

**PART II:
PRACTICES (DESIGN AND CRITICAL
MAKING)**

**Locative Media Design as Sound Art *and*
Scholarship: Pioneering Generative
Intersections of Mobile Technologies,
Media Accessibility, and Place**

Brett Oppegaard

Mobile-Media Research as a Fertile Maker Space

Mobile-media design demands dynamic and holistic thinking about audience experiences. Those considerations include awareness of a liquefied delivery-and-consumption context, constantly setting and resetting use factors physical, social, relational, and inherently involving mobilities. Tough choices must be made about the medium, the content, the probable place of human-computer interactions, and many other inextricable factors that privilege some audience members over others. These design challenges have no clear and singular historical precedent, due to the complex and intertwined affordances offered by mobile technologies, such as what constitutes all of the nuanced aspects of locative media delivered via smartphones. And scholars only have begun to imagine, construct, and deconstruct what could emerge *artistically* in mobile-media forms in the coming decades, which is an aim that inspired this study.

As of this writing, an ordinary smartphone includes multiple cameras, microphone modes, and buttons; it has Face ID, a barometer, a three-axis gyro, an accelerometer, a proximity sensor, an ambient-light sensor, and location data triangulated via a built-in GPS, a digital compass, Wi-Fi, cellular, and iBeacon microlocation.¹ Its interfaces and functions can be accessed through audio commands, via Siri, or by moving the device through the air in certain gestures, or even by simply shaking the device. These are all opportunities for mediated creativity and for data to be gathered about how people communicate in mobile-media contexts (what they say and how they say it) and capturing data about which channels they choose to use, (how, when, where, and why). Such messiness is a strength of mobile media, as long as privacy issues are suitably addressed. Combinations of any of those sensors, media-production tools, buttons, languages and images can be mixed with people, environments, media ecologies, subject matters and mediated expressions in endless configurations, all in an effort to make something fresh and interesting.

In that vein, this chapter aims to embrace the complexity and unpredictability of mobile media by reframing it as a massive maker space, open to anyone, and to share lessons learned from a recent project exploring the potential of genre development in this environment. This experimental project, funded by the National Endowment for the Arts (NEA), explored intersections of sound art, mobile technologies, and the accessibility of national parks through the creation of a novel form of audio description. We decided to this piece of locative sound art — designed primarily for people who are Deafblind, blind, or who have low-vision — at the site of Andy Goldsworthy's four outdoor public art installations within the Presidio in San Francisco, which is co-managed by the Presidio Trust in partnership with the National Park Service and Golden Gate National Recreation Area.

During our design process, we encountered many complexities demanding design attention and forcing difficult artistic choices, including about approaches to the vocal performance, the dualistic proximity of listeners to the artwork (they were either on site or off), and to the quirks of the physical environment, including about how to handle an alleged arson of one of the artworks that happened mid-development and closed the area to visitors. As these complications were revealed, we rejected reductionism and the impulse to solely focus on the content, the medium, or the mobilities. We stuck to the philosophy that all were co-equally important and approached the design development accordingly. We were experimenting and prototyping after all, which is a luxury that scholars have over for-profit enterprises. The more design choices we could engage in this process, the better our design theoretically would be for research and development of ideas in this area of scholarship. The landscape, artwork, artist, oblivious and unrelated passersby, wildlife, seasons, weather, time of day, sensations of proprioception,

listener's mindset and motivations, everything already dynamically existing in the environment was a part of this project. Our design could choose to engage with that messy reality or ignore it. But our audiences inherently would be experiencing all of these elements. So why not try to make something of them?

