

Make a sound garden grow: Exploring the new media potential of social soundscaping

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Abstract

The Walkman and iPod have often been viewed as individualizing technologies. People use these forms of mobile media to impart a sound track of their own choosing over their experience of physical space. However, newer mobile projects have examined the links that tie mobile media and sound to experiences of movement. These projects focus on the collaborative construction of shared soundscapes through mobile media, in a sense responding to the individualizing tendencies of dominant auditory mobile media. This article draws from literature in sound studies, media studies, and locative media art to examine these relatively new forms of what we call *social soundscaping*. Through our analysis, we show the potential for new mobile sound practices that allow for the more participatory production of public soundscapes.

Keywords

iPod, locative media, mobile media, mobility, soundscapes, Urban Tapestries

The Sony Walkman has done more to change human perception than any virtual reality gadget. I can't remember any technological experience since that was quite so wonderful as being able to take music and move it through landscapes and architecture. (Gibson, 1993, n.p.)

What were once new media are often quickly enfolded into daily life and rendered somewhat invisible (Baym, 2010; Marvin, 1988). The Walkman is a prime example. As William Gibson

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suggests, the Walkman was a revolutionary technology when it was released in 1979 that allowed people to impart a personalized sound track over shared public spaces. The Walkman was a significant departure from another popular mobile technology of the time: the boom box. The boom box made private tastes public by merging the music one listened to with the shared sounds of a public space. The Walkman, on the other hand, made possible a more private form of listening. The Walkman eventually made way for different forms of mobile auditory media, including compact disc (CD) players and MP3 players. Then, in November 2001, the iPod was released and became one of the defining technologies of the decade (Kahney, 2005). The iPod became a cultural icon like the Walkman before it, and the sight of people walking through streets with earbuds in their ears became commonplace.

The Walkman and the iPod represent a specific, influential example of the link between mobile media and sound. Both these technologies have been viewed as intensely individualizing (du Gay et al., 1997), allowing people to construct their experience of space by turning away from the shared soundscapes that often define public space. As Reimer describes the Walkman in contrast to the boom box,

A personal stereo on the bus effectively cuts off the outside world while the choice of a ghetto blaster in the same situation is a rather more expressive way either to privatize the bus trip or make one's private taste public. (1995: 64)

Consequently, the Walkman and iPod have both been criticized as enabling people to 'colonize' physical space by engaging with an individualized auditory layer at the expense of a shared soundscape (Bull, 2004, 2007; Williams, 2006). However, there is no reason why the links among mobility, media, and sound have to be that way. Rather than focus on mobile media and individualized soundscapes, we examine how people can use mobile media to create social soundscapes and emphasize collaborative experiences of sound in public spaces.

To examine the collective authoring of sound through mobile media, we take an interdisciplinary approach that combines literature from sound studies, media studies, and locative media art. We begin with existing studies of sound, particularly focusing on literature that deals with the study of soundscapes. We then move on to issues of physical space and mobile media by first analyzing how individuals have used older auditory mobile media as a way to alter their experience of space and turn away from shared soundscapes. We then turn to case studies of locative media art, such as *Urban Tapestries*, *Rider Spoke*, and *Tactical Soundgardens*, that support our argument that mobile auditory media can increasingly be used to enable collective auditory experiences rather than individualized ones. We use these locative media art examples to support our argument that location-based mobile media provide opportunities to create more collaborative, open soundscapes.

Auditory mobile media has been widely studied in multiple disciplines that have examined the Walkman and iPod from critical perspectives (Bull, 2000, 2004, 2007; Cooper, 2009; Gunn and Hall, 2008; Jenkins, 2008), phenomenological perspectives (Hosokawa, 1984), and cultural perspectives (du Gay et al., 1997; Kahney, 2005). However, there is less literature on newer forms of location-based auditory mobile media that focus more on collective experiences of sound. The explorations of the links among mobile media content, sound, and physical space we detail in this article suggest that we need new understandings of the potential ways people use technologies to mediate their experience of space. These new understandings may become increasingly important as people engage in new mobile practices related to the adoption of smartphone technology. By combining literature from sound studies with these new examples of mediated, social soundscapes,

we hope to identify new potential links among mobile media, sound, and physical movement as well as identify a new area of study for new media scholars.

Sound studies and soundscapes

The study of sound crosses many different disciplines, including music, history, media studies, art, cultural studies, and communication. Therefore, 'sound studies' as a field is both multidisciplinary and varied (Sterne, 2013). Although there are numerous ways to parse and map this field, we focus on sound studies research that examines the mapping of sound onto space – the study of soundscapes. The concept of soundscapes provides an important theoretical perspective on the potential uses of mobile auditory media, particularly the more collaborative forms of mobile media we examine later in this article.

