

Title of case study: Technological Cultures of Sound

1. Summary of the impact

Researching Technological Cultures of Sound means investigating the role of sound in society from the understanding that sound is increasingly technologically produced and mediated, and that listening practices are socially and historically situated. This case study presents two exemplary cases in which academic research was translated into public engagement activities: an interactive museum installation based on the *Soundscapes of the Urban Past* project and a festival based on the *Sonic Skills* project. These examples show that the experience of public engagement activities can generate new practices and insights within and outside of academia.

2. Underpinning research

How did sound become orchestrated as a public problem, as expressed in the anti-noise movements of the twentieth century? Indeed, what cultural meanings did the inhabitants of cities give to their sonic surroundings in different time periods? What is the role of sound in science, and under which circumstances has knowledge gained by listening become accepted or contested? These are some of the questions tackled in the research line Technological Culture of Sounds (part of the Maastricht University Science, Technology and Society Studies research program), and specifically, in the two research projects that we will focus on here: *Soundscapes of the Urban Past: Staged Sound as Mediated Cultural Heritage* (NWO Cultural Dynamics grant, 2008-2013, €464,900, applicants K. Bijsterveld and A. Fickers) and *Sonic Skills: Sound and Listening in the Development of Science, Technology and Medicine (1920-now)* (NWO Vici grant, 2010-2015, €1,069,000, applicant K. Bijsterveld).

The key researchers in *Soundscapes* were Karin Bijsterveld (PI, full professor), Jasper Aalbers (PhD, 09/2008-08/2012), Andreas Fickers (associate professor) and Annelies Jacobs (PhD, 04/2008-03/2013). *Sonic Skills* was led by Karin Bijsterveld. The other key researchers were Joeri Bruyninckx (PhD, 11/2008-10/2012; post-doc, 11/2012-05/2015), Anna Harris (post-doc, 01/2013-12/2014), Stefan Krebs (09/2011-08/2014), Alexandra Supper (PhD, 01/2008-12/2011) and Melissa van Drie (post-doc, 09/2011-08/2012).

Sonic Skills has demonstrated, for instance, that we can make sense of the listening practices of scientists, engineers and physicians in terms of 'listening modes' that differ in purposes as well as ways of listening, and that an understanding of these modes (and the associated skills of mode-shifting and handling tools) helps us appreciate the role of sound in knowledge-making practices (reference 1). It has revealed that students' self-discovery of their own bodies is essential for the development of medical skills such as percussion (reference 2). It has shown that the collection of birdsong recordings rests upon a complex economy of exchange between scientific institutions, amateur enthusiasts and broadcasting companies, requiring the coordination of different regimes of data production, access, ownership, and credit attribution (reference 3). It has demonstrated that artistic uses of sonification (auditory data display) can be effective in generating public interest and justifying funding for scientific research, but that the dominant framing of such approaches often undermines efforts to establish sonification as a scientific method (reference 4).

Soundscapes has shown that, while it is impossible to have unmediated access to the sounds of the past, it pays to investigate how historical sounds are mediated, dramatized or staged (reference 5). Finally, this project has also critically reflected upon and historically contextualized our own scholarly and public practices of working with sound (reference 6).

The aforementioned, quite diverse, examples give a glimpse of how these projects investigate the role of sound and listening: as something which is always historically situated and subject to transformation, intertwined with technological developments and embedded in social relations and cultural practices (reference 7).