Accessible Mobile Media as an Accommodation and a Collaborative Creative Genre

The interdisciplinary academic community that has formed around audio description began to publish seeds of ideas in the 1970s. This area of inquiry, though, did not gain much momentum until the past decade, led primarily by academics in Translation Studies in western Europe.² Scholar-practitioners along this line are starting to show broader interest in artistic forms of audio description, using terms such as “creative” or “auteur” description to differentiate styles and offer options.³ In a broader sense, academics also have been notable pioneers in new forms of mobile media for decades.⁴ Efforts to make more accessible media, in general, have created a fertile environment for approaches to media innovation.⁵ These new kinds of projects provide a contrast to standard accommodative approaches in American contexts, where Audio Description products are intended to provide relatively unobtrusive access to the original medium, not replace it or equivocate it, and mostly are aimed at being useful but not necessarily evocative, engaging, and entertaining on their own merits. In comparison, our artistic aim here focused less on translation and more on the experiential, with the goal of making “analogous” experiences to the original brochure about Goldsworthy's art, specifically for people with strengths in nonvisual modalities.⁶

Ekphrasis is an ancient Greek concept — discussed in Homer's Iliad, and in Plato's recreation of a dialogue by Socrates — that refers to the ways in which one form of art can illuminate and accentuate another. Most often, it refers to a visual medium being described in words, such as when poetry is used to describe a painting or sculpture but in dialogue with that original artifact, adding artistic and rhetorical value, not just transferring meaning.⁶ Can listening about a piece of visual art be an equivalent experience to seeing the original piece? That has been a long-debated topic inside and outside of the field Disability Studies, particularly in art and literature circles.⁷ Leonardo da Vinci, for example, wrote in his notebooks that “though the poet is as free as the painter in the invention of his fictions they are not as satisfactory to men as paintings; for though poetry is able to describe forms, actions and places in words, the painter deals with the actual similitude in the forms, in order to represent them.” To which, scholar Joselia Neves responded “if the blind person cannot have direct access to the work itself, might it not be better to be given an ‘alternative work of art’ to look at through the other senses?”⁸ Digging deeper into relationships between ekphrasis and audio description, image and text,⁹ and the broader nesting-doll nature of media, which inherently combines “different codes, discursive conventions, channels, sensory and cognitive modes,”¹⁰ is beyond this chapter's scope. Yet such debate in Disability Studies literature made us wonder if opportunities might be missed in terms of exploring audio description as a genre of sound art, with the same baseline information exchange but done in a manner more engaged with acoustic aesthetics. As a method of exploring that potential, our proposal to the NEA was to make a design-based research project that would create a novel model of audio description that would emphasize accessibility, acoustic aesthetics, and locativeness in a transcreation of the brochure about Goldsworthy's installations, available on-site, and delivered and reviewed via mobile technologies.

Positionality and Development Context

My collaborators on this project — Andy Graydon, Ernst Karel, and Eden Girma — are well-established sound artists, performers, and professionals. In terms of designing mobile media for this experience, though, they were thrust into unfamiliar territory with no clear precedents. They were asked to not only break audio description “out of the box” of utilitarian discourse and make an auteur audio experience, but they also were required to link that work to the original brochure and asked to ensure the audio piece served as an “equivalent” experience to seeing the printed discourse. The audio needed to work for people on site but also for people off-site. The audience could be anyone from grandchildren to grandparents, and the many stakeholders in this project, including the American Council of the Blind, the U.S. National Park Service, and the community around the Golden Gate National Recreation Area all were eager to hear what could be done. These cross requirements and pressures created a tension between ambitions of making an art-like work but also making something useful as audio description, which proved to be the kind of extreme design challenge we anticipate emerging more as mobile technologies increase in ubiquity and designers and scholars try to push boundaries of what can be done with them.

Before starting, these collaborators and I were aware of Andy Goldsworthy’s place-based emphasis in his public artwork, and his site-specific pieces in the Presidio created between 2008 and 2014. Karel lived in the San Francisco area. The rest of us were split between Hawaii and Boston, without easy access to the location. We also knew we were going to collaborate with the American Council of the Blind whose members in the Bay area and nationwide agreed to review the material both on- and off-site, nearby and nowhere near, to allow us to investigate possible effects that proximity might have on the experience. In 2020, I collaborated remotely with National Park Service staff at Golden Gate National Recreation Area to audio describe the printed brochure of the Goldsworthy artwork provided to visitors. The approach to that project had been based on industry best practices, following traditional and utilitarian methods. In this new project, we decided to remediate that same artifact, that visitor’s brochure, for the same audience, only to redesign the approach and do it the way the sound artists envisioned it, including with an interpretive vocal performance. In other words, this was not a project that was starting from scratch, but it was one that only could be fully understood by designing and making it and then reflecting upon what was made afterward with target audience members. In other words, it was a maker process.