Schafer coined the term 'soundscape' in the 1970s to refer to 'any acoustic field of study', yet today and throughout Schafer's own work, soundscapes have often been studied purely as 'acoustic environment[s]' (1994: 7). Although much of Schafer's work deals with the preservation of 'natural' soundscapes, he was also interested in the practice of soundscape design and developed the concept of 'the soniferous garden', described as an 'acoustically designed park' (1994: 247). Schafer's 'soniferous garden' almost exclusively deals with sounds of nature (like water) created in a single, shared soundscape. He was actually adamant about not adding 'unnatural' sounds to the garden, arguing that designers should 'Let nature speak with its own authentic voices' (1994: 247).

While scholars have adapted Schafer's work by cataloging, archiving, and critiquing soundscapes (Augoyard and Torgue, 2005; Keizer, 2010; Labelle, 2010), fewer scholars have focused specifically on soundscape design. Blesser and Salter (2007) are a notable exception, and their work explicitly deals with the intersection between sound and spatial design through the concept of 'aural architects'. The authors examine both how virtual spaces may be designed for music and how auditory spatial awareness as an 'intelligence' may be cultivated to create a new generation of aural architects. However, Blesser and Salter's work still focuses primarily on shared sounds in physical spaces, and they note how 'iPodspace' has seemingly divorced sound and music from considerations of physical, social spaces (2007: 214).

While much of the work of soundscape studies has focused on the cataloging of sounds within soundscapes and the influence of sound environments on populations, few studies (with the possible exception of Blesser and Salter's work) have focused explicitly on the possibility of using mobile media for the design of new soundscapes. What interests us most in the intersection between sound and mobile media is the possibility for *social soundscaping*. Unlike traditional soundscapes created either naturally or by a single sound artist and listened to directly, social soundscaping is a practice that allows people to collaboratively author new soundscapes without necessarily impinging on the shared soundscape outside of headphones. This new form of soundscaping, though involving individual conditions of listening, would move the relationship between mobile media and sound from prior critiques about privatized soundscapes to an experience of sound in space that is individual (rather than collective), yet social and collaborative.

However, before we discuss the possibilities of social soundscaping with locative media, it is important to examine how older mobile auditory media – namely the iPod and the Walkman – represent an earlier response to soundscapes. While soundscape literature has focused on cataloging sounds to preserve pleasant auditory experiences, the Walkman and iPod have allowed people to construct more pleasing experiences with sound by ultimately turning away from public, shared soundscapes.

Privatized soundscapes

The sight of people moving through physical space while wearing headphones has been commonplace for nearly three decades now. As we discussed in the introduction, it is easy to forget just how revolutionary it was to be able to walk around while exerting near total control over the sounds one experienced. As Bull (2000, 2004, 2007) has written about the Walkman and the iPod, moving through physical space while listening to a sound track of one's choosing alters individuals' experience of physical space. People are able to 'carry their auditory identity in the palm of their hand' and exert control over their experience of physical soundscapes (Bull, 2006: 131). Before headphones, everyone had – to some degree – to engage in the shared experience of the sounds of a space (de Souza e Silva and Frith, 2012). If a man fought loudly with his wife on a subway car, no one could escape listening to that fight. The boom box allowed one person to exert control over a shared soundscape, but that control came at the expense of everyone else (Reimer, 1995). With the Walkman, and later the iPod, people could escape the experience of sound in public space by constructing their own private sound track. In other words, the use of headphones allowed people to exert control over the soundscapes they experienced in ways not previously possible.

Because of the control over the experience of physical space these mobile auditory technologies enabled, they have often been viewed negatively by both scholars and the popular press (de Souza e Silva and Frith, 2012). A common criticism is that these technologies lead to the partial 'privatization' of space, in a sense making space less public because people can engage in individual rather than shared sound experiences (du Gay et al., 1997). As Bull writes about Walkman users, 'they aim, through use, to replace the involuntary auditory sounds experienced in public space by their own personal soundscape placed directly in their ears' (2000: 186). The personal control over auditory experiences contributed to the view that the Walkman was an intensely individualizing technology. In fact, the original Walkman was designed with two headphone jacks so people could share their music because Sony's engineers did not believe people would enjoy such an individual, private experience. The second headphone jack proved unpopular and was removed from later models, showing that what people were searching for was an individual, private experience of space rather than a collective one (du Gay et al., 1997).

An important, related criticism of individual mobile auditory media is that people use them to ignore the physical spaces they move through (de Souza e Silva and Frith, 2012). Writing about the Walkman, Bull argues that 'Public spaces are voided of meaning and are represented as "dead spaces" to be traversed as easily and as pleasurably as possible' (2000: 79). The idea that headphones and personal music could basically negate the importance of physical space can also be seen in the award winning 'Silhouette' series of iPod advertisements that feature people dancing with headphones on a featureless, black background (Cooper, 2009). These advertisements, in a sense, draw from the centuries old idea that people can exist alone in a world of sounds and disconnect from their surroundings (Sterne, 2003). The idea of disconnection is present in many criticisms of technologies such as the Walkman and the iPod. For example, Williams (2006) writes that iPod users are 'zombies' who are so focused on their music that they have no idea what is going on around them.

