

Sound and Place: Digital Mapping and Community Listening Practice

Project Report for National Science and Media Museum

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I. Overview

This Arts and Humanities Research Council Creative Economy Engagement project explored the sound map as a tool of community heritage and museum audience engagement. The project sought to move beyond the limitations of the medium in order to consider emergent, technologically innovative possibilities for engaging museum audiences with sound.

II. Context

The sound map is a well-established means of engaging public audiences in sound culture and for exploring sound in its geographical context. A wealth of examples document a wide range of soundscapes from across the globe. These publicly accessible online maps feature clickable pins in discrete locations, most often giving the user access to a listenable audio file taken from that location, less frequently to information regarding localised sound and sometimes featuring additional data regarding the audio or location. Many sound maps are ‘crowdsourced’ from members of the public who contribute the audio using smartphone-based audio recording and geolocate applications. Examples of this approach include the British Library Sound Archive’s [Sounds of Our Shores](#) and [UK Soundmap](#) made in the runup to the Library’s ‘Save Our Sounds’ campaign, as well as notable city-specific sound maps such as the [Belfast Sound Map](#) and the [Montréal Sound Map](#). There are also historically-focussed sound maps, including [The Roaring ’Twenties](#), which documents the sounds of New York City in the 1920s, and [Essex Sounds](#), a map encouraging engagement with the historical sounds of the English county of Essex. The discourses concerning sound maps emphasise the specific characteristics of mapping, particularly to situate sound spatially, rooting its ephemerality in place and relating the recorded sound to its environment, social milieu and landscape. Sound mapping is also considered by sound archive professionals to be a means of allowing the public to take part in the curatorial process, giving people the opportunity to select sounds for the archive of the future. The listening that this causes is also thought to deepen cultural engagement with place, an explicit aim, for example, of the Belfast and Essex maps.

The sound map was chosen as an appropriate area of engagement for work with the National Science and Media Museum (NSMM) because of its perceived potential to engage with challenges faced by the Museum and the sector more widely, particularly in light of the Museum’s new emphasis on sound.

These challenges include:

- collecting and exhibiting sound (an ephemeral, intangible medium)
- constituting museum audiences as ‘listeners’
- developing critical perspectives on sound
- clarifying the relationship between sound and place, with the NSMM’s particular emphasis as ‘Bradford’s National Museum’

- the particular challenges of digital media: how should we exhibit/collect digital media? What is the continued role for the museum object in light of the digital file's ubiquity and insubstantiality?
- clarifying relationships between museum objects and sound (particularly given many museum sound object's mute status)

III. Project Aims

The project aimed to use sound mapping as a conceptual tool to explore the relations between objects, museums, visitors and places. While the sound map has been used – for example by the British Library – as a tool of acquisition, to create new sound archives, it has not been considered as a means for developing museum insights into sound heritage. The project set out to ascertain the usefulness of the sound map for:

- providing a platform for NSMM to engage its audiences in the co-production of critical listening skills, especially in relation to the Sound Technologies Collection;
- asking how we should preserve everyday sound experiences and what these sounds tell us about our identities and localities;
- developing demand for and understanding of sound's role in museums among audiences
- impacting curatorial decisions about how to develop sounding exhibits;
- creating a lasting and developing repository of knowledge from which curators could draw;
- examining possibilities for combining historical and contemporary materials and for co-producing (rather than simply crowd-sourcing) content.

The project explored these issues through sound mapping exercises in the Museum's Gallery Listening Sessions, a series of public events funded by the University of Nottingham running through summer 2019. These activities prioritised:

- how to present past sound worlds to public audiences;
- a commitment to public participation in knowledge-making;
- considering what public sound history might entail in museums;
- how museum publics can take an active part in shaping the listening that happens in exhibitions involving historical sound technologies;
- understanding of sound's role in museums among audiences.

The activities included the creation of a collaborative online sound map of the West Yorkshire area using recordings made by participants using digital audio recorders. However, the project aimed to move beyond the sound map's limitations, employing it as a point of departure to consider other ways to exploit the wider value of digital humanities interventions at the intersections of heritage, museums, sound, objects and publics.