Method

With those parameters and support system in place, we started our discussions about the design of this project with a few nonnegotiable constraints. The project would:

1. Use our already-developed UniD Software (www.unidescription.org). The piece had to be built or eventually transferred to this UniD platform, which we controlled and could adapt to our project. That software supported use of text or audio files for conveying description. The files could be organized as a single component, delivered all at once, or as many individual files. The organizational structure is linear and modular. The infrastructure did not allow for, as examples, live broadcasts, audio file overlaps, or a random shuffling of files. But it did perform the basics.

2. Use the UniD Apps. The final audio files had to be delivered via our existing mobile apps (available for Android and iOS). In that respect, we were designing audio content, not interfaces.

3. Be Locative. Or Not. The audio needed to relate to the physical environment of Goldsworthy in the Presidio and be geolocatable. Or not. Each audio module would be linked to a specific GPS-

coordinate location. The module would be intended for listening in that spot. And yet we also wanted the piece to enable a productive experience if listened to elsewhere.

4. Remediate the Visitor Brochure Via audio description and Sound-Art Techniques. This piece was not a stand-alone experience. It was intended to be an audio description of the existing brochure that visitors could get at the site. While that brochure was printed on paper and silent, this design would be entirely audible and allow for an equivalent experience to someone with sight looking at the brochure. The artists were asked to bridge that gap in ways that they thought was best.

5. Be Designed Foremost for People Who Are Blind or Who Have Low-Vision – Unlike an audio tour or audio guide primarily designed for people who can see well, audio description is intended to satisfy people with no or limited vision. That meant, for example, that the narrator would not make visual references to orient listeners, such as “look to your left, and you’ll see.” Assumptions about shared, baseline visual understandings — such as whether a listener knows what a eucalyptus tree looks like — were minimized.

In terms of grounding, the source material, the eight-page [official “Goldsworthy in the Presidio” brochure](#), was provided to all members of the design team. None of the sound artists listened to the 2020 utilitarian-style audio described brochure that National Park Service staff had produced to avoid responding to it rather than the source material. We had an initial meeting in mid-September 2020 to talk about the brochure, the general best practices of serving this audience, and the constraints, including the capabilities of the software.

The production process from that point was artist-led, with Graydon having primary responsibilities for the script, Karel for the location recording and editing, and Girma for the performance. The initial version of the script was created by Graydon in October 2020, based on feedback to the artist’s treatment document by NEA reviewers. The final version of this work was completed and published in July 2021. Audience feedback followed, including two on-site tests. A full analysis of audience feedback is not provided in this chapter, due to space constraints, but this chapter will include anecdotes gathered from that feedback and reference a few of the lessons learned.

In-between the first draft and public distribution, the artists did site visits, research about the artwork including interviewing Goldsworthy representatives, gathered clips of Goldsworthy talking about the pieces, made recordings on site, created sound effects, and worked on multiple iterations of the script. One version of the script around the midpoint of development received feedback from representative audience members before any recordings were made. National Park Service staff reviewed a later version of the script, too. None of the stakeholders were promised changes, but the feedback was considered in each step of the development process. In addition, the artists performed, recorded, and edited multiple versions of this piece to push the boundaries of audio description into contested spaces that mixed accessibility, artistry, and acoustic aesthetics.

The sound-artists’ final script was exported to the UniD system and made available in the app in two machine voices (an open-source female voice and the Amazon Alexa voice) and the recorded version of Girma’s vocal performance. The original 2020 NPS audio-described version to that point only had been made available using the open-source machine voice. For the release of this new material, though, the NPS’s audio-described brochure was also made available using the Amazon Alexa voice and was read by our vocal performer for a recording, too. The final auteur version created by the sound artists included the human-voice performance by our vocal performer and ambient sounds, imported sound effects, and use of binaural spatial mixing techniques. There were five audio “stops” in the experience with file lengths from 2:44 to 11:44. Each had its own distinct GPS location, which triggered the UniD mobile app,

if open on the device, to vibrate the smartphone and summon the corresponding audio onto the listener's home screen, ready for playing. In the end, the total audio description delivered by each of the two versions was between 32-35 minutes; the utilitarian version, though, broke that content into 17 distinct sections, or roughly triple the number of the auteur version.