In all of these examples, people listening to their music through headphones are seen as somehow removing themselves from the collective nature of public spaces. They retreat into their individualized 'mobile media sound bubbles' and the 'spaces habitually passed through in daily life increasingly lose significance and turn progressively into the "nonspaces" of daily life' (Bull, 2004: 189). While some have criticized these arguments as too extreme (de Souza e Silva and Frith,

2012), it is important to recognize that mobile auditory media have often been viewed as both intensely individual technologies and technologies that negate the importance of physical space.

The argument that people use headphones to negate shared experiences of space relates directly back to our earlier discussion of soundscapes. To Schafer, a public soundscape is a shared acoustic environment. However, as Hosokawa points out, these shared acoustic environments are often fairly unpleasant: 'Planners are in many cases exclusively engaged in planning the spatial dimension of their city, leaving the acoustic environment to one side' (1984: 173). Thus, the Walkman and the iPod offer an attractive alternative to public soundscapes because they enable people to personally choose their own soundscape. In this way, people with headphones engage in a sort of 'secret theater' (Hosokawa, 1984) in which others know they are turning away from shared sounds but cannot access the sounds they are experiencing. These private aural experiences allow people to individualize their experience but also, in a sense, negate the concerns of researchers who focus on soundscapes. The public soundscapes that researchers catalog do not exist in the isolated world of headphones. What exists is a personalized soundscape of one's choosing.

New sound art in public space

Sound artists have sought to combat the isolation of typical mobile auditory media by embracing more public, shared forms of sound art. Often these efforts move away from individual experience and focus on the collective because all users of the space are subjected to the sounds, much as the boom box exposed others in surrounding space to a mediated shared soundscape.

One example of constructing or reconstructing public space through soundscaping is that of the so-called 'musical roads'. Cho and Lee (2007) detail how engineers in South Korea and Japan designed these musical roads or 'melody roads' using extremely precise grooves at various intervals to create a melody when driven over by a car. The act of driving over the grooves then produces a series of notes heard within the car. Although these roads were originally developed for safety reasons and have been placed on particularly dangerous stretches of road in South Korea, this once safety-based sound practice has been adapted as sound art in the United States. Known as the 'William Tell' road for playing the notes to the overture, a stretch of highway in California became the first musical road in the United States. The musical road as a form of sound art focused on soundscaping a shared, collective listening space: While the driver's mobility produces sounds, the road as a soundscape can be heard by others in the space and reconfigures the shared soundscape of that patch of highway.

Another example of sound art that creates meaning by reshaping a shared soundscape is the mobile art project *Sound Mapping*. 'Sound Mapping is a site specific music event to be staged in the Sullivan's Cove district of Hobart', and the installation involves four portable computers housed in wheelable hardcover suitcases to serve as 'mobile sound-sources' (Mott and Sosnin, 1997). However, the installation is not just an example of radios on wheels because the sounds projected from each mobile sound-source change based on path and participation. Unlike the musical road on which a single driver may reconfigure the soundscape through his or her driving, Sound Mapping creates a new soundscape influenced by the artist and other individuals in the shared space: 'Each individual plays distinct music in response to location, movement and the actions of the other participants. In this way a non-linear algorithmic composition is constructed to map the footpaths, roadways and open spaces of the region and the interaction of participating individuals' (Mott and Sosnin, 1997, n.p.). Sound Mapping takes the streets and sidewalks of Sullivan's Cove and 'maps them' by constructing location-specific and interactive sound. These

constructions then alter the soundscape for everyone who passes through the space. Furthermore, the inclusion of audience reaction in affecting the sound produced makes the project not only mobile but dynamic.

Many other media artists have also played with the notion of reconfiguring space through alterations to an expected soundscape. For example, artist Tesia Kosmalski created an art installation series called 'echo coats'. Kosmalski (2011) writes the following explanation of her series:

The "Echo Coats" are sound-driven garments that provide a means for women to playfully and sonically intervene in the shared auditory experiences of public spaces. The Andante Coat teases the world around its wearer by uttering sensual cosmetic titles, originally meant to tempt her own purchasing power. And at the attack of a boot heel on the pavement, the Staccato Coat releases machine sounds from its shoulders to urge people to get out of her way (n.p.).

Because these coats can be worn versus wheeled around and are less 'external' to the wearer than a suitcase, the echo coats also offer an example of how new sound art in public spaces attempts to undo the individual and isolating spaces of 'private soundscapes' created through headphones.

