop took 5.5 hours including ten-minute breaks between each section (5 sections in total). This workshop followed the general structure of a design thinking workshop, first defining problem space followed by defining the solution space. There were five phases, 1-User, 2-Goal, 3-Questions and Tasks, 4-Data, and 5-Visualization (see Figure 1). First three phases were activities for defining the problem and the last two were related to generating solutions.

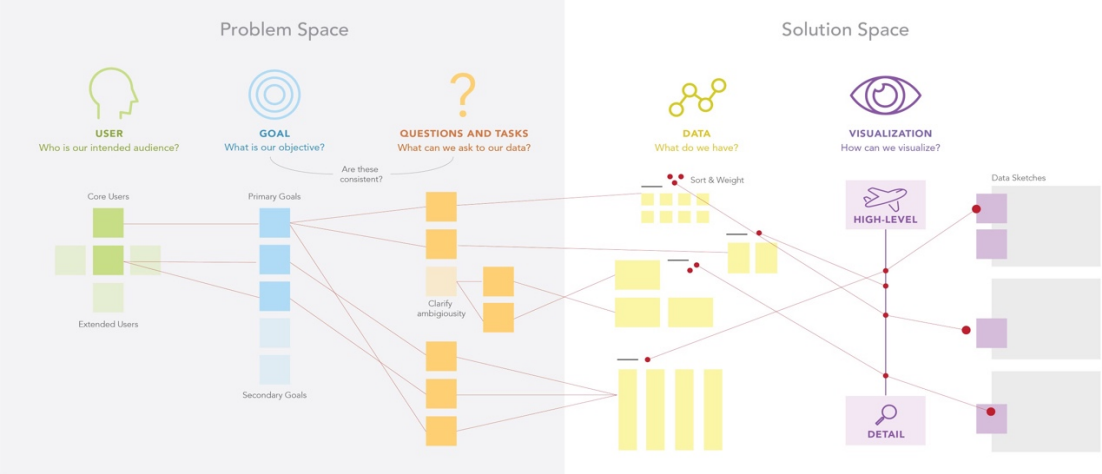

Figure 1. Schema of the Workshop Structure (prepared by the ColVis method developers for Sonic Memories workshop).

After a ten-minute introduction about the Sonic Memories project, archive of urban sounds, workshop structure, goal of the workshop and the way of discussion, we started with the first phase (User) in which the participants had brainstorming on the potential users of the archive and defined the core and extended users by dot voting. Then, participants discussed the goals and different ways of using the final visualization in the second phase (Goal). This phase ended by choosing the most important and relevant goals again by dot voting. In the third phase (Questions and Tasks), participants identified users' expectations from the archive and formed questions related to these expectations from the archive considering the goals from the previous phase. Most relevant or interesting questions were selected by dot voting. Participants created one or more tasks for each selected question. Moreover, they explored if there were any ambiguous parts in the questions and formed certain tasks also for these. One participant left after this phase. The fourth phase (Data) intended to determine the dataset that addresses the questions formed in the third phase. The participants identified types of data and categories of dataset and dot voted the most relevant ones. One more participant left after this phase, and there were 5 participants who continued to the final phase. In the final phase (Visualization), I, first, presented various examples for data visualization explaining the dimensions, functions, and interaction types. Then, the participants worked on ideating alternative visualizations considering visualization methods and interaction types individually. Finally, all participants presented their visualization suggestions and had discussion giving feedback to each other.

3 Results

Following a brief introduction of this project, I explained the idea behind the urban sounds archive. Based on ColVis method developers' recommendation, I didn't show the existing interface of the sound archive with the intention of not limiting participants' imagination with current visualization. However, I played the sounds to give them an idea. Urban sounds which were played include transportation sounds (bus, tramway announcements), street profession sounds (vendors, musicians), traditional food and drink, festivals and events and sounds related to religion.