We then gathered feedback from representative audience members, which included on-site tests with five individuals, facilitated by a research team member (Karel). One of those individuals came to the site on two separate occasions to reflect more upon and reexamine her initial response. We used a think-aloud protocol, during which participants talked about their responses to the audio files in the moment. Karel also conducted semi-structured interviews with the individuals after each visit. In addition, we built an online review system as a part of the UniD software that allowed other representative audience members to listen to the prototype and answer either open-ended or Likert-like questions remotely. We had 20 volunteers who reviewed both the sound-art and the utilitarian versions via that system. We also hosted a focus group for a mix of the on-site and off-site participants, in which we discussed their experiences with the prototype as a group.

Findings and Lessons Learned

Unlike most other auteur audio description experiments, this one primarily was artist-led, rather than guided by Disability Studies practitioners or academics. That meant the most comfortable space for these collaborators was in the sound-art realm. They had to stretch their skills the most in their processes in connecting with accessibility angles, rather than scholars or practitioners inversely aiming to make their work more "artistic." One recurring discussion along those lines was expressing to the listener, even in explicit terms, that this audio description was not an audio guide or an audio tour or even an audio brochure that blind people also could enjoy. Instead, we wanted to make it clear that this was an experimental artistic endeavor aimed specifically to serve people who are Deafblind, blind, or who have low-vision. Sighted people could enjoy it, too, but it wasn't made with them in mind. Eventually, we decided to add a line to the script that plainly stated this intent as another way to orient the listener to this specific design approach.

In June of 2020, one of Goldsworthy's primary sculptures, "Spire," which was a significant inspiration for our artists in this project, was badly burned. Arson was suspected. The area around the sculpture was closed, and we had to decide how to represent "Spire" in the audio description. Our final choice was to address the fire and damage, and even the temporary Covid-19 restrictions. This worked well for several months after publication as the National Park Service decided what to do at the site. When they reopened the area, returned "Spire" into public circulation and Covid-19 restrictions started to ease, our approach to the description was upended by the evolving reality of the site and society. We have talked about updating the piece to respond to those changes. For now, though, we are keeping the original prototype intact as a model of what we did in the moment.

When our UniD research team trains audio describers about best practices, we invariably get the question, "How long should these descriptions be?" The answer to that question needs more empirical research. In general: It depends on many factors, including what is being described, the interests of the listener, and the context of the listening. For example, a 30-second description of the Golden Gate National Recreation Area might feel inadequate in most situations, but an hour-long description, during which the listener is expected to stay stationary, maybe standing at the entrance to the park, in the sun or the rain, would be inappropriate. Determining the ideal length for audio description is beyond the scope of

this paper. For this auteur design, we produced three pieces of audio under five minutes in length and two over 10 minutes.

We received midpoint feedback and final review feedback from National Park Service staff, before giving the prototype to audiences, suggesting we should make the pieces shorter and more modular. In the end, the artists decided that as a prototype, the variable length of the audio files, as-is, could provide counter evidence and fodder for discussion in the community that argued, in the abstract, shorter is better. Reducing the work in length, the artists decided, would orient the content more toward utilitarian style. This work, as an alternative, could test the appetite and endurance of the audio description listener to gauge if high-quality content could be longer. One of the on-site audience members was asked about length, after listening to the prototype. She said, “To me that does not matter, because I have a pause button. If I want to think about something, I’ll stop, and then I’ll resume. I did not even think about that, because I was just immersed.” No one in our focus group or in any other context to date has raised concerns about the lengths of the auteur descriptions.