These examples share more in common with the boom box as a form of mobile media than the Walkman and are important because they speak to or against privatized soundscapes created through the use of headphones. Rather than the soundscape as individual, interior, or isolating, these examples of public sound art strive to recreate a connection among sound, bodies, movement, and space. However, these examples are also limiting in a sense. They connect people to space through sound that is somewhat inflexible, designed by the artist, and unavoidable to the listener. The boom box was regularly criticized because people could force others to listen to the music played through the device, and these sound installations exhibit that same kind of coerciveness. In addition, like previous comments made on mass media communication, sound art is not 'by the people', although it may be for the people; it is instead a form of 'top-down' authoring by artists for collective consumption. As we discuss in the following section, what interests us most of all is not the movement from individual to mass experiences of sound (found historically in sites of propaganda, loudspeakers, and boom boxes, just to name a few examples); instead, we are most interested in the new potential for the collaborative authoring of public soundscapes that allow people to contribute sounds that others can then access through various mobile media.

A move toward a different type of mobile sound

A major difference between the sound art examined above and literature on the Walkman and the iPod is that sound art projects tend to be broadcast through the entirety of a public space in contrast to the interior experience of headphones. As Sterne writes, 'Headphones isolate their users in a private world of sounds' (2003: 87). This 'private world' can contribute to a partial disconnection from surrounding space because rarely do the sounds played through the headphones have much to do with one's physical context. However, a few artists have explored projects that show headphones do not have to disconnect users from their surroundings; instead, headphones and mobile media can be used to enact an augmented experience of physical space that adds additional informational layers to individuals' physical movement (Farman, 2012).

To understand the ways these auditory layers of information merge with experiences of physical space, it helps to turn to de Souza e Silva's (2006) concept of hybrid space. de Souza e Silva introduces the concept through an analysis of what occurs when people access location-based

information through their mobile devices. Mobile content, especially text messages and voice calls, has traditionally been understood as enabling people to interact with information that is separate from one's physical surroundings. For example, texts messages and voice calls allow people to stay in constant contact with absent others (Licoppe, 2004; Ling, 2004), often at the expense of people in their surrounding space (de Gournay, 2002; Gergen, 2002; Habuchi, 2005). However, now that most new mobile phones feature location awareness – the ability for a device to be located in physical space and provide information about that space – there is new potential for location-specific mobile content. According to de Souza e Silva, location-based information – whether that information is in the form of nearby restaurants, nearby friends, or more germane for this article, place-based auditory narratives – becomes part of individuals' experience of the space rather than a separate, distinct informational layer. de Souza e Silva's concept of hybrid spaces has been important for the study of location-aware mobile devices because it refuses the urge to analyze physical space and digital information as somehow separate; instead, she argues that we must analyze both together as a hybrid space that features the physical and digital in a comprehensive whole (de Souza e Silva and Frith, 2012; Gordon and de Souza e Silva, 2011).

Hybrid spaces and location awareness are important for understanding our argument about the new potentials of auditory mobile media content. When someone uses auditory mobile media like the Walkman or the iPod, they are basically introducing an auditory layer separate from that physical space (de Souza e Silva and Frith, 2012); the same applies to voice conversations through a mobile phone. The actual physical location matters little and does not necessarily affect the music being played through headphones or the voice on the other end of the phone conversation. However, when people use location-based applications like the ones we discuss below, the content they access depends on their location and their physical movement through space (de Souza e Silva and Sutko, 2011). The place-specific nature of this informational layer opens up new potential for understanding the role mobile media can play in experiences of spaces and opportunities for examining the collaborative potential of new forms of social soundscaping.

Likely the most influential early explorations of how mobile media can be used to combat auditory privatization while still preserving individual listening were Audio Walks. Audio Walks showed how mobile media can be used to alter experiences of a physical space through auditory narrative. Examples such as Janet Cardiff's *Her Long Black Hair*; Teri Rueb's *Itinerant*; and Jeff Knowlton, Jeremy Hight, and Naomi Spellman's *34 N 118 W* overlaid audio narratives on a physical location. In Cardiff's earlier work, she recorded spatial narratives to CD and provided participants with CD players and headphones. The participants then walked through the space and listened to audio tracks that combined both narrative elements and instructions about navigating the physical space (e.g. 'go down the stairs to your left'). Despite the fact that Cardiff's early works used the relatively mundane technology of the CD player, Manovich claimed they

represent the best realization of augmented space paradigm so far – even though Cardiff does not use any sophisticated computer, networking and projection technologies. Cardiff's 'walks' show the aesthetic potential of overlaying a new information space over a physical space. The power of these 'walks' lies in the interactions between the two spaces – between vision and hearing. (2006: 226)