IV. Participation, Co-production and the Digital Humanities

Sound maps have the potential to facilitate crowd-sourced, location-specific gathering of intangible heritage, reflecting the wider potential – and shortcomings – of digital technologies in shaping the

democratisation of museums and facilitating public participation.¹ The sound map's interactivity, wide accessibility and ease of use have broadened the parameters of sound studies, opening up previously scholarly or niche concerns to a wider audience. Yet the very nature of this seemingly benign aspect of the sound map carries with it the same complications as other examples of online participatory culture: that while digital online media offer new forms of democratic participation, they are beset with concerns regarding the limitations and biases inherent in this participation. A number of scholars have taken issue with the claims made regarding the participatory/democratic aspect of sound maps, particularly identifying a problematic practice in crowdsourcing as a means of accumulating sounds.² Such a critique is not unique to sound maps and rehearses a familiar set of debates related to the wider issues which cluster around the terminology regarding participatory cultures, Web 2.0 and digital democracy. These wider debates are particularly concerned with issues of access, specifically in terms of *who* participates (related to unequal representation in terms of gender, race, class, age, etc.), and the limitations of the extent of participation and its possibilities, particularly with regard to the technological possibilities of the platform employed.

As well as broadening participation, co-production in the museum context has typically been seen to help develop and clarify relationships between objects and people.³ Because the immaterial and ephemeral nature of sound poses barriers to developing a clear vision of this relationship, sound mapping offers one possibility of exploring ways of building upon the NSMM's existing sense of embeddedness in its immediate environment to offer a means for exploring the cultural and historical place of sound in visitors' everyday lives. The sound map provides an opportunity to visualise this relationship, combining sound with local narratives to create a dynamic sense of the place of the Museum's Sound Technologies Collection within the broader historical, cultural and geographical context of the city and wider area. As the historian Helen Graham has explored in the *Science Museum Group Journal*, curation can benefit from an expanded understanding of co-production, one which embraces multiple 'co's beyond the human, including, for instance 'security locks, quality assurance and insurance companies, as well as physics, photography, silver and salt, not to mention "the past", "posterity", public policy, specific people who visit, and everyone not yet born'.⁴ Such a perspective foregrounds the opportunities to capitalise on the complex relations between people and places, sounds and objects, exhibitions and digital media.

V. Outcomes/Findings

Our research questionnaires from the Gallery Listening Sessions produced some revealing findings. Participants tended to acknowledge the sound map's strengths as a tool for exploring the relationship between sound and place. 'Sound maps help fix a sound geographically', wrote one participant. This characteristic of the sound map was seen as a useful characteristic to highlight and explore local sound cultures, with another participant noting that it was 'interesting how certain sounds are

¹ Bridget McKenzie, 'Towards the Sociocratic Museum', *Code / Words: Technology and Theory in the Museum*, 13 January 2015, <https://medium.com/code-words-technology-and-theory-in-the-museum/towards-the-sociocratic-museum-223390e2a00b>

² Jacqueline Waldo, 'Soundmapping: Critiques and reflections on this new publicly engaging medium', *Journal of Sonic Studies*, 1 (2011), <https://www.researchcatalogue.net/view/214583/214584/0/0>; Paul Tourle, 'White Noise: Sound, materiality and the crowd in contemporary heritage practice', *International Journal of Heritage Studies*, 23, 3 (2017), 234-247; Milena Droumeva, 'Soundmapping as Critical Cartography: Engaging publics in listening to the environment', *Communication and the Public*, 2, 4 (2017), 335-351

³ Helen Graham, 'The "Co" in Co-production: Museums, community participation and Science and Technology Studies', *Science Museum Group Journal*, 5, 5 (spring 2016), doi: 10.15180/160502

⁴ *ibid.*

particular to certain communities’, and that ‘local sounds enable us to take a snapshot of an area (occupations/dialects etc.)’. However, there was also a clear concern that the medium was not without its limitations. One participant observed that they were ‘not sure how this will be used by third parties’. This raises a significant challenge for sound maps. While the process of their creation can involve engaging collaboration with members of the public to explore sound heritage, a strong case has not been made for their continued relevance and usefulness after this process is complete. As Emily Thompson has acknowledged, public interest in her ‘Roaring Twenties sound map declined sharply after its launch, and constant developments in digital technology mean that without ongoing maintenance the sound map’s platform quickly becomes obsolete and thus unusable; indeed, the British Library’s various celebrated projects are no longer available to access as a contributing user.⁵