Then, we initiated with the first phase (User) in which participants wrote the potential users of the Sonic Memories archive on given post-its individually. Then all the post-its were put together and potential users were categorized according to discussions. Potential users of the archive include

designers, art directors, urban planners, documentary producers, musicians, elderly people, researchers, sociologists, historians, disabled people (visually impaired, autistic), tourists, politicians etc. After defining the users, participants were invited to mark the user categories that may benefit from the archive the most by dot voting. In the end of this phase, designers category (art directors, designers, architects, artists, film/documentary producers, urban planners) received the highest score. Researchers (historians, sociologists, philologists, digital ethnographers, marketing experts) and disabled people (handicapped, visually impaired, autistic) categories had the same number of votes and shared the second place. We eliminated post-its of other groups from the board and continued to workshop only with these three user groups which were identified as the core user groups.

In the second phase (Goal), participants were asked to define goals of three user groups that came forward in the previous phase. According to the participants, the goals of designers category could be being inspired, world building, starting an awareness movement, planning urban squares considering sound quality, character design, getting information about the culture, comparing heritage of various neighbourhoods and revealing the similarities and differences between them, etc. The goals of researchers category include gathering data, statistical inference, searching for common problems, creating an emotion map according to memories, observing the transformation in culture, exploring various accents and dialects, curiosity, etc. Lastly, the goals of the category of disabled people were defined as anxiety management, empathy, remembering places/events/things, relaxing, enthusiasm of being involved in a collaborative project, sense of belonging, coping with difficulties, understanding other people's emotions, facilitating daily lives, etc. Participants' discussion ended up choosing the most important and relevant goals for each user group again by dot voting. Being inspired, world building and getting information about the culture were voted the most as the goals of designers category. For researchers, the most relevant goal was determined as creating an emotion map according to memories, whereas anxiety management was selected as the most important goal for disabled people.

In the third phase (Questions and Tasks), participants listed all the questions that can be asked to the final visualization for the goals of three user groups and they used dot voting for selecting the most relevant and the most interesting questions. For designers' first goal (being inspired and world building), the most relevant questions were "Do memories give enough information about the places or events?" and "Can we compare memories according to time periods?", and for designers' second goal (getting information about the culture), the most relevant ones were "Which traditions do the communities practice?" and "When and how often do practices take place in daily urban life?". Considering researchers' goal (creating an emotion map according to memories), "Which emotion/s are attached to memories?" and "How are emotions defined by memory submitters and are there dimensions of emotions, for example any emotion is attached to people or age?" questions were voted as the most interesting by the participants. Lastly, for the goal of disabled people group (anxiety management), the most important questions were "How noisy/crowded is the place that I will go?", "What kind of things will I face when I go?" and "In which places there are less repetitive sounds?"

In the fourth phase (Data), participants were first asked to brainstorm on what kind of data (memories) we might have in such an archive. As there was no dataset, participants wrote their own memories and imaginary but realistic memories listening to related urban sounds such as nostalgic tramway, Turkish bagel vendors, ferries, seagulls, call to prayers, metro announcements, street food vendors

and specific festivals. Participants tried their best to generate alternative types of memories and different forms of sentences that might possibly be part of the Sonic Memories archive. Once they constituted a potential dataset including 53 written memories related to urban sounds, they explored common points and patterns. They found out that memories can be grouped in 6 categories namely time, frequency, emotion, location, person, and suggestion. They assigned a different shape and colour to each category and put a related sign on written memories. Some memories received more than one sign. They also investigated if this potential dataset addressed the questions and tasks that were identified in the third phase. At the end of this phase, participants had an additional discussion on how these memories can be collected and which medium would be the most convenient one. According to participants, memories can be collected in three main formats: text, voice recording and video. Among the suggested ways of collecting memories, the most efficient ones were dot voted in terms of feasibility and sustainability.