Cardiff's later work used more advanced mobile technologies to explore how mobile auditory media could be used to connect individuals to their surrounding space in new ways. In Cardiff's *Her Long Black Hair*, people traveled through Central Park on a 35-minute guided journey, aided

by mobile devices equipped with global positioning system (GPS) receiver. As they passed by locations in Central Park, they accessed audio narratives that interwove 'stream-of-consciousness observations with fact and fiction, local history, opera and gospel music, and other atmospheric and cultural elements' (Janet Cardiff: *Her Long Black Hair*, 2005, n.p.). Rueb's *Itinerant* functioned in a similar manner, asking participants to travel through Boston Commons and access a site-specific sound environment that involved both an imagined narrative based on Mary Shelley's *Frankenstein* and aspects of local, place-dependent knowledge. Knowlton, Hight, and Spellman's 34 N 118 W provided participants with headphones and a GPS-enabled mobile device and narrated the space of the Freight Depot in downtown Los Angeles, exposing the listener to the hidden history of that space through an artist-constructed soundscape.

These Audio Walks and other similar projects all explored how mobile auditory media could be used to explore location-based audio narratives (Farman, 2012). These art projects often involved the use of location-aware technologies and the overlay of audio information on physical space, situating those narratives in the physical space occupied by the listener. The projects are not only designed to impact the perception of the physical space individuals pass through, they also shift the understanding of narrative. The auditory narrative becomes a part of that place's soundscape, but the place also becomes a part of the narrative. For the participants, the two become inextricably linked in ways fundamentally different from how people use the Walkman and iPod to introduce an auditory layer separate from, rather than connected to, the physical context (de Souza e Silva and Frith, 2012).

Just as with the sound art explored in the previous section, these projects are examples of top-down explorations of links that tie together mobile media, sound, and location. They were all designed by artists who then created the auditory layer that dictated how people would move through space. What is missing from these examples is collaborative authoring. These are examples of artists, designers, and academics intervening to alter existing soundscapes, but the people who are affected by these interventions then have little (or no) opportunity to determine those soundscapes. The Walkman and the iPod represent the opposite phenomenon. People use these forms of mobile auditory media to intervene in the public soundscape by exerting control over the sounds they experience; however, their interventions operate on an individual level, altering the experience of sound for them while turning away from the collective nature of more public soundscapes (de Souza e Silva and Frith, 2012).

A different category of sound art merges the individualistic control of the Walkman and iPod with the shared nature of artist-designed Audio Walks. These projects focused on designing collaborative interfaces that explored the collaborative embedding of audio narratives in physical space. For example, *Urban Tapestries* was a platform that allows individuals to 'embed social knowledge into the new wireless landscape of the city' (Urban Tapestries, 2005, n.p.). The goal of the project was to excavate the history and social knowledge of specific places, accumulating the local knowledge of the participants. The user-generated stories became a new way to rhetorically construct the public spaces people move through, and the meanings of the stories were changed when experienced in actual places. *Urban Tapestries* showed how mobile media can be used to compose collaborative soundscapes that move away from the more individual experiences of traditional mobile auditory media.

Another example of an artistic examination of mobile media, physical location, and sound is *Blast Theory's Rider Spoke*. With *Rider Spoke*, individuals in London (and other cities) were provided with a bicycle and a location-aware mobile device. They were then instructed to bicycle alone and at night through the streets of the city. They were provided with headphones, and through the headphones a voice prompted them with questions designed to cause them to reflect on their

lives. They were also urged to find an appropriate ‘hiding place’ to record answers to the questions. Once an answer was recorded in a specific hiding place, other participants could see the location of that place on a map through a graphical display and go to that hiding place to access an anonymous audio recording of an answer to one of the questions. An example of one of the anonymous recordings comes from a female speaker who talks about a man’s hands that were ‘like paper’.

His hands always felt like paper. Paper sounds like a negative thing but it’s not, he has the softest hands, and but there’s something dry about them that’s so [pause] beautiful I feel like I can feel the creases and there’s a comfort and when I hold his hands I felt held [pause] and and [pause] Just so many things I want but don’t feel like I have right now at this moment [pause] and yeah, that’s it. (Rider Spoke, 2008, n.p.)

Rider Spoke imparted an extremely personal auditory narrative on the often ignored, out of the way hiding places present in any large urban area. When a personal reflection was embedded in that hiding place, the place became more than just an anonymous place. It became a location to access a mnemonic soundscape that was both highly private and publicly shared. Ultimately, through the merging of personal narrative, sound, and location, Rider Spoke encouraged the collective authoring of a new kind of urban soundscape based on anonymity and experience.