The sound map’s potential as a tool for heritage engagement also faces considerable challenges with regard to its format as a means for producing essentially narrow forms of public participation.⁶ This became particularly clear to us in the light of participants’ responses to a sound walking exercise inspired by artist Magda Stawarska-Beavan’s approach of recording with binaural microphones while walking through urban spaces.⁷ Feedback from this exercise proved particularly revealing, highlighting the limitations of the sound map as a tool for engaging members of the public with sound and place. ‘In the sound walk, you are more immersed in the environment’, observed one participant, for whom sound walking allowed for the ‘exploration of your relationship with the environment’. This highlighted that the ‘sound map was more “abstract”’, lacking the embodied connection with sound and place that made the walking exercise a more engaging one. The sound walk, capturing what one participant described as ‘the connection between sound and movement’, also seemed to offer a processual, mobile approach to the relationship between sound and place which the more static map lacked. Another participant described the advantages of the sound walk exercise as ‘being in the moment; being able to describe the experience in different ways’. The sound walk appears to have appealed to the participants due to the affective, subjective, embodied experience of sound and place it allowed them to develop. This insight highlighted the need to move beyond the mere ‘pins on a map’ approach of the sound map.

The pin – a central element of the sound map’s functionality – is also at the core of its limitations: sound isn’t static, and we don’t engage with sound in a static manner. ‘While it may have a specific source,’ the geographer Paul Simpson has noted, ‘sound spreads through physical space, it permeates, it is hard to pin down’.⁸ Some of the text accompanying pins on our collaborative online sound map bears this out: one is titled ‘Walking through the Broadway’ (Bradford’s shopping centre), with another, a recording of the waterfall Lumb Hole Fall, noting that ‘the sound file is made as I approach and then walk alongside the fall’. The very strength of the sound map, its ability to relate sound to place, results in a sense of fixity which fails to reflect both the mobile nature of our subjective experiences of sound, and more broadly the realities of sound culture today, its fluidity and

⁵ Emily Thompson, ‘Making Noise in The Roaring ’Twenties: Sound and aural history on the web’, *The Public Historian*, 37, 4 (2015), 91-110: 109-10; <https://www.bl.uk/sounds-of-our-shores>; <https://sounds.bl.uk/Sound-Maps/UK-Soundmap>

⁶ Jacqueline Waldo, ‘Soundmapping: Critiques and reflections on this new publicly engaging medium’, *Journal of Sonic Studies*, 1 (2011), <https://www.researchcatalogue.net/view/214583/214584/0/0>; Paul Tourle, ‘White Noise: Sound, materiality and the crowd in contemporary heritage practice’, *International Journal of Heritage Studies*, 23, 3 (2017), 234-247

⁷ <https://magda-stawarska-beavan.com/recent-projects/translating-the-city>

⁸ Paul Simpson, ‘Sonic Affects and the Production of Space: “Music by handle” and the politics of street music in Victorian London’, *Cultural Geographies*, 24, 1 (2017), 89–109: 90

ephemerality. For instance, our participants were interested in the way brass bands and accents created a clearly demarcated, localised sound character. However, these kinds of traditional forms of local sound culture are often valued precisely because they are undergoing change, threatened with disappearance. NSMM's groundbreaking recent exhibition, 'Above the Noise', part of which explored local sound cultures, showed that much of this culture has been characterised by mobility and change, the migration of people, sound cultures and heritage. Paul Tourle has been critical of the way in which a sound map can internalise and perpetuate cultural biases regarding what kinds of sounds are expected and permissible.⁹ However, the sound map (precisely because of this fault) in mapping what we think is valuable, worth listening to and preserving, can actually be a helpful tool for revealing useful information regarding the kinds of biases we have regarding sound.

VI. Recommendations

A recent example of a sound map which attempted to explore sound heritage and co-production was Essex Sounds, run by the Essex Sound and Video Archive at the Essex Record Office. This project invited members of the public to compare their own smartphone recordings with sounds uploaded from the archive as well as audio created for the map by an artist. Despite the project's success, the map's creators acknowledged that 'there are limits to how far a sound map can represent a place'.¹⁰ This is congruent with our own findings – how do we move beyond the limitations of the sound map to address the shortcomings we have identified, to give agency and control to those engaged in the process while also meeting the broader needs already identified?