3. References to the research

1. Supper, A. & Bijsterveld, K. (2015). Sounds Convincing: Modes of Listening and Sonic Skills in Knowledge Making, *Interdisciplinary Science Reviews*, 40(2), 124-144. DOI: <http://dx.doi.org/10.1179/0308018815Z.000000000109>
2. Harris, A. (2016). Listening-touch, Affect and the Crafting of Medical Bodies through Percussion. *Body & Society*, 22(1), 31-61. DOI: <https://doi.org/10.1177/1357034X15604031>
3. Bruyninckx, J. (2015). Trading Twitter: Amateur Recorders and Economies of Scientific Exchange at the Cornell Library of Natural Sounds. *Social Studies of Science*, 45(3), 344-370. DOI: <https://doi.org/10.1177/0306312715580404>
4. Supper, A. (2014). Sublime Frequencies: The Construction of Sublime Listening Experiences in the Sonification of Scientific Data. *Social Studies of Science*, 44(1), 34-58. DOI: <https://doi.org/10.1177/0306312713496875>
5. Bijsterveld, K. (ed.) (2013). *Soundscapes of the Urban Past: Staged Sound as Mediated Cultural Heritage*. Bielefeld: Transcript.
6. Bijsterveld, K. (2015). Ears-On Exhibitions: Sound in the History Museum. *The Public Historian*, 37(4), 73-99. Part of a special issue, edited by Karin Bijsterveld, on Auditory History. DOI: <https://doi.org/10.1525/tpb.2015.37.4.73>
7. Pinch, T., & Bijsterveld, K. T. (eds.) (2012). *The Oxford Handbook of Sound Studies*. Oxford: Oxford University Press. [Selected for CHOICE (Current Reviews for Academic Libraries List of Outstanding Academic Titles 2012); the chapter by Bruyninckx has been awarded the Nicholas C. Mullins prize 2012 by the Society for Social Studies of Science.]

4. Details of the impact

The *Soundscapes of the Urban Past* project culminated in an interactive sound installation, made in collaboration with the acoustic consultancy firm HMMH and the Amsterdam Museum, and displayed at the Amsterdam Museum between March 2013 and November 2014 (a period in which the museum welcomed 353,034 visitors). Based on Annelies Jacobs' dissertation research and the 'staging soundscapes' approach developed by Bijsterveld and her team (reference 5), the installation 'The Sound of Amsterdam' enabled museum visitors to experience an interactive simulation of the soundscape of Amsterdam's Dam Square in 1895, 1935 and 2012. Additionally, the installation provided historical context through several narrated storylines that allowed listeners to understand how city dwellers coped with noise and silence during the late 19th century, the interbellum and World War II. "For the Amsterdam Museum, it was very worthwhile to be part of the project Soundscapes of the Urban Past. It fitted perfectly in a trend in museums to pay attention to more senses than just sight. Discussing this new field with the researchers of Maastricht University made us more aware of the possibilities and the problems, also for museums." (Source 1)

A wider audience, besides visitors of the Amsterdam Museum, was also reached through a series of interviews in newspapers and radio broadcasts (sources 2-3). Many of the sound

recordings of authentic historical objects such as handcarts and horse-drawn trams made for the installation by sound recordist Arnoud Traa also live on outside of their original context of use – not only because they were, in collaboration with the Netherlands Institute of Sound and Vision, made available for download on Soundcloud (source 5, 24,552 plays), but also because they were taken up elsewhere, e.g. in a VPRO-NTR television series on the nineteenth century (*De IJzeren Eeuw*), an animation of George Hendrik Breitner’s Dam Square painting (<https://georgeknightlang.wordpress.com/tag/breitner-animatie/>), and at the Transport Museum in Dresden. Measurements based on 1930s Ford recordings even informed an applied science publication evaluating noise control engineering over time, which was then taken up in a major high quality newspaper (source 4). Additionally, the experience of translating the research into a sound installation has fed back into the research process – most notably, through a series of lectures and an article in which Karin Bijsterveld (reference 6) critically reflects upon the experience of making the installation and on the notions of authenticity involved in doing so.

The *Sonic Skills* project, too, experimented with ways of making research results available to a non-academic public, primarily through the *Sonic Science Festival*, organized by Karin Bijsterveld and Marith Dieker in January 2015 and attended by about 350 people in total. The festival tackled the Sonic Skills research questions through an exhibition and a series of lectures, demonstrations, concerts and kids workshops. Originally conceived to last six days, several activities continued beyond the timespan of the festival: the exhibition was transformed into a virtual exhibition in the months after its original display (<http://exhibition.sonicskills.org/>), while the musical activities turned out to have much more lasting effects than assumed at first. The composition *Darkness Rises* by Temko, commissioned for the festival and sonifying data from a NASA mission, has since been recorded as Temko’s debut album and performed fourteen times across the Netherlands (including in an orchestral version together with Philharmonie Zuidnederland). The piece, which was inspired by guitarist/composer Aart Strootman’s reading of the entire *Oxford Handbook of Sound Studies* (reference 7) and of Alexandra Supper’s (reference 4) article about the sublime in sonification discourses, proved to be a stepping stone for Strootman’s artistic development: “*Sonic Skills* paved new paths in my personal composition practice. A scientific approach towards music, in the shape of sonification, has become a ubiquitous component in my writing. ‘Darkness Rises’ was the first but important step into this territory.” (Source 6) As such, the piece provides an interesting example of the ‘legitimacy exchange’ between science and art discussed in Supper’s article. After all, here we can see not only how music and art can be enlisted to bring scientific knowledge to a wider audience, but how such appeals to scientific approaches can also boost the popularity of artists.