Projects such as Urban Tapestries and Rider Spoke show the potential for location-based auditory media to open up new spaces of critical self-reflection and new opportunities to challenge entrenched social and political power structures. As de Certeau (1988) argued, social memory is embedded in place, ‘*That’s* where old lady Dupuis used to live,’ and ‘*You see*, here there used to be’ (1988: 108). Yet so many of our social spaces have attempted to erase memories of the past. Gentrified neighborhoods erase traces of the less privileged who have been forced to leave. Sites of sexual violence, such as the Ariel Castro’s Cleveland home where he kept three women captive, are destroyed as a way of erasing the unpleasantness of the past. Imagine a version of Rider Spoke that explicitly creates soundscapes designed to bring forth the memories of the past and challenge dominant narratives. Projects like Urban Tapestries and Rider Spoke show the potentiality for using auditory location-based media to collectively create soundscapes that speak back against ‘official’ spatial narratives and open up possibilities for new voices to collaboratively construct our experience of place and movement.

While the two projects discussed above focus on spoken word soundscapes, Mark Shepard’s (2011) *Tactical Soundgardens* focuses on the collaborative authoring of nonverbal soundscapes. *Tactical Soundgardens* explores how people can use the platform to cultivate “public” sound gardens within contemporary cities’ (Shepard, 2011, n.p.). Individuals use the authoring platform to ‘plant’ sounds within a positional environment (Shepard, 2011, n.p.), and then other people can use headphones to access these digital soundscapes as they move through an urban area. The goal of *Tactical Soundgardens* is to invoke the idea of public community gardens cultivated through local participation, and unlike *Urban Tapestries* and *Rider Spoke*, *Tactical Soundgardens* focuses on the cultivation of a nonverbal public soundscape to ‘reintroduce a form of active participation in the articulation of public space’ (n.p.). By encouraging people to ‘plant’ sounds, *Tactical Soundgardens* responds directly to the privatization of mobile media like the iPod, turning ‘passive mobile listeners into active participants in shaping the sonic topography of urban public space’ (Shepard, 2011, n.p.). This project enables the soniferous garden that Schafer first proposed, but rather than a soundscape with shared values aimed at letting ‘nature speak in its own authentic voices’ (Schafer, 1994: 247), *Tactical Soundgardens* allows people to collaboratively share, access, change, and negotiate the public soundscape.

The final exploration of mobile media and sound we want to discuss is the mobile application RjDj, which in some ways is significantly different than the examples examined above. Unlike the other projects discussed in this section, RjDj is a mobile application freely available in the Apple app store that reimagines the relationship between mobile media and place. As Crawford describes,

RjDj encourages listeners to use the app while walking around, hearing the sounds of the city or countryside refracted through the filters and effects of the application. It creates a compelling sensation of displacement in the real, as the everyday sounds of the environment are heard through headphones, still present but strangely modified It reverses the assumption of headphones being worn as a sign of disengagement from the immediate aural surroundings and produces new forms of immersion. (2012: 216)

RjDj works as a response to the traditional conceptualization of mobile media as ‘disconnecting’ people from the spaces they move through. It instead shows how mobile media like the iPhone or the iPod Touch can alter experiences of shared sounds, in this case by taking a space’s soundscape and altering it through the combination of a mobile device’s microphone and a pair of headphones. While the collective authoring emphasized in the other projects we discussed is not as present in RjDj, the application does feature social elements that are equally interesting. People have the option of recording the set of filtered sounds created through the combination of their movement and the application’s algorithms. They can then share those recordings with other people. As Crawford writes, these recordings provide ‘even temporarily, a sense of listening to a place as heard by another – a transmitted listening to location’ (2012: 217). This represents a different type of social soundscaping, showing the different potentials of new media for changing the way we conceptualize the links between mobile media and sound.

While most of the examples we detailed focused on locative media art projects, applications available on iPhones and Android phones have begun exploring similar topics. For example, applications like Sociallight (Humphreys and Liao, 2011), Foursquare (Frith, in press), and Textopia allow people to textually annotate their surrounding space by uploading geotagged messages (Løvlie, 2011). de Souza e Silva and Frith (2012) argue that these location-based applications and locative media artworks enable new ways for people to both ‘read’ and ‘write’ space. In a sense, the uploading of geotagged messages becomes a form of digital graffiti that allows people to contribute to the ways people experience place in new ways. People can write geotagged reviews on Yelp or upload geotagged images on Instagram. Other people who go to these locations are then able to access this information. These forms of collaborative spatial authoring create a new layer of user-generated information that merges with the information (e.g. street signs and store fronts) already present in a place. We can expect that in the future we will see more and more applications enable the uploading of auditory, location-based files as a relatively new way to annotate physical space. As Fagerjord (2011) notes in a study on the design of locative literary texts, sound is often a better medium for conveying location-based information than the relatively small screen of mobile devices. The examples we discussed allow for a new collaborative authoring in constructing urban soundscapes, and as smartphone adoption continues to increase, there is even greater potential for new forms of social soundscaping as more people contribute to the ways physical space can be mediated through location-aware mobile media.