In the last phase (Visualization), participants worked on visualization suggestions individually, they presented their ideas (see Figure 2) and had a discussion in the end. Participants generated ideas for 3 user groups (designers, researchers, and disabled people) considering their goals (second phase) and questions (third phase) they might have. They agreed that the data dimensions (time, frequency, emotion, location, person, and suggestion) can be used as filters when visualizing the archive. They also shared the common idea that these filters would help users to explore the archive in a more efficient way. Moreover, all participants visualized memories with the same shape: circle. In addition, they all used lines for connecting memories to related urban sounds. This tendency to use same kind of visualization shows that memories have a similar image in mind even for those who have diverse backgrounds. One participant (the engineer) said that it would be better that volunteers who share their memories select the dimensions for their own memories, as the system may fail in identifying the tone. Collecting memories both in written and verbal formats would enhance the usage areas of the archive. Written ones could be more understandable compared to verbal ones and filtering would be easier in written format. Whereas verbal formats would be more helpful for visually impaired people and for those who include especially language, accent, and dialects in their research.

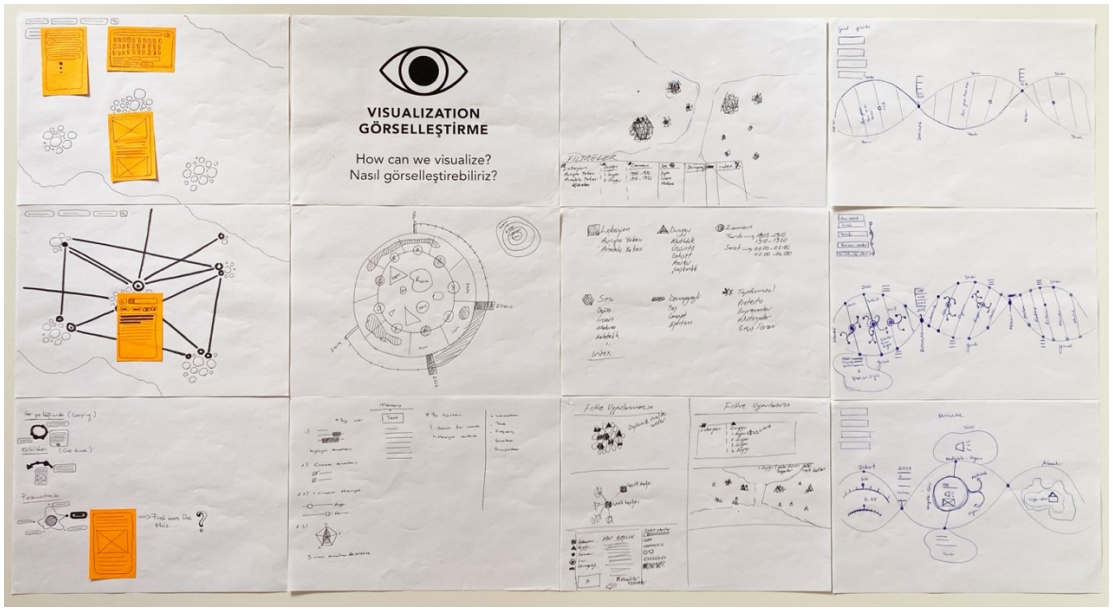

Figure 2. Outcomes of Visualization Phase.

4 Discussion

There are two main discussion areas: method and content. Regarding the method, ColVis was straightforward and easy to apply, and the instructions were mostly clear from the moderator's perspective. Being a user-centered method, ColVis helped forming a variety of user groups and focusing on their needs and expectations deeply. However, some parts of the method could be revised for a more efficient study in general use. Participants worked individually on generating ideas for three core user groups that were determined in the first phase, throughout the workshop. It could be more effective if each participant was assigned to only one user group. So, participants could have focused deeply on the user group they were working for. On the other hand, some participants left the workshop before reaching at the final phase, and some user groups have been worked less than the others. In addition, I observed that participants struggled when generating questions in the third phase. Working only on one certain user group would have made it easier for them. In the same phase, participants seemed confused about what to choose while dot voting for the questions. Instructions for dot voting could be clearer so that participants would be sure how to vote. Yet, although brainstorming for three user groups did not seem overwhelming in the first four phases, participants had a difficulty in creating a strong visualization as they tried to include bits and pieces for each user group in the last phase. Moreover, participants could have been given the opportunity to explain their ideas in the ways they chose instead of expecting a visualization from each of them, as not all the participants were designers. Some of them declared that they couldn't visualize what they have thought, and they needed to explain verbally. Overall, the guide for moderating the workshop was sufficient and it was easy to follow as a moderator.