With a spirit of excitement and appreciation — across the board, on-site or not — the representative audience members we surveyed stated how much they enjoyed the auteur descriptions, especially the versions with the human voice performances. Almost all expressed that what they heard in the auteur version, though, was *not* what they considered to be “audio description.” It was something new, something engaging, they said, but because of the acoustic aesthetics and stylistic approach should be classified as something else. In a 10-person focus group, post-listening, the issue of whether the prototype should be called “audio description” organically was raised by a few participants with comments such as, “This really muddies the water. It’s a work of art, but a painting is not a sculpture. It’s not audio description. Or it’s really bad audio description. . . . It’s more an experiential thing, not a here’s what’s in front of me.” Another said, “It wasn’t really audio description. . . . I’d call it a soundscape.” Another added that the prototype “was exquisite. But the futurescape (it presented) was not there. The fire (that damaged the Spire) was not there. So how was that audio description?” No one in the focus group argued that it should have that label. The research participant who visited the site twice, who was not a part of that focus group, also had a reaction to the labeling of the prototype. At the end of the first time listening, she said in the discussion with the research team member: “This is different than audio description. I think we need to set that expectation from the start.”

Discussion

From a design perspective, one of the most difficult choices we had to make for this prototype was whether it would be exclusively for on-site listeners at the Goldsworthy artwork in the Presidio or opened up to a broader audience. A site-specific work would have more opportunities to experiment with locative media and the interactions of people, mobile technologies, and place. A prototype about the walk that didn’t have any locative elements would be a missed opportunity for mobile-media research. In the end, we tried to satisfy both audiences by making a prototype that had added value when on site but was still engaging and entertaining off-site. One of the primary factors that pushed us toward that straddling design approach was the sizes of the potential audiences. Remote listening could be done by many more people, and we could gather more data about acoustic style. On the negative side, making a piece that could be engaging both on-site and off meant compromising on some design aesthetics that could heighten experiences in the physical environment but simultaneously would be disorienting to someone listening from afar. We also briefly considered creating two different versions of this prototype, one for people

directly at the site and one for people not in that vicinity. But that design approach, as compelling as we all thought it could be for research purposes, needed more resources (grant funding and time) than we had available. We therefore decided to start with the design that straddled both contexts. We would like to experiment more with alternate designs in future work, especially with the variable of proximity, and we recommend that other scholars consider the potential of such work, too.

In our post-publishing analysis, we identified a variety of missed opportunities for both description that provided orientation at the site, including situating the experience in relation to landmarks, and description that helped to visualize the physical environment in deeper and more-complex ways, including moments where descriptive narration could have added details small and large to the setting based on dynamic changes in the environment. We also regularly came across questions about how much to describe, and when to focus on efficiency and let the labels do the work. For example, the “Spire” artwork is made from Monterey Cypress tree trunks. We had to decide how much detail to include about what made a cypress trunk look different than other tree trunks. If we tried to describe every aspect of the environment, the modules potentially could have been hours in length. This meant many tough decisions had to be made about what to leave out.

With our new online system of providing mobile reviews developed for this and related research projects, we can expand think-aloud protocols in the future into data-gathering opportunities that include asking specific research questions in particular places via geolocation triggering in response to those mobile moments. Different versions of the media can be delivered to different people, allowing content-focused research and this data could be gathered via smartphones in-situ and without a researcher’s direct presence. This too could affect and possibly improve the freshness and authenticity of the responses. We did not have these technological abilities available during our design process. Now that we do, our designs could be tailored to compelling research questions asked in place. In a similar vein, we mostly asked our various stakeholders for general feedback to our scripts, including in the midpoint check, which generated important but generalized feedback. That said, if we would have started the prototyping process with more specific research questions in mind, we could have investigated more specific research issues. In this stage, we added confirmation to what much of the academic literature suggested. People who cannot see or see well are craving and will appreciate creative, even auteur, forms of audio description, even if they reject the label.

Per the theme of this chapter, we recognize that an audio-description experience, especially a locative one, involves more than content or medium or a combination of those two. It involves the audience member’s context as well. An even more holistic approach, integrating tactile elements, smell, maybe even taste, could enhance experiences further. From that reflection, we recommend that researchers continue to explore ways in which embodied engagement can intersect with digital and physical contexts to create new ways of learning and being in the world. For example, one of Goldsworthy’s installations called “Woodline” features a path with curving logs along the ground that our audience members touched, followed as guides, and even stood upon, which added to the sounds they heard from their headphones and without them. After rejecting the label of this work as “audio description” during her first visit to the site, an American Council of the Blind member — a congenitally blind, middle-aged, white woman — came back and tried it again. Afterward, she remarked: “What happened was, I said, ‘OK, this is not the conventional audio description. We have a different art form here. Let’s let (the narrator) be a part of the audio thing, and within five minutes of doing that, (the narrator) was like a friend on the trail and a playmate. If you listen, there’s a big smile in that voice at all times.’”