While our discussion here has focused on the positive and empowering possibility of collaboratively authored soundscapes, it is also important to note a potential critique of the types of social soundscaping discussed in this article. Dourish and Bell argue that mobile media can become a new ‘lens through which the spatialities of urban space can be viewed’ (2011: 120).

What we are arguing is that these technologies also allow for a new way the spatialities of urban space can be *heard*. However, the danger of creating increasingly dense layers of location-based information is that people who do not have the correct technologies or digital literacies will be unable to access these spatial markers (de Souza e Silva and Frith, 2010; Frith, 2012). Unlike Schafer's soundscapes, hybrid spaces are not necessarily available to everyone, and the types of mediated social soundscaping detailed here will only be accessible for people who have the ability and willingness to access and contribute to these new social soundscapes. If these social soundscapes continue to develop, we may introduce new forms of differentiation and exclusion to public space, allowing certain groups to construct shared soundscapes while others are left with the unfiltered 'noise' of the city.

Conclusion

Mobile media have undoubtedly changed over the last half decade. Increasingly, people carry around devices that act as phones, tools to access the internet, and music players. These improved technological capabilities provide new opportunities for connecting with physically proximate others and accessing information about one's surroundings. The literature on new mobile practices is growing quickly, with an increased focus on mobile social applications, mobile embodiment, mobile gaming, and location-based information. However, there is a lack of existing research that examines the new auditory potential of mobile media. As we showed in this article, mobile media can increasingly be used to create new forms of social soundscaping, allowing people to contribute aural layers to the authoring of hybrid spaces.

This article examined the links between mobile media, sound, and physical space from an interdisciplinary perspective. We drew from literature in sound studies, media studies, and locative media art to show how new mobile practices may force us to reconceptualize traditional understandings of mobile auditory media. Increasingly, people can contribute to the information present in a space by, in a sense, 'writing' that space (de Souza e Silva and Frith, 2012). As we showed, people may also begin using auditory information as a new way of sharing experiences about physical space, contributing to new forms of social soundscapes that are user generated and dynamic. To understand the potential of these newer forms of mobile auditory media, it will be important to draw from existing literature on sound and physical space as well as more media-focused research. This article provided an initial step in that direction, and we hope that in the future, media scholars will play an active role in shaping how these sound gardens grow.

References

- Augoyard JF and Torgue H (2005) *Sonic Experience: A Guide to Everyday Sounds*. McCartney A and Paquette D (Trans.) Quebec, Canada: McGill-Queen's University Press.
- Baym N (2010) *Personal Connections in the Digital Age*. Cambridge, MA: Polity Press.
- Blessner B and Salter LR (2007) *Spaces Speak, Are You Listening?* Cambridge, MA: The MIT Press.
- Bull M (2000) *Sounding Out The City: Personal Stereos and The Management of Everyday Life*. Oxford, UK: Berg.
- Bull M (2004) Sound connections: an aural epistemology of proximity and distance in urban culture. *Environment and Planning D* 22(1): 103–116.
- Bull M (2006) Investigating the culture of mobile listening: from Walkman to iPod. In: O'hara K and Brown B (eds) *Consuming Music Together: Social and Collaborative Aspects of Music Consumption Technologies*. New York, NY: Springer, pp. 131–149.
- Bull M (2007) *Sound Moves: iPod Culture and Urban Experience*. New York, NY: Routledge.