Regarding the content, subjects and perspectives were various due to diverse backgrounds of the participants, which makes the outcomes difficult to be generalized. Inviting participants who have similar backgrounds would have provided a limited variety of subjects but much deeper conversations. Discussions were very inspiring and fruitful as the directions and tasks defined for each phase were mainly clear. The data phase was very useful as there was an additional task for the participants: constituting a potential dataset. Participants wrote down their own memories and generated possible memories with different tones. This was very helpful for thinking about various criteria and for identifying possible data types. Working with a variety of data, participants extracted data dimensions which I was predicting before the workshop. Therefore, participants supported my initial ideas in this phase. Receiving similar visualization ideas from all participants reveal the facts that circle is the most convenient form to represent memories and that it is important to highlight the connections between the memories and related sounds. One of the most important points that came forward from the discussions is that the archive needs to be sustainable, and the memories need to be uploaded by the volunteers instead of the project team. Regarding the accessibility, it is very significant to collect memories both in written and verbal format to facilitate the exploration process. Therefore, the archive can serve for the use of diverse groups considering wide variety of needs from exploration to research.

5 Conclusion

This pilot study showed that ColVis method would be very helpful for the Sonic Memories project with some adaptations mentioned above. As a next step, I intend to organize a series of workshops to

explore ways for visualization in detail with necessary adaptations applied in the method. However, it would be helpful to collect sonic memories and to form an initial dataset before the next workshops. This will enable participants to focus on visualization more deeply without spending too much energy and time on predicting the dataset. Based on the outcomes of this study, possible users and their goals can be explored in detail in the next workshops. For this reason, it may be useful to organize these workshops focusing on only one user group at a time, which may possibly lead to deeper discussions considering the needs of each user group. Synthesizing the outcomes of each workshop may result in different interfaces which may be integrated in the final visualization. To summarize, the first step of work-in-progress showed necessary amendments in method and how to proceed.

This pilot study aims to reveal step by step implementation of a method and offers adaptations so that design researchers or method developers can benefit from these experiences. Moreover, designers/researchers who work in cultural heritage field, archive visualisation or memory/oral history projects can be informed about the needs and the goals of the user groups discussed in this study which will hopefully be useful in their own projects.

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References

Bijsterveld, K. and van Dijck, J. (2009). *Sound Souvenirs: Audio Technologies, Memory and Cultural Practices*. Amsterdam University Press.

British Library Sounds. Available at: https://sounds.bl.uk/ [Accessed 26 Apr. 2023].

Çay, D., Nagel, T., and Yantac, A.E. (2020). ColVis: Collaborative Visualization Design Workshops for Diverse User Groups. *24th International Conference Information Visualisation 2020*, (pp.528-536).

Huron S., Carpendale S., Boy J., and Fekete J.D. (2016). Using viskit: A manual for running a constructive visualization workshop. *Pedagogy of Data Visualization Workshop at IEEE VIS 2016.*

Huron S., Gourlet P., Hinrichs U., Hogan T., and Jansen Y. (2017). Let's get physical: Promoting data physicalization in workshop formats. *Proceedings of the 2017 Conference on Designing Interactive Systems*. ACM, 2017, (pp.1409–1422).

Kato, K. (2009). Soundscape, Cultural Landscape and Connectivity. *Sites: A Journal of Social Anthropology and Cultural Studies* 6 (2), (pp.80–91).

Yelmi, P. (2016). Protecting contemporary cultural soundscapes as intangible cultural heritage: sounds of Istanbul. *International Journal of Heritage Studies* 22(4), (pp.302-311).

Yelmi, P., Kuscu, H. and Yantac, A.E. (2016). Towards a sustainable crowdsourced sound heritage archive by public participation: The Soundsslike Project. *NordiCHI'16, October 23-27, 2016, Gothenburg, Sweden*.

Yelmi, P. (2017). Istanbul's Cultural Soundscape: Collecting, Preserving and Exhibiting the Sonic Cultural Heritage of Daily Urban Life. Ph.D. thesis, Koç University.