As a result of these findings, it is suggested that digital technologies be employed critically and creatively in order to move beyond the limitations of the sound map, and to consider more engaging ways of empowering listeners and exploring the past through sound. This project has highlighted the need for a critical soundmapping practice, one which is able to recognise the pitfalls of existing platforms and to develop participatory models in which the technology employed facilitates public engagement and co-production without prescribing or limiting the possible outcomes of such practices.

Significantly, this project has suggested that future research should do more to consider what can be done with recorded sound, to find collaborative, engaging, participatory processes which can utilise recorded sound to do more than just be listened to in its raw state. The challenge is thus to create a set of tools/activities which are both structured enough to provide a meaningful framework for collaborative creative engagements with mapping sound, and are able to provide space for a participatory, democratic creative process with clear outcomes. If we are to achieve this, we need to find ways of employing the emerging potentialities of innovative digital technologies to develop more interactive, engaging tools for exploring and placing our sound heritage.

These tools should prioritise the following attributes:

- affective, connective, engaging, embodied, personalised, participatory;
- situating sound in place and space, connecting with the local with attention to the mobility and fluidity of sound;

⁹ Paul Tourle, 'White Noise: Sound, materiality and the crowd in contemporary heritage practice', *International Journal of Heritage Studies*, 23, 3 (2017), 234-247: 244

¹⁰ Sarah-Joy Maddeaux and Stuart Bowditch, 'What does Essex sound like? Capturing the changing sounds of an English county', *Interference Journal*, 7 (2019), unpaginated

The latest innovations in digital technology, such as Augmented Reality, Virtual Reality, Big Data, Digital Archives, Dynamic Binaural Sound, Artificial Intelligence, Machine Learning, Computer Vision, and so on, offer limitless possibilities for engaging with our sound heritage. Among emerging technologies offering opportunities for those interested in constructing immersive historical soundscapes, the BBC's recent innovations in what has been termed 'dynamic' binaural offers convincing possibilities. This technology allows for the creation of 3-dimensional sound which can realistically simulate the location of any given sound source in relation to the listener.¹¹ Although it has been envisaged primality as an accessory to virtual reality's visual immersion, this development shows great promise for those interested in creating convincing immersive sound experiences in their own right. However, it was not within the limited timescale and resources of this project to suggest what this might look like in detail – further research is needed to ascertain the relative merits and effectiveness of the various digital methodologies in order to produce finished outcomes which would be able to inform future strategies. Our project can, however, offer suggestions, drawing upon some recent interventions.

The app ArtMaps, made in collaboration with Tate, allowed visitors to spatially locate the vantage point from which artworks from the gallery's collections had been created, and to use mobile devices to take photographs from this viewpoint.¹² This offers an example of an engaging digital intervention which encourages ('real world') participation, gives collection objects a life outside of the building in which they are housed, and generates useful outcomes from a crowdsourcing process (geographically locating the production of artworks). The authors suggest that apps such as this one 'can be used to widen participation and generate and share knowledge about heritage'.¹³ Just as sound studies has sought to bring the rigour and criticality that study of visual culture has applied to the visual field through transposing existing frameworks and vocabularies onto the study of sound, so it is important to learn from developments in digital humanities which prioritise the visual, while maintaining the specificity of sound. Digital innovations which emphasise the centrality of vision (AR, VR, Computer Vision, etc.) are increasingly being adapted to the medium of sound. As Graham et al. have argued, while 'we tend to prioritize sight over other senses, [...] "hearing" the past is a more effective and *affective* way of providing immersive AR'.¹⁴

A digital humanities approach to historical soundscapes has the potential to engage audiences with heritage in an interactive, active, participatory manner. However, that the sound walk, a non-digital, relatively straightforward method of engaging the public with sound was able to highlight the limitations of the sound map should give us pause for thought in advocating digital solutions: in order to situate sound, the digital needs to augment broader practices rather than dictate the possibilities of public engagement. We need to be mindful of curator Bridget McKenzie's insistence that 'digital alone can't achieve the necessary change, unless integrated with more truly democratic [...] ethics of