- Cho J and Lee R. (2007). Singing streets and melody roads. In: *ABC World News with Diane Sawyer*. Available at: <http://abcnews.go.com/WN/Webcast/story?id=3931873&page=1> (accessed 1 February 2013).
- Cooper TB (2009) Appropriating visual form: the iPod “silhouette” campaign as representative form. *Visual Communication Quarterly* 16(2): 90–107.
- Crawford K (2012) Four ways of listening with an iPhone: from sound and network listening to biometric data and geolocate tracking. In: Hjorth L, Burgess J and Richardson I (eds) *Studying Mobile Media: Cultural Technologies, Mobile Communication, and the iPhone*. New York, NY: Routledge, pp. 213–228.
- de Certeau M (1988) *The Practice of Everyday Life*. Minneapolis, MN: University of Minnesota Press.
- de Gournay C (2002) Pretense of intimacy in France. In: Katz J and Aakhus L (eds) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge, MA: Cambridge University Press, pp. 193–205.
- de Souza e Silva A (2006) From cyber to hybrid: mobile technologies as interfaces of hybrid spaces. *Space and Culture* 3: 261–278.
- de Souza e Silva A and Frith J (2012) *Mobile Interfaces in Public Spaces: Locational Privacy, Control and Urban Sociability*. New York, NY: Routledge.
- de Souza e Silva A and Sutko D (2011) Theorizing locative technologies through philosophies of the virtual. *Communication Theory* 21(1): 23–42.
- Dourish P and Bell G (2011) *Divining a Digital Future*. Cambridge, MA: MIT Press.
- du Gay P, Hall S, Janes L, et al. (1997) *Doing Cultural Studies: The Story of The Sony Walkman*. London, UK: Sage.
- Fagerjord A (2011) Between place and interface: designing situated sound for the iPhone. *Computers and Composition* 28: 255–263.
- Farman J (2012) *Mobile Interface Theory*. New York, NY: Routledge.
- Frith J (2012) Splintered space: hybrid spaces and differential mobility. *Mobilities* 7(1): 131–149.
- Frith J (in press) Writing space: examining the potential of location-based composition. *Computers and Composition*.
- Gergen K (2002) The challenge of absent presence. In: Katz J and Aakhus L (eds) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge, MA: Cambridge University Press, pp. 227–241.
- Gibson W (1993) Time out. *Time Out* 6: 49.
- Gordon E and de Souza e Silva A (2011) *Network Locality: How Digital Networks Create a Culture of Location*. Boston, MA: Blackwell Publishers.
- Gunn J and Hall MM (2008) Stick it in your ear: the psychodynamics of iPod enjoyment. *Communication and Critical/Cultural Studies* 5(2): 135–157.
- Habuchi I (2005) Accelerating reflexivity. In: Ito M, Okabe D and Matsuada M (eds) *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life*. Cambridge, MA: MIT Press, pp. 165–182.
- Hosokawa S (1984) The walkman effect. *Popular Music* 4: 165–180.
- Humphreys L and Liao T (2011) Mobile geotagging: reexamining our interactions with urban pace. *Journal of Computer Mediated Communication* 16: 407–423.
- Janet Cardiff: Her Long Black Hair (2005) Available at: <http://www.cardiffmiller.com/artworks/walks/long-hair.html> (accessed 12 December 2013).
- Jenkins E (2008) My iPod, my iCon: how and why do images become icons? *Critical Studies in Media Communication* 25(5): 466–489.
- Kahney L (2005) *The Cult of iPod*. San Francisco, CA: No Starch Press.
- Keizer G (2010) *The Unwanted Sound of Everything We Want: A Book About Noise*. New York NY: PublicAffairs.
- Kosmalski T (2011) The echo coat series. In: Tesia Kosmalski. Available at: <http://tesiakosmalski.com/THE-ECHO-COATS-SERIES> (accessed 21 February 2013).
- Labelle B (2010) *Acoustic Territories: Sound Culture and Everyday Life*. New York, NY: Public Affairs.

- Licoppe C (2004) Connected presence: the emergence of a new repertoire for managing social relationships in a changing communication technoscape. *Environment and Planning D: Society and Space* 22: 135–156.
- Ling R (2004) *The Mobile Connection: The Cell Phone's Impact on Society*. San Francisco, CA: Morgan Kaufman.
- Løvlie AS (2011) Annotative locative media and G-P-S: granularity, participation, and serendipity. *Computers and Composition* 28: 246–254.
- Manovich L (2006) The poetics of augmented space. *Visual Communication* 5(2): 219–242.
- Marvin C (1988) *When Old Technologies Were New: Thinking about Electric Communication in the Late Nineteenth Century*. Oxford, UK: Oxford University Press.
- Mott I and Sosnin J (1997) Sound mapping: an assertion of place. In: Reverberant. Available at: <http://www.reverberant.com/sm/paper.htm> (accessed 18 February 2013).
- Reimer B (1995) The media in public and private spheres. In: Fornas J and Bolin G (eds) *Youth Culture in Late Modernity*. London, UK: Sage, pp. 58–71.
- Rider Spoke (2008) Blast theory. In: YouTube. Available at: <http://www.youtube.com/watch?v=d sdfBAjYnh0> (accessed 10 February 2013).
- Schafer RM (1994) *The Soundscape: Our Sonic Environment and The Tuning of the World*. Rochester, VT: Destiny Books.
- Shepard M (2011) Tactical soundgardens. In: *Tactical Soundgardens*. Available at: <http://www.tacticalsoundgarden.net/> (accessed 15 October 2012).
- Sterne J (ed) (2013) *The Sound Studies Reader*. New York, NY: Routledge.
- Sterne J (2003) *The Audible Past: Cultural Origins of Sound Reproduction*. Durham, NC: Duke University Press.
- Urban Tapestries (2005) Social matrices. In: *Urban Tapestries*. Available at: <http://research.urbantapestries.net/> (accessed 1 February 2013).
- Williams A (2006) Americans experiencing technological overload. In: *Newsmax*. Available at: <http://archive.newsmax.com/archives/articles/2006/5/18/144041.shtml> (accessed 21 February 2013).

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