She then added, “Art changes us, and this is an audio art, also. And the audio art that she did, in collaboration with the sounds, changed my ability to play, to understand, and to participate. Because I said, ‘I think I’ll leave my old shoes at the door and see what happens here.’”

Notes

1. Apple. “iPhone 13 - Technical Specifications.” (*Apple.com*, 2022). https://support.apple.com/kb/SP851?locale=en_US
2. Sajja Koirala, and Brett Oppegaard, “The Light Bulb Went On: A Historiography-Based Approach to Disentangling audio description’s influential U.S. roots from its common practices.” *Journal of Visual Impairment & Blindness*, 116, no. 4 (2022): 1-12. doi.org/10.1177/0145482X221116903
3. Examples include: Amelia Cavallo, “Seeing the Word, Hearing the Image: The Artistic Possibilities of Audio Description in Theatrical Performance.” *Research in Drama Education: The journal of applied theatre and performance*, 20, no. 1, (2015): 125-134; Deborah Fels, John Patrick Udo, P. Ting, Jonas E. Diamond, and Jeremy I. Diamond, “Odd Job Jack Described — A First-Person Narrative Approach to Described Video.” *Journal of Universal Access in the Information Society*, 5, (2006): 73–81; Agnieszka Szarkowska, “Auteur Description: From the Director's Creative Vision to Audio Description.” *Journal of Visual Impairment & Blindness*, 107, no. 5, (2013): 383-387; John Patrick Udo, and Deborah Fels, “‘Suit the Action to the Word, the Word to the Action’: An Unconventional Approach to Describing Shakespeare's Hamlet.” *Journal of Visual Impairment & Blindness*, 103, no. 3, (2009): 178-183; Agnieszka Walczak, and Louise Fryer, “Creative Description: The Impact of Audio Description Style on Presence in Visually Impaired Audiences.” *British Journal of Visual Impairment*, 35, no. 1, (2017): 6-17.
4. Andrea Zeffiro, “A Location of One’s Own: A Genealogy of Locative Media.” *Convergence*, 18, no. 3, (2012): 249-266.
5. Pablo Romero-Fresco, “Creativity in Media Accessibility: A Political Issue.” *Cultus: The Journal of Intercultural Mediation and Communication*, 14, (2021): 162-197.
6. Bree Hadley, and Janice Rieger, “Co-designing Choice: Objectivity, Aesthetics and Agency in Audio-Description.” *Museum Management and Curatorship*, 36, no. 2, (2021): 189-203.
7. Jay Timothy Dolmage. *Disability Rhetoric*. (Syracuse, NY: Syracuse University Press, 2014).
8. Joselia Neves, “Multi-Sensory Approaches to (Audio) Describing the Visual Arts.” *MonTI. Monografías de Traducción e Interpretación*, 4, (2012): 277-293.
9. Rachel Hutchinson, and Alison Eardley, “Museum Audio Description: The Problem of Textual Fidelity.” *Perspectives*, 27, no. 1, (2019): 42-57; Joaquim Pujol, and Pilar Orero, “Audio Description Precursors: Ekphrasis and Narrators.” *Translation Watch Quarterly*, 3, (2007): 49-60; Monica Randaccio, “Museum AD: Interpretative or Un-interpretative Audio Description?” *ESP Across Cultures*, 17 (2020): 93-112.
10. W.J.T. Mitchell. *Picture Theory: Essays on Verbal and Visual Representation*. (Chicago, IL: University of Chicago Press, 1994).

Acknowledgements

Locative Media Design as Sound Art and Scholarship

The National Endowment for the Arts (Grant 1862154-34-20) provided the primary funding for this project. Sound Artists Andy Graydon and Ernst Karel and Voice Performer Eden Girma also were primary contributors to this experimental work of Locative Sound Art. Graydon and Karel helped to conceptualize the piece, write the script, and produced and edited the sound files. Girma performed the piece for the audio recordings.