¹¹ 'Binaural Sound: Immersive spatial audio for headphones', <https://www.bbc.co.uk/rd/projects/binaural-broadcasting>

¹² Gabriella Giannachi, Rebecca Sinker, John Stack, Cristina Locatelli, Laura Carletti, Dominic Price, Derek McAuley, Tim Coughlan and Steve Benford, 'ArtMaps: A technology for looking at Tate's collection', *Leonardo*, 50, 1 (2017), 20-26; <https://artmaps.tate.org.uk/artmaps/tate/#zoom=15&lat=51.51&lng=-0.10&maptype=hybrid>

¹³ *ibid.*: 21

¹⁴ Shawn Graham, Stuart Eve, Colleen Morgan, and Alexis Pantos, 'Hearing the Past', in Kevin Kee and Timothy J Compeau (eds.), *Seeing the Past with Computers: Experiments with augmented reality and computer vision for history* (Ann Arbor: University of Michigan Press, 2019), 224-236: 225

governance and methods of education'.¹⁵ Recent engagements with the intersections of digital technologies and museums have considered participation and co-production to be at the heart of this endeavour. This is an approach which 'has the potential to address some key challenges faced by galleries and museums today, namely the need for rich interpretation, deep personalization, and social coherence'.¹⁶ One emergent digital augmented reality approach which suggests directions to enhance possibilities for placing sound at the centre of these practices was utilised in *The Rough Mile*, a digital music 'gifting' app that allowed friends to share a personalised audio walk around a city centre. *The Rough Mile*, its creators at the University of Nottingham's Mixed Reality Lab claim, expands the possibilities for exploring 'aesthetic and emotionally meaningful experiences using digital technologies'.¹⁷ In combining the innovative possibilities for sensory immersion offered by digital technologies with the situated, affective and embodied aspects of walking, this approach lodges the digital in real-world interactions and physical relations with people, sounds, objects and spaces.

VII. Conclusion

Sound maps are an established method for engaging publics in sound-related heritage and collecting. To date, the sound map has been deployed in the sound archive sector more frequently than in the museum sector, but as museum efforts to stage sounding and sound-related exhibitions grow, and as museums establish collections such as the NSMM Sound Technologies Collection, issues of public engagement, public participation and co-creation will require attention. Elements of sound mapping practice offer a ready model for museum audience engagement: the format encourages active listening that may be re-deployed in museum contexts, encourages a curatorial-type attention by asking users to select sounds that deserve to be preserved, and offers open, public access (even if the question of participation remains rather vexed). The format remains popular, with new sound map projects beginning all the time (often with funding from the National Lottery Heritage Fund), including, for example, the [Lapsed Clubber Audio Map](#) currently being built by the Manchester Digital Music Archive. The [Town Sounds](#) project about the musical heritage of Huddersfield also contains a map element. On the other hand, the 'pin on a map' technology typically deployed by the sound map seems certain to be left behind by current digital developments. Herein, however, lies what we see as the future potential of the sound map for museums such as NSMM: retaining the public interface of the traditional sound map but combining it with the mixed reality approach taken by projects such as *The Rough Mile* would allow digital public participation in sound technology exhibitions, providing not only a soundtrack for objects which have none, but also a soundtrack drawn from audience listening both within and beyond the museum.

¹⁵ Bridget McKenzie, 'Towards the Sociocratic Museum', *Code / Words: Technology and Theory in the Museum*, 13 January 2015, <https://medium.com/code-words-technology-and-theory-in-the-museum/towards-the-sociocratic-museum-223390e2a00b>

¹⁶ Lesley Fosh, Steve Benford, Stuart Reeves and Boriana Koleva, 'Gifting Personal Interpretations in Galleries', in *CHI '14: proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (New York: ACM, 2014), 625-634: 633

¹⁷ Jocelyn Spence, Adrian Hazzard, Sean McGrath, Chris Greenhalgh and Steve Benford, 'The Rough Mile: Testing a framework of immersive practice', in *DIS '17 Proceedings of the 2017 Conference on Designing Interactive Systems* (2017), 877-888: 878. doi: 10.1145/3064663.3064756