Outside of the key moments of the exhibition and festival, our research has also reached wider publics. For instance, findings of the *Soundscales* project were widely circulated through a chapter by Annelies Jacobs and Karin Bijsterveld in a coffee-table book of which 20,000 copies were printed (source 7). Research findings of the Sonic Skills project have also been shared with non-academic publics and with the communities that were studied in the project – for instance, Anna Harris relayed her research findings (reference 2) back to medical education specialists to alert them to the importance of training sensory awareness

(source 8). Also outside of the festival, the *Sonic Skills* project has engaged with art and music in myriad contexts; one notable example is a musical performance inspired by Joeri Bruyninckx' research (reference 3) about sound recording in ornithology (source 9). Finally, Karin Bijsterveld and other *Sonic Skills* researchers have also shared their knowledge and experiences through advisory activities. To London Science Museum curator Tim Boon, the "insights that came from the Sonic Skills network were essential to the success of the Science Museum-based 'Music, Noise & Silence' AHRC-funded Research Network meetings held in 2015; the presence of Karin Bijsterveld and colleagues at the meetings catalysed discussion away from music and into many aspects of the sonic realm." (source 10).

These forms of impact reflect that most of our outreach activities were geared towards a culturally interested general public, offering access to heritage through sound, and aiming at historicizing our audience's sensory awareness. Our examples and figures show that we have been able to make our claims resonate strongly in the public domain, and that our high-quality recordings of historical artefacts have been frequently reused. Nonetheless, it remains to be seen (and heard) whether these activities also accomplished a change in *how* audiences engage their ears to make sense of historical heritage and scientific practice.

5. Sources to corroborate the impact

1. Annemarie de Wildt, curator at Amsterdam Museum responsible for the *Sound of Amsterdam* installation (Factual statement, January 23rd, 2017).
2. Warna Oosterbaan, "Het knerpende geluid van de paardentram," *NRC Wetenschapsbijlage*, March 23-24, 2013, pp. 8-9.
3. Interview with Annemarie de Wildt and Annelies Jacobs, Radio 1, VPRO OVT, March 31, 2013, http://www.npogeschiedenis.nl/speler.POMS_VPRO_330523.html
4. Karel Knip, "Niks romantisch aan die jakkerende koetsjes," *Alledaagse Wetenschap, NRC Weekend*, February 28, W6, <http://www.nrc.nl/handelsblad/2015/02/28/niks-romantisch-aan-die-jakkerende-koetsjes-1470334>
5. See <https://soundcloud.com/beeldengeluid/sets/de-dam-soundscape-opnames> (24,552 plays and downloads up until February 10th, 2017)
6. Aart Strootman, musician/composer, member of Temko (Factual statement, January 22nd, 2017).
7. Jacobs, A. & Bijsterveld, K. (2013). Der Klang der Besatzungszeit: Amsterdam 1940-1945. In G. Paul & R. Schock (Eds.), *Sound des Jahrhunderts: Geräusche, Töne, Stimmen 1889 bis heute* (pp. 252-257). Bonn: Bundeszentrale für Politische Bildung. [Coffee Table book with CD, 20,000 copies]
8. Harris, A., & Flynn, E. (2016). *Medical education of attention: A qualitative study of learning to listen to sound. Medical Teacher*, 39(1), 79-84.
9. Oscar Santillan (2013), *The Wandering Kingdoms*. Performance prepared during a residency at Jan van Eyck Academy, Maastricht. Listen here: <https://soundcloud.com/oscar-santillan-4/the-wandering-kingdoms>, or see program booklet for additional information: <http://www.oscarsantillan.com/s/PUBLICATION-Oscar.pdf>.
10. Tim Boon, curator and head of Research and Public History at the London Science Museum (Factual statement, February 22nd, 2017).